

University of New Haven

# UNDERGRADUATE CATALOG

2010-2012



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**UNIVERSITY OF  
NEW HAVEN**

**UNDERGRADUATE  
CATALOG  
2010–2012**

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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

Campus Access Services (Voice/TDD): 203.932.7332

Health Services Office: 203.932.7079

Health Services Fax: 203.931.6090

Website: *www.newhaven.edu*

The University of New Haven publishes its official undergraduate catalog electronically; it is available at [www.newhaven.edu](http://www.newhaven.edu) <<http://www.newhaven.edu>> . The undergraduate catalog applicable to students admitted for each fall undergraduate semester is established and posted each July prior to the beginning of the fall academic term. Academic policies and curriculum changes recommended by the Faculty Senate prior to the end of the preceding spring academic term and approved by the provost by June 30 are generally applicable to the official fall catalog. New courses, course changes, new programs, and program changes that occur during the academic year may become available prior to the next fall term. They will be reflected in updated versions of the fall catalog that will also appear on-line at [www.newhaven.edu](http://www.newhaven.edu) <<http://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 2010. Undergraduate students admitted to the University for Fall 2010 and thereafter are bound by the regulations published in this catalog. Those admitted prior to Fall 2010 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 non-immigrant 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 Campus Access Services 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 of New Haven's official catalogs are those found on the institution's website at <http://www.newhaven.edu/academics/20937/>. The University reserves the right to make periodic changes to the catalogs; such as changes are presented on the website with the dates upon which the changes are to take effect. The changes apply to all prospective and current students of the University. This published catalog incorporates all periodic updates and changes in effect at the time of its publication. The official catalog located on the University's website should be consulted for the most current and authoritative information.*

*The University further reserves the right to make changes at its own discretion in admission requirements, tuition and fees, staffing, course offerings, schedules, and regulations.*



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,

A handwritten signature in black ink, which appears to read "Steve Kaplan". The signature is fluid and cursive, with a large initial "S" and "K".

Steven H. Kaplan

President



# CONTENTS

The University .....	8	Registration.....	44
Colleges of the University.....	10	Academic Regulations .....	45
Degrees Offered by the University.....	12	Tuition, Fees, and Expenses.....	56
University Policies .....	13	Financial Aid.....	61
University Curricula.....	16	College of Arts and Sciences.....	71
University Core Curriculum.....	16	College of Business.....	113
Academic Advising .....	19	Tagliatela College of Engineering.....	127
Experiential Education Degree Requirement for the Baccalaureate Degree.....	19	Henry C. Lee College of Criminal Justice and Forensic Sciences.....	161
Honors Program.....	20	University College.....	179
Developmental Studies Program.....	21	Courses .....	183
Freshman Experience Seminar.....	22	Course Descriptions .....	184
The University Community.....	23	Board, Administration, and Faculty .....	285
Academic Support Systems.....	23	Academic Calendar .....	320
Student Services.....	24	Index.....	322
Student Activities .....	29	Campus Map .....	Inside Back Cover
Campus Facilities .....	32		
Office of University Advancement.....	34		
Research and Professional Facilities .....	35		
Admission To The University.....	37		
Full-Time Admission.....	37		
Part-Time Admission .....	42		

# Undergraduate Programs of Study

## College of Arts and Sciences

---

### Degree Programs

Art, B.A. ....	109
Biology, B.S. ....	76
Biochemistry .....	76
General Biology .....	77
Pre-medical/Pre-dental/Pre-veterinary .....	76
Biotechnology, B.S. ....	77
Chemistry, B.A. ....	80
Communication, B.A. ....	82
Communication, B.S. ....	82
Dental Hygiene, A.S. ....	95
Dental Hygiene, B.S. ....	96
English, B.A. ....	87
Literature .....	87
Writing .....	87
Environmental Science, B.S. ....	79
Global Studies, B.A. ....	88
Graphic Design, B.A. ....	109
Digital Art and Design .....	110
History, B.A. ....	90
Interior Design, B.A. ....	111
Pre-architecture .....	112
Liberal Studies, B.A. ....	74
Marine Biology, B.S. ....	79
Mathematics, B.A. ....	99
Education .....	100
Mathematics, B.S. ....	100
Computer Science .....	100
Applied Mathematics .....	101
Statistics .....	101
Music, B.A. ....	106
Music Industry, B.A. ....	107
Music and Sound Recording, B.A., B.S. ....	108

Nutrition and Dietetics, B.S. ....	96
Political Science, B.A. ....	93
Psychology, B.A. ....	103
Community-Clinical .....	104
Forensic Psychology .....	104
General .....	103
Theatre Arts, B.A. ....	83
Arts Administration .....	84
Design .....	84
Performance .....	83

### Certificates

Public Policy .....	94
---------------------	----

## College of Business

---

### Degree Programs

Accounting, B.S. ....	116
Finance, B.S. ....	118
Hotel and Restaurant Management, B.S. ....	124
Management, A.S. ....	120
Management, B.S. ....	120
Management of Sports Industries .....	120
Management of Sports Industries, B.S. ....	124
Marketing, B.S. ....	121
Public Administration, B.S. ....	126
Tourism and Event Management, B.S. ....	124

## Tagliatela College of Engineering

---

### Degree Programs

Chemical Engineering, B.S. ....	132
Chemistry, B.S. ....	134
Civil Engineering, B.S. ....	147
Computer Engineering, B.S. ....	137
Computer Science, A.S. ....	141



Computer Science, B.S. ....	139
Electrical Engineering, B.S. ....	142
General Engineering, B.S. ....	155
Information Technology, B.S. ....	144
Mechanical Engineering, B.S. ....	150
System Engineering, B.S. ....	157

### **Certificates**

Biomedical Engineering .....	157
------------------------------	-----

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

---

### **Degree Programs**

Criminal Justice, A.S. ....	167
Criminal Justice, B.S. ....	164
Corrections .....	164
Crime Analysis .....	164
Forensic Psychology .....	164
International Justice and Security .....	165
Investigative Services .....	166
Juvenile and Family Justice .....	166
Law Enforcement Administration .....	166
Victim Services Administration .....	166
Fire and Occupational Safety, A.S. ....	176
Fire Science, B.S. ....	174
Fire/Arson Investigation .....	174
Fire Administration .....	174
Fire Science Technology .....	175
Fire Protection Engineering, B.S. ....	175
Forensic Science, B.S. ....	169
Legal Studies, A.S. ....	172
Legal Studies, B.S. ....	169

Dispute Resolution .....	171
Paralegal Studies .....	171
Public Affairs .....	170

### **Certificates**

Crime Analysis .....	164
Criminal Justice Management .....	167
Fire/Arson Investigation .....	174
Fire Prevention .....	177
Forensic Computer Investigation .....	167
Industrial Fire Protection .....	177
Information Protection and Security .....	168
Law Enforcement Science .....	168
Paralegal Studies .....	172
Private Security .....	168
Victim Services .....	168

# THE UNIVERSITY

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**UNIVERSITY OF  
NEW HAVEN**

*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 aca-

demically, 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 (NEASC), Inc., a nongovernmental, nationally recognized organization whose affiliations range from elementary schools to collegiate institutions offering postgraduate instruction.

Accreditation by NEASC 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 NEASC 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's 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 tra-

ditional 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 management, accounting, marketing, finance, management of sports industries, hotel and restaurant management, and tourism and event 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, foren-

sic 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.

## 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's programs and a variety of graduate certificates. The Main Campus in West Haven offers all our graduate programs. Courses leading to the master's 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's 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 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, fire safety and missing person reports.

## 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 Email Accounts

Upon acceptance to the University, each student is assigned a UNH email account. This login is used for a variety of purposes including gaining access to Blackboard, the University's central record-keeping platform, email distribution lists, emergency warning notification systems, and others. Consistent with the goals of providing timely information and limiting the use of paper-based communication, *the University deems its email system to be an official means of notification to staff and students, equivalent to registered mail.* Students must review their UNH email on a consistent and regular basis. The students may not



establish a non-UNH email address as their principal address for receipt of email from UNH faculty, staff, or system-wide communication unless a given mechanism specifically encourages or provides for the use of non-UNH addresses. Forwarding of mail from the students' UNH account to their commercial accounts is acceptable.

# UNIVERSITY CURRICULA

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## 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 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\*

EAS 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\*

EAS 107 Introduction to Engineering\*

EAS 300 Global Solutions for Sustainability\*

EC 134 Principles of Economics II

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\*

DAD 101 Introduction to Multimedia\*

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\*

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

Note: History majors will instead choose one course from CC 2.3, 4.2, or 5.1.

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  
 LS 340 Equality and Law  
 LS 440 Law and Policy  
 PS 121 American Government and Politics  
 PS 122 State and Local Government and Politics  
 PS 332 Constitutional Law\*  
 UNIV 501 Oskar Schindler Humanities Course

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 501 Oskar Schindler Humanities

CC 5.2 Select one of the following:

Foreign Language (3–6 credits)  
 CJ 535 Global Perspectives on Crime and Justice  
 DI 175 Food, Nutrition, and Culture\*  
 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\*  
 EAS 300 Global Solutions for Sustainability\*  
 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  
 UNIV 501 Oskar Schindler Humanities Course

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  
 AT 333 Survey of African-American Art  
 AT 340 Contemporary Issues of Art and the Environment  
 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 the students' 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.

## Experiential Education Degree Requirement

Each graduating student of UNH must complete at least one Experiential Education opportunity as part of their academic program. Experiential Education allows students to relate academic learning to practical experience. The Experiential Education requirement will allow students the opportunity to explore career options through work-integrated learning, contribute to original research through faculty- mentored research opportunities, impact the community while advancing learning objectives through academic service learning, or broaden their understanding of our global society through study abroad/or study away.

Critical to the concept of Experiential Education is the integration of theoretical knowledge with applied skills. Students should consult with their academic advisors on the integration of their academic and career

goals with Experiential Education, identifying the best opportunity to meet their individual goals.

### *Flexibility of the Baccalaureate Degree Experiential Education Requirement*

As the intent of the Experiential Education degree requirement at UNH is to encourage students to learn through experience, collaboration, and discovery, UNH extends the concept of flexibility to the Experiential Education degree requirement.

Except as described below, all students will be expected to complete at least one Experiential Education Opportunity during their academic programs at the University of New Haven. The University of New Haven defines Experiential Education to include Work-Integrated learning (Internship, co-op, practicum); Academic Service Learning (designated by “s” in the schedule of classes); Study Abroad/Study Away; and Faculty-Mentored Undergraduate Research Opportunities.

Students may, with the permission of the appropriate Dean’s representative

- 1) Substitute an Independent Study experience course that contributes to the student’s academic goals in an applied way as deemed appropriate to the learning objectives of the program by the faculty advisor.
- 2) Meet the requirement through transferring in a comparable experience-based course from an accredited institution. Thus, a student who successfully completes an Experiential Education experience at one college, prior to transferring to UNH, will not be required to complete another Experiential Education requirement. However, as there are various modes of offering Experiential Education throughout the University, students transferring to a new program within UNH may find that a required course that is also is Experiential Education course must still be taken.

## **The Honors Program**

The UNH Honors Program is designed for exceptionally motivated students who have shown high levels of academic achievement. The university requires every student, regardless of major, to take core courses in a number of general areas. The Honors Program offers students an intellectually exciting and challenging way to satisfy some of these core requirements.

Students may enter the Honors Program either as incoming freshmen or at the conclusion of their first year of study. Incoming first-year students with exceptional high school grade point averages and strong SAT scores, particularly on the reading and writing sections, will be invited to apply to begin the Honors Program upon entrance to the university. Students currently at the university and transfer students who have completed at least 24 credit hours with a cumulative grade point average of at least 3.3 are invited to apply to enter the Honors Program as sophomores.

Before graduation, all Honors students must complete at least four Honors courses. Each course actively involves students in problem solving and inquiry. The Honors Program offers both team-taught courses, featuring two faculty members from differing departments, and single-instructor courses. Team-taught courses focus on multidisciplinary approaches to learning and study linkages between disciplines. Honors courses with one instructor frequently also fulfill course requirements within various major fields of study at UNH.

In their senior year, students research and write an Honors thesis on a topic in their major discipline under the guidance of a faculty member in the major department. Students may arrange with their department for up to three academic credits for work on the Honors thesis. The results of the research are to be presented orally to members of the student’s major department and to members of the faculty 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.

The Honors Program sponsors various co-curricular events throughout the academic year. All Honors students are encouraged to attend these whenever possible. Students not enrolled in an Honors course during a given semester are required to attend at least two Honors events during that semester.

A student-run Honors Student Council meets regularly to coordinate additional Honors events both on and off campus. All Honors students are encouraged to participate in the council's activities.

### Advantages of the Honors Program

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

**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.

**Early Registration:** Honors students receive priority registration, allowing them to register for courses before non-Honors students.

**Recognition:** A student who successfully completes the Honors Program, including the Honors Thesis, will be designated as an Honors Scholar on the UNH 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.

**Hatfield Scholar Program:** 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, awarded 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.

### Honors Courses

Honors courses recently offered:

“Criminal Investigations and Society.” In this

course students analyze several major criminal investigations and how societies' opinions and expectations influenced the investigation and outcome of each case. Students learn how these cases influenced citizens' feelings about their country and the criminal justice system that either served or failed citizens during each of these historic events.

“Emerging Infectious Diseases: History, Science and Medicine.” This course provides an overview of the nature of human and animal pathogens and the diseases they cause. Students in the course develop a global perspective on how emerging infectious diseases have influenced history.

“Music and the Brain.” This course focuses on the interplay of music, in various forms, with cognitive and emotional functions of the human brain. Students explore how music affects brain and behavioral functioning, and also the role of brain functioning in the creation and interpretation of music.

“‘Though this be madness:’ Hamlet from page to stage.” This course looks at what is often considered one of the greatest plays in the history of the English language from both a literary and a theatrical perspective. Students see the play through critical analysis, examining the literary history and value of the play, as well as begin a creative exploration of the text, experiencing the play as actors and directors.

### 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

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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. These counselors 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 includes experienced instructors who hold advanced degrees in their respective fields. Most professional tutors are instructors at UNH and/or local universities; thus, they bring an intimate understanding of the classroom to each session. Additionally, highly competent graduate and undergraduate student tutors, chosen based on excellent academic track records and the enthusiastic recommendations of their professors, round out the staff.

The CLR is located in the heart of the campus in Maxcy Hall, Rooms 106–110. The CLR 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, Science, and Business Lab tutors offer drop-in and by-appointment help with primarily freshman- and sophomore-level courses in mathematics, science, and business; the Writing Lab tutors offer drop-in and by-appointment assistance with all writing and communication assignments, as well as history and some modern languages. The tutors in the Computer Lab are available to offer assistance with: the latest Microsoft software, math tutorials, select computer science courses, statistics software, and some graphics and desktop publishing questions.

The Peer Tutoring Program, a satellite division of the CLR, is staffed by select undergraduates with outstanding academic track records. Peer tutors typi-

cally support undergraduate courses in their majors or minors. Peer tutors are typically housed in areas affiliated with their program and hold scheduled tutoring hours ranging from Sunday through Friday.

Write to [CLR@NewHaven.edu](mailto:CLR@NewHaven.edu), call (203) 932-7215, or consult our website (<http://www.newhaven.edu/academics/13736/>) for more information about any CLR offering.

## 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 students must present a valid UNH ID card.

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 University of New Haven Police Department located in the lower level of the Campus Bookstore building. 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*.

Qualified individuals may register for a parking permit by logging on to [www.newhaven.edu/parking](http://www.newhaven.edu/parking).

### 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 the 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. Officers 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. With this system, subscribers will be among the first to receive emergency notifications and school delay/closing information. This is currently an opt-in feature. For details, visit <http://www.newhaven.edu/campustext>. Normal text messaging fees apply per a subscriber’s individual carrier.

The University also has a Mass Notification System. This is a powerful public address system that would be used to advise people outside on campus of a serious emergency.

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 help students clarify their educational and career goals, as well as to acquire employment-seeking skills and ultimately attain desired employment. This mission will be accomplished through building partnerships with, and providing support to, students, alumni, faculty, administrators, employers and the community.

These services include assisting with career planning and job searching, preparing and reviewing resumes and cover letters and teaching interviewing skills. Individual appointments may be scheduled by phone at 203.932.7342 or by coming to Kaplan Hall, Room 210. The CSC may also be contacted through e-mail at [jobs@newhaven.edu](mailto:jobs@newhaven.edu).

## Student Employment

Throughout each year, employers visit campus to engage and interact with UNH students. Company visits are conducted in a variety of formats – breeze-way tables in Bartels, Buckman or Kaplan, information sessions delivered to groups or clubs, our speed networking events or presentations in settings as unique as our Internship & Job Search Boot Camp. Though the formats may differ, the goal is always the same: to attract UNH students to work for their companies. Employers may be seeking interns, co-ops or entry-level employees.

To support student employment, the Internship Office posts positions on Blackboard under the tab career development community. In addition to posting news of all opportunities received, the I.O. also “mine for opportunities” that could be of interest to UNH students.

The Internship Office maintains a database of reported internships, providing inquiring students with information on companies where other students in similar majors have worked, which could serve as a starting point for inquiring students’ own internship searches.

The Internship Office conducts a variety of workshops aimed at teaching the finer points of job/internship searches and strategies for being success-

ful in an internship. The workshops are offered at various times, including evening hours, to facilitate student participation.

To cap off a year of success, students are encouraged to showcase their internships during the annual Experiential Education Day celebration. Participating students are invited to the breakfast where they are encouraged to sit with an employer and then to assemble their exhibit to share with employers and other students during the actual showcase.

From their first year, students are encouraged to register to attend the Internship Workshops and to take advantage of all the opportunities offered by the Internship Office to facilitate employment and networking opportunities with employers.

Our goal is for every student to graduate with at least one internship experience.

## 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

The Center for Experiential Education Internship Office helps students develop the key competencies necessary to make informed decisions about and take the necessary steps to achieve their career goals. The Center establishes connections and facilitates interaction among students, alumni, employers and organizations to generate opportunities that help students pursue their personal and professional objectives.

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, including

- Providing students with a full and realistic view of workplace culture and expectations.
- Integrating academic preparation with professional challenges.
- Building confidence and success through internship experiences.
- Helping students build professional networks.

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 Internship Office assists students in understanding how to make the most of their internship experiences.

Students are not placed in, nor guaranteed, jobs. They are taught basic job-search skills including the rudiments of researching industries and companies, given insight into how their individual skills can transfer to various fields, and are provided with a number of opportunities to connect with employers. UNH students are encouraged to take advantage of the Internship Office and Career Services workshops geared to helping students learn the fine points of job searching and on-the-job success including resume preparation, interviewing skills, networking etiquette, and pitfalls to avoid.

Students may contact Arleen Anderson, Director of Internships and Employer Relations at [AAnderson@newhaven.edu](mailto:AAnderson@newhaven.edu) for more information.

## Counseling and Psychological Services

Counseling and Psychological Services offers help to students with problems that may interfere with their academic or personal lives. All services are confidential and include psychotherapy, interest testing, and educational assessment. For more information,

please call 203-932-7332, go to our website at [http://www.newhaven.edu/student-life/CampusLife\\_StudentAffairs/counselingcenter/](http://www.newhaven.edu/student-life/CampusLife_StudentAffairs/counselingcenter/) 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.

## Campus Access Services

Campus Access Services (CAS) works to ensure access to all university offerings to enable full participation for all students. The office is responsible for and committed to providing services and support that promote educational equity for students with disabilities, significant chronic-health conditions, and also students who are veterans returning from military duty to the university community. Any UNH student who formerly held an IEP or 504 Plan should consider working with CAS and utilizing the many resources available to help students independently maneuver academic requirements. Veterans who may be returning to or attending college for the first time after a tour of duty may also benefit from utilizing the services of CAS.

Referrals and inquiries concerning campus accessibility and/or accommodations for students with disabilities, significant chronic-health conditions, or returning veterans should be directed to this office. The office also processes student grievances, whether informal or formal, regarding allegations of discrimination based on disability.

The Campus Access Services office is located in the rear of Sheffield Hall, and can be reached by phone at (203) 932-7332.

## Health Service 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 registered nurses, a part-time APRN, 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.

Requirements of the Center are that students entering the Full-Time Division must provide documentation of a completed physical exam within 1 year prior to admission and a record of their immunizations (*listed below*). UNH athletes must have a physical exam no more than 6 months prior to the start date of their team sport, in accordance with NCAA Guidelines. Students entering the Part-Time Division must provide documentation of their immunizations.

Once a student's deposit has been paid, the Undergraduate Admissions Office will send out a packet which will contain the student's physical and immunization form. Students can also download the 4-page physical form and information sheet by going to: [http://www.newhaven.edu/unh/marketing/pdfs/healthservices/health\\_forms.pdf](http://www.newhaven.edu/unh/marketing/pdfs/healthservices/health_forms.pdf)

Students who plan to live in University housing and athletes must provide proof of having received a meningitis vaccine (*date of vaccination must be no more than 5 years prior for Menomune, and no more than 10 years prior for Menactra*). These requirements are in compliance with the State of Connecticut Health Department's guidelines for immunization and disease control.

*It is also recommended that students are vaccinated against Hepatitis B (3 dose series), Hepatitis A (2 dose series), and for females Gardasil (HPV vaccine – 3 dose series).*

Additional necessary information, can be sent in with student's physical forms. A copy of their private

## Measles, Mumps and Rubella & Varicella Requirements

**To All Students** (fill-time undergraduate, part-time undergraduate day and evening, full and part-time graduate) you 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 1/1/80.
- Two valid mumps vaccinations.
- One rubella vaccine must have been given after your first birthday.

*If you have documentation of two valid MMR's that will fulfill the measles, mumps and rubella requirement.*

- Varicella (Chicken Pox) history is also required.
  - This can be documented by having a history of the disease with proof of date or
  - Two doses of the varicella vaccines for immunity.

*Blood tests (showing immunity) from a laboratory will also be accepted for measles, mumps, rubella, and varicella.*

**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.**

insurance company card including company name, company phone number, and identification number. If a student does not have private insurance, a student should state that in an attached note.

## 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. For additional information, 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](mailto: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 thirteen residence halls: seven for freshmen and six 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.

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 Bakery and Café, which are located in Bartels Hall, the Campus Center; Charger Café in the Marvin K. Peterson Library; the Campus Convenience Store in Sheffield Hall; Sandella's Flatbread, 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 23 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 17 varsity sports: baseball, men's and women's basketball, men's and women's cross country, football, 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, marching band 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.newhavenchargers.com](http://www.newhavenchargers.com), 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 commencements 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 the newly renovated Ralph F. DellaCamera Stadium, a multi-purpose field which is home to the Charger football program and can host soccer and lacrosse games. Prior to the 2009 season, Ralph F. DellaCamera Stadium was installed with state-of-the-art blue and gold *Sprinturf*, a new 45-foot tall scoreboard and a two-story pressbox.

### 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 students interested in working out on their own, or they want to take part in one of our programs or activities, they are sure to find something that fits their needs. For more information about ChargerREC, log on to [www.newhaven.edu/ChargerREC](http://www.newhaven.edu/ChargerREC).

### David A. Beckerman Recreation Center

Located in the heart of campus, 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. Academic year hours of operation: Monday – Thursday – 6:30am – 11:30pm, Friday – 6:30am – 10pm, Saturday 9am – 8pm, Sunday 12pm – 10pm.

### 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 four 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.

### Group X (Group Fitness)

Free drop-in fitness classes are offered at various times throughout the week. No sign-up is required. A comprehensive schedule is available online along



with detailed class descriptions. Offerings vary each semester but some examples include Spinning, Kickboxing, Bootcamp, Step & Sculpt, Step Aerobics, and Absolution.

## Clubs and Organizations

More than eighty University clubs and organizations serve interested students. Included are student chapters of professional societies, community-service organizations, social groups, club sports and special-interest clubs. Every student club and organization has a mailbox located on the top floor of Bartels Hall, as well as an email address which can be found on our website: [www.newhaven.edu/studentactivities](http://www.newhaven.edu/studentactivities)

## 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. Descriptions and contact information can be found on our website: [www.newhaven.edu/GOGREEK](http://www.newhaven.edu/GOGREEK)

## 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 year-book. Students may volunteer their services to these student publications by emailing: [chargerbulletin@newhaven.edu](mailto:chargerbulletin@newhaven.edu) or [chariotyearbook@newhaven.edu](mailto: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. To contact ESC, email [esc@newhaven.edu](mailto:esc@newhaven.edu).

## WNHU Radio

WNHU is the University of New Haven's non-commercial, 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](http://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 offers more than DJ opportunities, 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 80-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, Internet Explorer, SPSS statistical software and other software provided to meet needs specific to the lab or computing space. Printers are also available for student use in conjunction with the UNH ID card (charges apply). General access labs are dedicated to providing students with access to email, web surfing, and other standard uses, and may be staffed by graduate students, who are available to answer questions. The hardware and software available in the labs are periodically 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 may be at the discretion of the individual college or department.

Computer facilities provided by UNH as of Spring 2010 include:

Tagliatela College of Engineering: Buckman Hall, 225 and 225a

Tagliatela College of Engineering: Multimedia Teaching Classroom, Buckman 227

Hospitality and Tourism: Harugari Hall 114

Learning Center for Finance and Technology: Dodds Hall 218

Department of Biology and Environmental Science: Dodds Hall 305

Department of Visual and Performing Arts: Dodds Hall 203

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 represent the largest collection of general-use computers on the main UNH campus. It is not a computer lab.

## 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, Library Café, group-study rooms, stacks, and reference areas. 54 desktop computers, 6 iMacs, and 36 laptops with 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](http://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, students and faculty must present 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 current UNH students and faculty are available online. Electronic access to more than 20,379 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 Campus Research, 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, ENGnetBASE, IEEE Computer Science Digital Library, Hoover's Online, Reference USA, Country Watch, PsycARTICLES, FORENSICnetBASE, and IRIS.

The UNH library's collection includes more than 250,460 volumes, electronic access to more than 20,379 full-text journal and newspaper titles, 539,776 pieces of microfiche, 12,308 volumes of microfilm, and 158,159 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. Many of these documents are available full-text online through the library's online catalog.

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 10,000 member libraries' 110 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 tech-

niques. 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 textbooks, new and used, required for courses here at the University. The bookstore also carries a wide range school supplies, greeting cards, imprinted clothing and gifts, candy, and a selection of magazines. A wide selection of software is also available, priced at a substantial academic discount for current enrolled students at [www.efollett.com](http://www.efollett.com).

The Campus Bookstore buys back used texts throughout the year. The bookstore also handles class ring orders and places special orders for books.

Students who would like to order books online may do go to our website, [www.unh.bkstr.com](http://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 campus life and student activities. Offering lounges, student offices, a large dining hall, Jazzman's Bakery and 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 Vice President 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 and external organizations and individuals to develop philanthropic support for enhancement of the University's programs, facilities, and endowment, and to build awareness and reputation of the University. Gifts to the University enhance student financial aid, faculty development, equipment, library resources, and other institutional opportunities for growth.

The generosity of corporations, foundations, alumni, parents, students, 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, discounts on home and auto insurance, and much more. *UNH Online*, an online directory and interactive community, helps 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](http://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*. Alumni are asked to update their contact

information so that we may keep them 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](mailto: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. On campus, the Center sponsors peer mediation and other peer dispute resolution services. 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 and restorative justice.

### **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, Schaefer and Errato, LLC; Daniel M. Smith and Associates; and the law firm of Wiggin and Dana.

For further information, visit us on the web at [www.newhaven.edu/cfb](http://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

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Kevin J. Phillips, B.S., M.B.A.

Associate Vice President for Enrollment Management

Phone: 203.932.7319

Toll-free: 1.800.DIAL.UNH, ext. 7319

(1.800.342.5864)

Email: [adminfo@newhaven.edu](mailto: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.

## 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. An individual becomes a student of the University of New Haven only after he or she has completed the requirements listed below, have been officially accepted, have registered for courses for the 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.

## Applying to UNH

The University of New Haven has adopted an Early Action policy for students interested in Applying to UNH for the fall semester. Below are important dates associated with applying to UNH. Our Admissions Staff begins reviewing applications for the fall semester on September 1 on a rolling basis, even for Early Action. Students should expect to receive a decision on their completed application within 2-4 weeks of when the application is complete. To begin the application, prospective students should go to [www.newhaven.edu/apply](http://www.newhaven.edu/apply). In addition to our own application, UNH also accepts the Common Application [www.commonapp.org](http://www.commonapp.org) and the Universal College Application [www.universalcollegeapp.com](http://www.universalcollegeapp.com). Equal weight is given for any of these options.

**Important Dates** The University of New Haven offers three **non-binding** admission programs for fall admission. To be considered for certain programs, prospective students must follow the established timelines and important dates which are noted in the details below.

Admission Program	Completed Applications Due By
Early Action I	November 15
Early Action II	January 15
Rolling Admission	May 1
Spring Admission	Mid-January

## Early Action I

If UNH is one of your top choice schools, you should plan on applying for Early Action I. Then after you are admitted, you will have some advantages if you meet the deposit deadline when it comes to

consideration for additional scholarships, class registration, Living/Learning Communities, and other programs.

*Due to the high volume of applications we receive for certain programs, Early Action I is recommended for the Forensic Science, Dental Hygiene, Marine Biology, and Biology - Pre-Med Programs.*

**November 15** (or earlier) – application and **all** required materials due.

**Admission decisions for Early Action I are mailed no later than December 15.**

**January 31** (or earlier) – Submit the Enrollment Commitment Form and refundable deposit of \$500 for residential students or \$300 for commuter students. Please note that deposits are non-refundable after May 1.

**March 1** (or earlier) – Complete the Free Application for Federal Student Aid <http://fafsa.ed.gov> (FAFSA) for financial aid consideration. The University of New Haven's Title IV School Code for the FAFSA is 001397.

**March 15** – Notification of financial aid for incoming freshmen begins to be mailed. Please note that it is likely financial aid packages will be mailed earlier if a student's FAFSA is completed prior to March 1.

## Early Action I Benefits

**Merit-Based Scholarships** – All applicants are considered for merit-based scholarships at the time of their application to the university. Priority consideration is given to Early Action I applicants.

**Dean's Scholarship Consideration** – Each of our four colleges offer special scholarships to students enrolling in one of their programs. Early Action I students are given special consideration for these scholarships. Dean's Scholarships are awarded in addition to any other merit-based scholarships that a student receives.

**Living/Learning Communities** – At UNH we offer students in many of our programs the opportunity to participate in a 'Living/Learning Community' (LLC). In an LLC students are grouped by majors

and/or common interests for their freshman year, and enjoy benefits such as trips off campus related to their major/interest, shared advising, linked classes, and group study sessions. Students admitted to UNH under Early Action I are given priority for the LLC program.

**Honors Program** – Students who qualify academically for admission to the UNH Honors Program will receive an invitation after admission to the university. Students must apply under Early Action I in order to be considered for the Honors Program.

**Housing** – Special consideration will be given to Early Action I students who desire to live on campus.

## Early Action II

If prospective students have decided to apply after November 15, there is still time to apply for the fall semester with special considerations.

**January 15** (or earlier) – application and **all** required materials due.

**Admission decisions will be mailed no later than February 15.**

**March 15** (or earlier) – Submit the Enrollment Commitment Form and refundable deposit of \$500 for residential students or \$300 for commuter students. Housing will be assigned based on availability.

**March 1** (or earlier) – Complete the Free Application for Federal Student Aid <http://fafsa.ed.gov> (FAFSA) for financial aid consideration. The University of New Haven's Title IV School Code for the FAFSA is 001397.

**March 15** – Notification of financial aid for incoming freshmen begins to be mailed.

## Early Action II Benefits

**Merit-Based Scholarships** – Based on availability of funds, Early Action II applicants are considered for merit-based scholarships. For a complete list of merit-based scholarships [www.newhaven.edu/scholarships](http://www.newhaven.edu/scholarships)

**Living/Learning Communities** – Based on availability, Early Action II students may still qualify for



participation in a 'Living/Learning Community' (LLC). In an LLC students are grouped by majors and/or common interests for their freshman year, and enjoy benefits such as trips off campus related to their major/interest, shared advising, linked classes, and group study sessions. [www.newhaven.edu/livinglearning](http://www.newhaven.edu/livinglearning)

**Housing** - Based on availability, students may still be eligible for special housing consideration if they desire to live on campus.

## Rolling Admission

Based on space availability in certain majors after the Early Action I and II deadlines, prospective students may still apply to UNH and their applications will be evaluated on a rolling basis. This means that they will receive a decision on their application within 2-4 weeks of when their completed application materials are received.

**March 1** (or earlier) – Complete the Free Application for Federal Student Aid <http://fafsa.ed.gov> (FAFSA) for financial aid consideration. The University of New Haven's Title IV School Code for the FAFSA is 001397.

**March 15** – Notification of financial aid for incoming freshmen begins to be mailed.

**May 1** – Submit the Enrollment Commitment Form and refundable deposit of \$500 for residential students or \$300 for commuter students. Housing will be assigned based on availability.

Based on availability, students that apply after January 15 may still be considered for opportunities such as scholarships, and Living/Learning Communities.

## Spring Admission

UNH considers potential freshmen and transfer students for spring semester admission. Applications for students interested enrolling for the spring semester are evaluated on a rolling basis. We recommend completing the application by mid-January.

## To Reserve Your Place at UNH

The Enrollment Commitment Form and \$500 deposit for residential students or \$300 deposit for commuter students must be postmarked by May 1 for fall admission and January 2 for spring admission. Housing will be assigned based on availability after the Early Action I deadline. UNH adheres to the National Candidate's Reply Date of May 1 for fall deposits. All deposits paid prior to this date are refundable. Requests for a deposit refund must be made in writing and postmarked by May 1. Deposits made on or after May 1 are non-refundable.

Students who pay their deposit after May 1 may be waitlisted for both courses and housing, depending on availability.

## 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. Note that credit may also be awarded to students who submit scores of 3 or greater on Advanced Placement (AP) Exams or of 4 or greater on International Baccalaureate (IB) Exams.

**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.

## 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/apply](http://www.newhaven.edu/apply). We are also a member of the Common Application. Prospective applicants can access the Common Application at [www.commonapp.org](http://www.commonapp.org). Equal consideration for admission is given to students who submit the UNH Application or the Common Application. (\$75 for paper applications; \$25 for on-line or common applications)
- Submit an official copy of your secondary/high school transcript to the Undergraduate Admissions Office. A satisfactory General Equivalency Diploma (GED) is acceptable in place of a high school diploma. (Note: The Right of Privacy Act requires that you must request your official transcripts. UNH cannot request them on your behalf.) If you are currently attending secondary/high school you must send us your final high school transcript with your 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.
- A personal essay is required. The essay is an opportunity for us to get to know you as a person, not just 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/apply](http://www.newhaven.edu/apply). We are also members of the Common Application. Prospective students can access the Common Application at [www.commonapp.org](http://www.commonapp.org). Equal consideration for admission is given to students who submit the UNH Application or the Common Application
- Submit official transcripts from all the colleges/universities that you have attended.
- Students who have completed fewer than twenty-four credits from their previous college(s), must submit an official secondary/high school transcript which includes the date of graduation. A satisfactory General Equivalency Diploma (GED) is acceptable in lieu of a high school diploma.
- Students who have completed fewer than twenty-four credits from their previous college(s), 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

1. Submit a complete Online Application for International Undergraduate Students with a NON-REFUNDABLE Application Fee of \$50.00. A student will be required to pay the application fee using a valid credit card. His or her application will NOT be processed without

the application fee. If a student does not have a credit card, he or she should send us a bank check or money order — drawn on a U.S. Bank and made payable to the University of New Haven. The check or money order should be sent in the mail along with items 2-10 upon completion of your online application. **DO NOT SEND CASH.**

**2. A. For First-Year Applicants** (Students who just finished, or in the process of finishing, secondary/high school): Submit OFFICIAL/notarized/attested/or certified copies of ORIGINAL senior secondary/high school records. 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, IB, WAEC, CXC, etc.

**B. For Transfer Applicants** (Students who have attended any post-secondary institution (college/university): Submit OFFICIAL/notarized/attested/or certified copies of ORIGINAL senior secondary/high school records (see 2.a. above) AND ALL post-secondary school (university/college) records. This includes mark sheets, academic transcripts, examination result, diplomas, and degree certificates. Transfer applicants MUST also submit official/certified 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.

**Credit may be granted for IB Higher Level Exam Scores of 4 or better and for A-Level courses of C or better.**

**Please note: 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. Please contact <http://www.wes.org/> for more information.**

3. Submit a word-for-word notarized/attested/or 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.

4. Submit at least one letter of recommendation from an academic source.
5. Submit a personal essay, personal statement or a statement of purpose. The essay is an opportunity for us to get to know the student as a person, not just his or her grades and test scores. It also gives us an example of how the student expresses himself or herself and demonstrates his or her ability to organize his or her thoughts. The personal essay should be between 250 and 500 words on a topic of his or her choice.
6. Complete and submit the Financial Statement for International Students Form (FSIS) accompanied by an original bank statement from the sponsor showing adequate funds. The bank statement must be of recent date of issue, no more than 6 months old, in English, and it must be in the same name as your sponsor. To download the FSIS form, [click here](#).
7. All non-native English language speakers must demonstrate English language competency by providing a TOEFL score of 75 on the internet based test (iBT) or an IELTS score of 6.0. The University of New Haven School Code for TOEFL is 3663. Completion of ELS Language Center Level 112 is also accepted in lieu of either the TOEFL or IELTS.
8. Submit a clear copy of your passport information page with your complete name, date of birth, and country of citizenship.
9. 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 document(s).

#### **Application Deadlines:**

\* For the Fall semester, beginning in late August each year, the deadline is June 1st.

\* For the Spring semester, beginning in late January each year, the deadline is November 1st.

\* It is highly recommended that a student apply

and submit ALL the above documents at least one month before the deadlines.

\* Any applications received after the above deadlines will automatically be deferred to the next semester.

### **Mailing Your Documents:**

Please mail ALL the above-mentioned documents as soon as possible, but no later than the application deadline, to the address below. We recommend you use a special courier such as FEDEX, DHL, or UPS  
Office of International Undergraduate Admissions  
Bayer Hall  
University of New Haven  
300 Boston Post Road  
West Haven, CT 06516  
U.S.A.

### **Application Processing Time:**

4-5 weeks from the date your application is received. Processing time may be extended if certain required documents are missing. Therefore, we recommend that you send us ALL of the above-mentioned documents in one package/envelope to avoid any unnecessary delays.

## **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](http://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 the transcripts students will receive an academic worksheet for their intended major with a preliminary transfer credit evaluation (TCE). The TCE outlines how many transfer credits students can be awarded and details which courses at their 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 scores sent to UNH, go to [www.collegeboard.com](http://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](http://www.newhaven.edu) and pay the \$25 non-refundable application fee. (Students 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 students when their application has been processed.

If prospective students have questions, they should contact University College at 203.932.7180 or [universitycollege@newhaven.edu](mailto:universitycollege@newhaven.edu).

# REGISTRATION

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## 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 information 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. These students 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. These students 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

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## 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 (NEASC), 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 (WASC).

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 college in which the student seeks to enroll. Credit is accepted 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 from 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, normally 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. IB credit is subject to evaluation by the appropriate department chair.

A-Level examination credit awarded through the Cambridge International Examinations (CIE) are awarded in many subject areas. A-Level credit is awarded only upon matriculation. While credit is subject to evaluation by the department chair, the UNH website may be consulted for those exams that are pre-approved for academic credit. Credits are awarded in transfer for exams scored C or better, based on the transcript provided to the Undergraduate Admissions Office by the Cambridge Board.

## 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 or calculation of GPA.

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

## External Credit Examinations

Learning acquired through various traditional and non-traditional 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's Office 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 is open only to seniors,



juniors, and exceptionally qualified sophomores. Students must have at least a 3.0 grade point average.

Projects to substitute for regularly scheduled courses (that is, those offered at least once every four semesters by UNH) are not normally acceptable as independent study.

## Field Experience

In all credit-bearing courses of field experience, including internships, 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's Office 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 Status and Progress

### Full-Time Students

Full-time student status is attained by registering for a minimum of 12 credits per semester, or equivalent term, on either a matriculated or non-matriculated basis. Such status 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 status. Part-time status 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. Reapplication for University for admission is required.

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 sub-

ject 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.

## Year of Study

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 Status

Full-time undergraduate students who wish to change their status to part time must complete a Classification Package Change form available from the Registrar's Office. Full-time students who wish to change to part-time status may become part-time day or part-time evening students. To qualify for part-time evening status, a student normally is restricted to enrolling in evening courses only.

Part-time undergraduate students who wish to enroll in more than 11 credits in any term must apply to Undergraduate Admissions to first be accepted as a full-time student.

## Major

By the end of the sophomore year of study, each matriculated student must designate a specific degree program, called a major. Major program require-

ments 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 academic 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 to final course grades. (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 required course work remains to be completed to gain academic credit for the course. An INC 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. To remove the INC grade, the student must complete all required course work as stipulated by the instructor - typically within 60 days, but not longer than 12 months following the last day of the term in which the INC was recorded. Any extensions beyond one year require approval of the Committee on Instruction and must be requested and submitted by the instructor.
2. The student has failed to complete the required course work and no extension was requested by the instructor; therefore, the INC grade remains on the student's transcript (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 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  $\times$  1.5 = 180 maxi-

mum allowable credits attempted for financial aid eligibility. Every semester that a student is enrolled in school is counted, even the semesters when a student does 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). The University may void a registra-

tion by a probationary student for more than four courses. 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. Because UNH is dedicated to helping students be successful, probationary students are required to work with assigned academic skills counselors in the Office of Academic Services as a condition of their academic probation.

The counting of the number of academic probationations 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 (ASRC). 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 university 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**

### **Adding and Dropping Classes**

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 submitted 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 submitted 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 status, the stu-

dent 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 Integrity Policy

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 regarding academic honesty in the Student Handbook or on the University website.

### 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 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 examination, a University proctor may be used or the instructor may choose to administer the examination without the use of a proctor. If a University proctor is used, the student must pay a make-up examination fee for regular examinations and final examinations. If the instructor administers the make-up examination, the make-up examination 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:

- submitted a petition to graduate, signed by the department chair, to the Registrar's Office
- 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 file a new petition for a future commencement date. At that time, a refiling fee will be charged.

### 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, coordi-



nated 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's 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's 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's 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's 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

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The tuition and other expenses listed in this section reflect the charges for the 2010–11 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. The exception to this would be when withdrawal occurs during the first four weeks of the term. If this happens, the university's tuition refund policy would be in effect. 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 BME, CE, CEN, CH, CM, CS, EE, EAS, IE, ME, SE, or SU offered by the Tagliatela College of Engineering are charged an \$80 per credit tuition differential.

## Tuition and Fees 2010–2011 Undergraduate

	Per Occurrence	Per Term	Yearly Total
<b>Pre-Enrollment Fees</b>			
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
<b>Tuition: Full-Time Day</b>			
Tuition (12–17 Credit Hours)	n/a	\$14,125	\$28,250
Additional Charge for Credits Over 17 (Per Credit)	\$940	n/a	n/a
General Student Fee	n/a	\$610	\$1,220
General Student Fee International	n/a	\$860	\$1,720
	Per Occurrence	Per Credit	Yearly Total
<b>Tuition: Part-Time Day</b>			
Part-Time Tuition (1–11 Credits)	n/a	\$940	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	\$50	n/a	\$100
<b>Tuition: Evening</b>			
Part-Time Tuition	n/a	\$470	n/a
Mandatory Activity Fee (non-accelerated session)	\$20	n/a	\$40
Mandatory Technology Fee (Non-accelerated session)	\$50	n/a	\$100
Mandatory Activity Fee (each fall & spring accelerated session)	\$ 10	n/a	n/a
Mandatory Technology Fee (each fall & spring accelerated session)	\$ 25	n/a	n/a
	Per Occurrence	Per Credit	Yearly Total
<b>Summer I and Summer II (starting May 2010)</b>			
Part-Time Tuition	n/a	\$470	n/a

	Per Occurrence	Per Term	Yearly Total
<b>Auditing</b>			
Alumni	n/a	\$70	n/a
Non-Alumni	n/a	\$120	n/a
<b>Differentials</b>			
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
<b>Residential Life Charges</b>			
Room — Double Occupancy	n/a	\$3,500	\$7,000
Room – Triple Occupancy	n/a	\$ 3,300	\$ 6,600
Room – Soundview Hall Double	n/a	\$ 4,100	\$ 8,200
Room – Soundview Hall Triple	n/a	\$4,400	\$8,800
Interim Housing (Per Week)	\$220	n/a	n/a
Housing Activity Fee	n/a	\$50	\$100
Room Selection Deposit for Returning Students	\$250	n/a	\$250
Parking Fee (Residential Students Only)	\$200	n/a	\$200
Meal Plan A	n/a	\$2,386	\$4,772
Meal Plan B	n/a	\$2,302	\$4,604
Meal Plan C	n/a	\$1,966	\$3,932
Meal Plan D	n/a	\$1,966	\$3,932
Meal Plan E	n/a	\$2,302	\$4,604
		Per Occurrence	Per Credit
<b>Additional Fees</b>			
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 Refiling		\$50	n/a
Late Graduation Filing Fee		\$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 (T.M.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 T.M.S. are available by calling 1.800.722.4867, or online at [www.afford.com](http://www.afford.com). Application for this plan should be made in May or June and 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:

<u>Date of Receipt of Withdrawal Request</u>	<u>Percentage Canceled</u>
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

The University offers tuition insurance through AWG Dewar, Inc. Tuition insurance may protect up to 75% of 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 \$250 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.
- A housing 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 2010-2011 academic year.
  - Students who cancel their housing agreement for the 2011 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 20, 2011. Failure to meet the withdrawal deadline of January 20, 2011 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 22, 2010 and January 20, 2011.

# FINANCIAL AID

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**Karen M. Flynn, B.A., M.A., Associate Vice  
President for Financial Aid**

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 attempts 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.gov](http://www.fafsa.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.

Undergraduate students are also required to maintain a minimum cumulative quality ratio in accordance with the following scale:

Quality point ratio of 1.75 for 3-27 credit hours attempted

Quality point ratio of 1.85 for 28-57 credit hours attempted



Quality point ratio of 2.00 for 58 or more credit hours attempted

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  $\times$  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 2010–11 academic year range from \$400 to \$5,550 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), received 27 or better on the ACT, 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 the time of

acceptance to incoming full-time freshmen demonstrating a strong academic profile, including both high school GPA and SAT/ACT scores. 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 admissions deadline for full consideration is January 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. 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.

**Charger Award** — Awarded at the time of acceptance to students with strong high school GPA's but test scores not meeting criteria for either the Presidential Scholarship or Distinguished Scholar Awards. Awards will be renewed for up to three years provided the student maintains a B (3.0) cumulative average, remains a full-time student, and makes satisfactory academic progress. The admissions deadline for full consideration is January 1.

**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.

**Deans 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
Soccer	Softball
Track and Field	Tennis
	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 Subsidized Student Loan (SSL)** — The Subsidized 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 students 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 Student Loan** — The Unsubsidized Student 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](http://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.*

**The Theodore D. and Libby Adams Endowed Scholarship** — This award is given to a student in financial need, regardless of year, GPA or ethnicity.

**Alumni Association Scholarships** — These awards are presented to undergraduate, evening or graduate students who demonstrate academic merit and financial need.

**The Alvine Legacy Endowed Scholarship** — This fund is awarded to a student in financial need, regardless of age, year, or ethnicity, who has demonstrated in some significant way dedication, hard work, commitment and caring for others.

**Amity Charitable Trust Fund Scholarship** — This annual award is based on the student's ability, promise and financial need. Preference is given to students from the greater New Haven area.

**The John J. Armstrong Endowed Scholarship** — This annual award is granted to family members of current, retired or deceased employees of the Department of Corrections, regardless of academic major. Current or retired employees are also eligible.

**Edmund M. Autuori Scholarship Fund** — This annual scholarship is awarded to accounting majors with a minimum 3.0 GPA who demonstrate financial need and scholastic ability.

**Robert D. Bajorin Memorial Scholarship** — This scholarship is awarded annually to a non-traditional adult student attending the UNH Southeastern branch on a part-time basis who is pursuing either an undergraduate or graduate degree. The award is granted based on academic record, leadership in the university and/or community, personal statement and strength of recommendation.

**The Barn Sale Scholarship** — This scholarship is available each year for a student with a disability who has completed his or her freshman year.

**Angela Zappia and Philip Batchelor Endowed Scholarship Award** — 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.

**Bayer Corporation Endowed Scholarship** — This award is given to either an undergraduate or graduate student who demonstrates financial need and is in good academic standing.

**The Steven R. Beadle Scholarship** — This scholarship is designated for an older student regardless of major or academic promise who is in financial need. If such a student cannot be identified, the fund will be awarded to any promising student majoring in Criminal Justice. The recipient must have a minimum of 2.5 GPA.

**The Beckert Family Endowed Scholarship** — The fund is awarded to a highly motivated student with financial need. Preference is given to a part-time student enrolled in a four-year undergraduate or graduate degree program. The award is renewable if the recipient maintains a 3.0 GPA.

**The Carolyn Bell Endowed Scholarship** — This scholarship, named in honor of Carolyn Bell, a former UNH basketball player and key member of the 1987 national championship team, is awarded to a junior or senior female student-athlete who best represents Carolyn's spirit and sense of community.

**The Samuel S. and Lois E. Bergami Endowed Scholarship Fund** — This scholarship is awarded to a sophomore, junior, senior or graduate engineering student based on merit and /or financial need.

**The Beirmacher Family Endowed Scholarship** — This award is granted annually to one or more post-freshmen-year student(s) in financial need pursuing a criminal justice degree. The student(s) must maintain a minimum 3.2 GPA in their freshman year. The recipient shall be a U.S. citizen or actively pursuing U.S. citizenship.

**The Carmel Benevento Memorial Scholarship**

— This award is made annually to an outstanding female student who has matriculated as a UNH freshman. The award is based on outstanding academic and creative ability.

**Roland M. and Margaret T. Bixler Endowed Scholarship**

— This scholarship is awarded to undergraduate students based on merit.

**The Marjorie & Norman Botwinik Fund for Academic Excellence**

— This scholarship is awarded annually to Connecticut residents in financial need. The recipient must be an undergraduate student who has demonstrated academic achievement

**Bozzuto's Charity Sports Classic Scholarship**

— This award is made to a student who has demonstrated an exemplary academic record and financial need.

**Gerald O. Cavallo-Special Metals Corporation Endowed Scholarship Fund** — Preference for this annual award is given to an undergraduate student whose relative is an employee or retiree of Special Metals Corporation, also known as Huntington Alloys, Inc. If no student meets the preferred criteria, the scholarship will be awarded to an undergraduate from West Virginia. Should no student satisfy the above criteria, the award may be made to an undergraduate student within the College of Business or the Tagliatela College of Engineering.

**Geraldine Hughes Brekke and Gail L. Brekke Endowed Scholarship**

— This award is presented to an incoming female freshman, preferably of the first generation in her family to pursue a four-year college degree. If no female meets the above criteria, the scholarship will be given to an undergraduate student from an under-represented group. The student should be pursuing or plan to pursue a degree in accounting, biology or education/teaching and must have a high school GPA of 3.0 or higher. Secondary preference will be given to a student studying in a field of life science or health science.

**Clarice L. Buckman Scholarship Fund** — An annual award is given to a junior with financial need major-

ing in chemical engineering or chemistry in recognition of achievement and incentive.

**Coca-Cola Foundation Endowed Scholarship Fund**

— This award is made annually to an incoming student who attended the Connecticut Pre- Engineering Program at any established Connecticut college or university for at least two years and has maintained a GPA of at least 3.0.

**Connecticut Student Loan Foundation Endowed Scholarship Fund**

— This annual scholarship is awarded to a student or students whom the University determines it can help most effectively.

**C. Cowles and Company Endowed Scholarship Fund**

— This award is made annually to a Connecticut resident with financial need who aspires to a career in manufacturing.

**Aldo DeDominicis Foundation Endowed Scholarship**

— This scholarship is awarded annually to students majoring in Communication who demonstrate financial need.

**Dr. Lawrence J. and Mary Lou DeNardis Endowed Scholarship Fund**

— This award is made annually to a full-time undergraduate who has maintained a minimum GPA of 3.30 and demonstrates financial need.

**William L. DeSenti Scholarship Fund** — An annual award is presented to engineering students who demonstrate financial need.

**The Dr. Caroline A. Dinegar Memorial Scholarship**

— This fund is presented to an undergraduate sophomore, junior or senior majoring in Political Science based on academic ability and merit.

**Robert B. Dodds Scholarship** — This endowed scholarship is awarded annually to an engineering student.

**William B. Dragan Endowed Scholarship** — This award is granted to a Dental Hygiene student with financial need and a GPA of 3.0 or higher who is a resident of the Connecticut Valley or surrounding New Haven/Fairfield area.

**Clarence Dunham Scholarship** — A merit-based

award is made each year to a full-time civil engineering student entering his or her sophomore, junior or senior year.

**The Rick Eaton Endowed Memorial Scholarship**

— This scholarship is awarded to students who demonstrate financial need, and who are motivated and determined. Preference is given to those majoring in communication.

**John E. & Beryl Echlin Scholarship Fund** — This award is presented to students pursuing degrees in engineering, business or management and is based on financial need.

**The Lynn W. Ellis Endowed Scholarship Fund**

— This award is made annually to a student in the College of Business with academic promise and financial need.

**Ernst and Young Endowed Scholarship Fund** — An award is made each year to a student majoring in accounting and demonstrating financial need.

**The Robert and Linda Fiscus Endowed Scholarship**

— This fund is awarded to students who demonstrate financial need and academic promise regardless of major.

**David Travis Friedrich Memorial Endowed Scholarship Award**

— This award is granted to a graduate student who demonstrates financial need and is enrolled in the Henry C. Lee College of Criminal Justice and Forensic Sciences.

**Murray and Shirley Gerber Endowed Scholarship Fund**

— This award is made annually to students in the College of Business or Tagliatela College of Engineering based on their entrepreneurship and leadership abilities.

**James Jacob Gerowin Memorial Scholarship**

— An award is made annually to an engineering student showing academic promise and financial need.

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

**The Richard and Norma Grossi Family Scholarship Fund**

— This annual award is given to a sophomore, junior or senior full-time engineering student with financial need and academic ability. Students must achieve a minimum 3.0 GPA during their freshman year.

**Wilfred Harricharan Endowed Scholarship**

— This award was created to provide financial support for students in the College of Business with a preference for those majoring in business administration. The recipient must demonstrate financial need and good academic standing.

**The Hartnett Endowed Scholarship**

— This award is presented to an engineering student who demonstrates financial need and maintains a 3.0 GPA or higher.

**Dr. John D. Hatfield Memorial Endowed Scholarship**

— The annual award is granted to an undergraduate or graduate student who demonstrates financial need and good academic standing. Preference is given to recipients who demonstrate care and concern by helping others bring out the best in themselves.

**The Margaret E. Healy Endowed Scholarship Fund**

— This fund is awarded annually to a post-freshman student in financial need pursuing his or her undergraduate degree in business or engineering.

**William Randolph Hearst Endowed Scholarship Fund**

— This scholarship is awarded annually to first-generation or minority sophomore or junior students who are in need of financial assistance.

**The Robert Hendrickson Endowed Scholarship**

— This scholarship is awarded to students who demonstrate motivation, determination, and financial need.

**The David Hennessey Memorial Scholarship Fund**

— This award is given to an undergraduate or graduate student in good academic standing who demonstrates financial need. Preference will be given to a student from towns within the Valley Region and those majoring in the Industrial/Organizational Psychology or Communication programs.

**Hershey-Frey Scholarship Fund** — This endowed scholarship is granted to students, with at least a 2.0 GPA, who are enrolled in the Tagliatela College of Engineering. A second primary preference is given to students residing in the Naugatuck Valley with a second preference to students who reside in Connecticut.

**The Honeywell Life Safety Endowed Scholarship** — This fund is awarded annually to a student in the Fire Science Department who is pursuing a degree in the field of fire technology or prevention. The recipient must achieve a minimum 3.0 GPA in his or her freshman year.

**Mrs. Yeh Ko, Hsien Endowed Scholarship** — The award is designated for students in financial need from Taiwan and the Peoples Republic of China and students of Chinese/Asian ancestry who major in criminal justice and/or forensic science.

**Paul Kane Memorial Scholarship Fund** — An annual award is given to an active scholar-athlete, with preference given to a Hamden, Conn., resident.

**Nathaniel Kaplan Memorial Scholarship** — An award is made each year to a full-time student who has been enrolled in the College of Arts and Sciences for at least two years. The student must demonstrate financial need and take part in one or more extra-curricular activities on campus.

**Phillip Kaplan Endowed Scholarship** — This award, which may be given to matriculated undergraduate and graduate students, is designed for students majoring in Economics/Finance based on demonstrated merit. If no student meets the above criteria, secondary preference is for a student in the College of Business.

**Martin Luther King, Jr. Scholarship Fund** — The annual award is granted to full-time students who demonstrate financial need, outstanding academic achievement and strong leadership qualities.

**An Fu Wang Lee Endowed Scholarship Fund** — This fund is granted to talented students in financial need 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.

**Henry C. Lee Forensic Science Endowed Scholarship Fund** — The award, which is based on need and merit, is granted to an undergraduate or graduate student majoring in forensic science.

**The Marietta and Leighton Lee II Memorial Scholarship Fund** — The fund is awarded annually to post-freshman student(s) in financial need who maintain a minimum 3.0 GPA in their freshman year.

**Ahmed R. Mandour Memorial Scholarship** — An annual award presented to a junior or senior student in the continuing education program. Preference is given to students majoring in economics

**Arnold Markle Scholarship** — An annual award is made to a criminal justice major

**The Ellis C. Maxcy Endowed Scholarship Fund** — 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** — This annual award is given to a student majoring in sports management. The scholarship is renewable based on the recipient maintaining good academic standing.

**James R. McCormack Memorial Scholarship** — 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 Fund** — This endowed scholarship is awarded annually to a student with demonstrated financial need.

**Minority Scholarship Fund** — This award is granted to academically qualified minority students with

financial need. Preference is given to a student from the City of New Haven.

**Arthur H. Moulton Distinguished Scholar Award**

— 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.

**The New Haven Wives of the Rotarians Endowed Scholarship Fund**

— The award is presented annually to one or more female graduates from the Greater New Haven area. The honor is based on academic achievement and need.

**Joseph O'Dowd Memorial Scholarship Fund**

— This scholarship is granted to a student in the Department of Fire Science who has completed his or her freshman year with a 3.0 G.P.A. or higher.

**The Daniel C. O'Keefe Endowed Scholarship Fund**

— The award is given to a non-traditional student pursuing an electrical engineering degree. Matriculated students at the undergraduate and graduate levels are eligible.

**The Linda and Jim Olbrys Endowed Scholarship**

— This scholarship is awarded to a student studying in the Industrial and Organizational Psychology program.

**The Endowed Parents Scholarship Fund** — This scholarship is granted to a full-time student entering his or her sophomore, junior or senior year who must demonstrate financial need, be active on campus and maintain at least a 2.0 GPA.

**The Virginia Parker Scholarship** — This award is given to a female undergraduate student with financial need and active in campus and/or off campus activities.

**H. Pearce Family and Friends Endowed Scholarship**

— This scholarship is granted to students who are residents of the state of Connecticut and can demonstrate financial need and academic ability.

**Marvin K. Peterson Scholarship** — This scholar-

ship is awarded to undergraduate part-time/evening students who demonstrate financial need and are in good academic standing.

**Reid Endowed Achievement Scholarship Award**

— This scholarship was created to provide tuition support to students with demonstrated financial need, academic promise, and/or achievement in a club, sport, or activity regardless of year, grade point average or ethnicity.

**The Eugene and Mary Rosazza Scholarship Fund**

— This annual award is granted to a student who demonstrates financial need.

**The Andrea Ryan and Colin Foster Scholarship**

— The annual fund is awarded to a student of high academic promise, regardless of major, who is in need of financial assistance and has demonstrated great persistence in the face of adversity.

**The Jessica N. Santos Memorial Scholarship Fund**

— This scholarship is awarded to a student who is pursuing a degree in criminal justice or forensic science and who demonstrates financial need and/or merit.

**The Ernest F. Schaub Scholarship Fund** — This fund, which is based on financial need, is awarded to students pursuing a degree in engineering. It is renewable as long as the recipient maintains a minimum 2.8 GPA and full-time status. Incoming freshmen who demonstrate exceptional academic ability with a minimum high school GPA of 3.0 are eligible.

**Douglas D. Schumann Distinguished Scholar Award**

— This endowed scholarship is awarded annually, on the basis of personal and academic integrity, to a mechanical engineering student who has completed his/her freshman year with a second preference to an electrical engineering student.

**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.

**The UNH September 11th Scholarship Fund** —

Priority for this scholarship is given to any immediate relatives of Evan Hunter Gillette and Seth A. Morris, UNH Alumni who lost their lives on Sept. 11, 2001. Next priority will be given to any relatives of emergency response heroes or immediate relatives of other victims. If no student meets the above criteria, the recipient is based on need.

**The Louis and Mary Tagliatela Endowed Scholarship Fund** — 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.

**Eat Healthy Promote Wellness, The Tichy Legacy Scholarship for Nutrition** — This scholarship honors the importance of nutrition in our general health. It is awarded annually to a part-time or full-time 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.

**Edward F. Tichy Memorial Scholarship** — 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.

**Betty Lorello Treadwell Memorial Endowed Scholarship** — The scholarship is awarded to a full-time, non-traditional student in need of financial assistance.

**Dany J. Washington Scholarship** — This scholarship is awarded to non-traditional adult students based on scholarship and leadership displayed in the University or community environment.

**UHY Scholarship** — This award is made to accounting majors with high grade point averages and demonstrated financial need.

**Rubin W. Vine Endowed Veterans Scholarship** — This award is designated for veterans and/or family members of veterans in financial need regardless of GPA or ethnicity. Entering freshmen, sophomores, juniors or seniors are eligible.

**The Vincent C. Wachter Endowed Scholarship** — This scholarship is awarded annually to a student in financial need majoring in business or engineering.

**Richard and Michelle Ward Endowed Scholarship** — The scholarship is based on merit and/or need is designated for undergraduate or graduate students who are practitioners in law enforcement, fire science or forensic science.

**Dorothy S. Weiss Endowed Scholarship** — This scholarship is presented to a graduate or undergraduate student enrolled in any program. The student must be in good academic standing and demonstrate financial need.

**The West Haven Scholarship Fund** — The fund is made to undergraduate or upperclassmen who lived in West Haven while attending high school and who demonstrate financial need. Recipients must be in good academic standing, maintaining at least a 2.5 GPA.

**Robert F. Wilson Endowed 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.

**The World Journal Endowed Scholarship Award** — This scholarship 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 Endowed Scholarship** — This scholarship is awarded to a minority student or student of color who is majoring in education and has demonstrated financial need.



# COLLEGE OF ARTS AND SCIENCES

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

**Jerry L. Allen, Ph.D., Associate Dean**

The College of Arts and Sciences prepares students for lifelong learning. Through 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. The education offered in the College of Arts and Sciences is designed to provide that background. We offer students the opportunity to study and learn historical, cultural, social, individual, and political perspectives on your world. Our goal is to challenge students to take advantage of the many resources and talents within the College to help them prepare for their 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, to 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. For example, the College supports the UNH Theatre 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  
 Theatre Arts  
     Arts Administration  
     Design  
     Performance  
 Undeclared

#### 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

Dental Hygiene

### 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 applying to the graduate program in education. This 4+1 Program in Education enables students in selected undergraduate majors to complete both the B.A. and M.S. degrees in Education in five years, not including the required thirteen-week student teaching experience that is completed after the master's degree coursework.

### 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  
 Arabic Language-Area Studies  
 Bioengineering  
 Biology  
 Black Studies  
 Chemistry  
 Chinese Language-Area Studies  
 Communication  
 Digital Art and Design  
 English  
 Environmental Science  
 Global Studies  
 Graphic Design  
 History  
 Mathematics  
 Museum Studies  
 Music  
 Nutrition  
 Philosophy  
 Photography  
 Physics  
 Political Science  
 Psychology  
 Russian Language-Area Studies  
 Sociology  
 Spanish Language-Latin American Studies  
 Theatre Arts

## Certificates

Students can take their first step toward an undergraduate degree by completing a certificate offered by the College of Arts and Sciences. Certificates are carefully designed as a concentrated introduction to a particular subject area and generally consist 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. Currently, the College of Arts and Sciences offers a certificate in:

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.

## Experiential Education Requirement

The College of Arts and Sciences requires each student to complete at least one experiential education opportunity prior to graduation. These opportunities correspond to those endorsed by the UNH faculty. Given the diversity of programs within the college, there are experiential education differences among programs. The experiential education opportunity is included in many programs within a specific course requirement. Students are expected to consult with their advisor on the requirement in their programs. *The student is responsible for ensuring that this requirement is met and has been approved by the student's advisor.*

Students meet this requirement through satisfactory completion of one of the following options. Each option requires student reflection and assessment of the educational experience.

1. A UNH-sponsored or UNH-approved study-abroad or study-away educational experience. (Academic advisor approval of study-abroad or study-away plans other than UNH-sponsored courses is required.)

2. An internship, capstone, or practicum course that is approved by the student's advisor. Course credit may range from 0 to 3 credits and may be part of a student's major requirements.
3. A course involving faculty-supervised research or scholarship that has been approved by the student's advisor. Examples include Independent Study, Senior Project, and participation in the UNH-SURF program.
4. A course identified as an experiential education (e.g., academic service learning) course approved by the Arts & Sciences Curriculum Committee. These courses include students applying their discipline-specific knowledge to a problem or project outside of the classroom arranged and approved by the course professor.

## 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 affords students the opportunity to address individual needs through

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.

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 each from two of the four focus areas for a minimum of 48 credits. Students must complete a minimum of three courses from a discipline in each of the other two. At least ten focus area courses that were not used to satisfy Core Curriculum requirements must be at the 300-level or above.

## 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 33 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.

## Undeclared Major

The undeclared major is designed for students who want to explore options before declaring an academic major that best suits their career and life 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, students who choose the undeclared major are assigned a faculty adviser who will guide the student in course selection and exploration of academic disciplines and majors. Faculty advisers work with students to select courses in disciplines of interest so that students can explore their options.

Advisers also work with students and the Office of Student Life to assess 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.

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 also select the undeclared major while they are considering a major. 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

**Assistant Professor:** John T. Kelly, Ph.D., University of California Davis

**Lecturers:** James Ayers, M.S., Purdue University; Nina Flay, Ph.D., University of Health Sciences/Chicago Medical School; Cheryl L. Lyon, N.D., University of Bridgeport; Rosemary Murray-Whelan, Ph.D., University College-Dublin

## 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. Biology 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 sci-

ence 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 a minimum of 122 credits for the General Biology and Pre-medical/Pre-dental/Pre-veterinary Medical Biology concentrations and a minimum of 125 credits for the Biochemistry concentration. 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 a variety of institutions. 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 eight 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

Plus two semesters of college physics with laboratory:  
 PH 103 General Physics with Laboratory  
 or

PH 105 Mechanics, Heat, and Waves with Laboratory

**and**

PH 104 General Physics II with Laboratory  
 or

PH 205 Electromagnetism and Optics with Laboratory

Plus three of the following:

BI 259–260 Vertebrate Anatomy and Physiology with Laboratory I and II

BI 303 Cells and Tissues with Laboratory

BI 304 Immunology with Laboratory

BI 305 Developmental Biology 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. In addition to the University Core Curriculum and eight 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

Plus two semesters of college physics with laboratory:

PH 103 General Physics with Laboratory

or

PH 105 Mechanics, Heat, and Waves with Laboratory

**and**

PH 104 General Physics II with Laboratory

or

PH 205 Electromagnetism and Optics with Laboratory

Plus three of the following biochemistry restricted electives:

BI 501 Protein Biochemistry and Enzymology

BI 502 Biochemistry of Bioenergetics

BI 503 Nucleic Acid Biochemistry

CH 221 Instrumental Methods of Analysis with Laboratory

CH 501 Advanced Organic Chemistry

Plus three of the following restricted electives:

BI 304 Immunology with Laboratory

BI 306 Genetics

BI 506 Genomics

BI 511 Molecular Biology of Proteins with Laboratory

BI 513 Molecular Biology of Nucleic Acid with Laboratory

BI 520 Bioinformatics

CH 211 Quantitative Analysis with Laboratory

### **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 320 Ecology 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

Plus two semesters of college physics with laboratory:

PH 103 General Physics with Laboratory

or

PH 105 Mechanics, Heat, and Waves with Laboratory

**and**

PH 104 General Physics II with Laboratory

or

PH 205 Electromagnetism and Optics with Laboratory

Plus four of the following:

BI 250 Invertebrate Zoology with Laboratory

BI 259–260 Vertebrate Anatomy and Physiology with Laboratory I and II

BI 303 Cells and Tissues with Laboratory

BI 304 Immunology with Laboratory

BI 305 Developmental Biology 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 211 Quantitative Analysis with Laboratory

CH 221 Instrumental Methods of Analysis with Laboratory

EN 500 Environmental Geoscience

MR 260 Marine Vertebrate Zoology with Laboratory

MR 310 Marine Biology with Laboratory

### **B.S., Biotechnology**

The bachelor of science in biotechnology program is designed to prepare 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. with a major in biotechnology must complete a minimum of 126 credits. Courses include the University Core Curriculum, the required courses listed below, and six 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

Plus two semesters of college physics with laboratory:

PH 103 General Physics with Laboratory

or

PH 105 Mechanics, Heat, and Waves with Laboratory

and

PH 104 General Physics II with Laboratory

or

PH 205 Electromagnetism and Optics 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.

These scientists 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 18 to 24 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 five 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

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

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

Plus two electives

### 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 124 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  
 M 117–118 Calculus I and II  
 M 203 Calculus III  
 PH 150 Mechanics, Heat, and Waves with  
 Laboratory  
 PH 205 Electromagnetism and Optics with  
 Laboratory  
 Plus 24 credits of electives

## B.S., Chemistry

See the departmental listing in the Tagliatela College of Engineering.

## 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:** Steven A. Raucher, 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, J.D., Bridgeport School of Law at Quinnipiac College; Donald C. Smith, Ph.D., University of Massachusetts at Amherst

**Assistant Professor:** Eun-A Park, Ph.D., Pennsylvania State University

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

**Lecturers:** Robert C. Boles, M.F.A., Sarah Lawrence College; Karen Isaacs, M.A., Fairfield University; Brian Lane, M.S., St. Joseph's College of Maine

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. Students 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 or journalism 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.

DAD 101 Introduction to Multimedia

This course may be used to fulfill core competency requirement 3.

#### 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 eleven electives chosen 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.

## Theatre Arts

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

The program seeks both students who wish to pursue careers in the theatre, as well as students who have a more general interest in the theatre and desire a strong undergraduate liberal arts education, which at the same time provides them with practical and marketable skills. Graduates of the program will be prepared to pursue careers and/or graduate school in a wide variety of theatre-related areas, but will also find the creative and practical skills required of a theatre major useful in many other careers including, but not limited to, law, business, political science, communication, and education.

The objectives of the program are to provide students with the opportunity to experience a high quality, well-rounded interdisciplinary education in the craft, art, and business of the theatre. Each student will be exposed to the various components that make up the theatre, and will be given the opportunity, in their junior and senior years, to concentrate on one

or more of these areas. These areas include performance, design, and arts administration.

The theatre program participates in the Kennedy Center American College Theatre Festival, providing students with many scholarship opportunities as well as workshops and master classes taught by theatre professionals in their areas of expertise. The festival is held annually in the New England region, and the national festival is held in Washington, D.C. The University has been cited by the Kennedy Center as having one of the best emerging new programs in New England.

The theatre is a reflection, an evaluation, and a celebration of life in all of its aspects. Diversity is what makes the theatre vibrant and alive. The theatre thrives on people who bring as many diverse areas of thought and life experience to the process as possible. The more resources students can bring to the theatre, the richer the theatre they create becomes. With that spirit and philosophy in mind, the University seeks to develop well-rounded and informed theatre students, prepared and ready to make positive contributions to the theatre of the twenty-first century by learning the lessons of the past, challenging the perceptions of the present, and embracing the possibilities of the future.

### B.A., Theatre Arts

Students earning a B.A. degree with a major in theatre arts must complete 121 credits. Courses include the University Core Curriculum and the course requirements for the particular theatre arts concentration as indicated below.

#### Concentration in Performance

T 132 Theatrical Style  
 T 150 Acting  
 T 241 Early World Drama  
 T 242 Modern World Drama  
 T 275 Stagecraft I  
 T 342 Directing I  
 T 350 Playwriting  
 T 485 Student Run Theatre  
 T 491 Production Practicum I  
 T 492 Production Practicum II

MG 210 Management and Organization  
 or  
 MK 200 Principles of Marketing  
 T 225 Beginning Dance  
 T 250 Acting II  
 T 442 Directing II  
 MU 116 Vocal Performance  
 Plus twelve electives

### Concentration in Design

T 241 Early World Drama  
 T 242 Modern World Drama  
 T 275 Stagecraft I  
 T 342 Directing I  
 T 350 Playwriting  
 T 485 Student Run Theatre  
 T 491 Production Practicum I  
 T 492 Production Practicum II  
 MG 210 Management and Organization  
 or  
 MK 200 Principles of Marketing  
 T 375 Stagecraft II  
 AT 103 Basic Design I  
 AT 213 Color  
 CO 114 Production Fundamentals  
 Plus twelve electives

### Concentration in Arts Administration

T 132 Theatrical Style  
 T 150 Acting I  
 T 241 Early World Drama  
 T 242 Modern World Drama  
 T 275 Stagecraft I  
 T 342 Directing I  
 T 350 Playwriting  
 T 485 Student Run Theatre  
 T 491 Production Practicum I  
 T 492 Production Practicum II  
 MG 210 Management and Organization  
 or  
 MK 200 Principles of Marketing  
 A 101 Introduction to Financial Accounting  
 CO 306 Public Relations Systems and Practices

LA 101 Business Law and the Regulatory  
 Environment  
 MG 210 Management and Organization  
 or  
 MK 200 Principles of Marketing  
 (in addition to the required program core course)  
 Plus twelve electives

### 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 AND SCIENCES.

## Education

**Chair:** Nancy S. Niemi, Ph.D., University of Rochester

**Professors:** Louise M. Soares, Ph.D., University of Illinois

**Associate Professors:** Nancy S. Niemi, Ph.D.,  
University of Rochester; Judy Randi, Ed.D.,  
Teachers College of Columbia University

**Assistant Professor:** Amanda R. Bozack, Ph.D.,  
University of Arizona

**Lecturers:** John Ciochine, M.A. and 6th Year  
Certificate, Fairfield University; Susanne  
Murphy, M.S. and 6th Year Certificate, Southern  
Connecticut State University; Lawrence Roberts,  
M.S. and 6<sup>th</sup> Year Certificate, Connecticut  
College and Sacred Heart University

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, music, science, social studies, and world languages.

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 4+1 Program in Education. 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 five and one-third years. Students in this program develop a modified major worksheet: for example, a "Bachelor of Arts in Mathematics — Pre-Education."

Students in the 4+1 Program in Education 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 4+1 Program in Education.) In their senior year undergraduates take two graduate 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, but not for the culminating student teaching experience. 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.

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 an undergraduate cumulative 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 in the student's 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 beginning student teaching.
- 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 major 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:** Srilekha Bell, Ph.D., University of Wisconsin; Paul Marx, Ph.D., New York University; Douglas Robillard, Ph.D., Wayne State University; Brenda R. Williams, Ph.D., Washington University

**Professors:** David E. E. Sloane, Ph.D., Duke University; Donald M. Smith, Ph.D., New York University

**Assistant Professors:** Randall Horton, Ph.D., State University of New York at Albany; Margaret F. Savelonis, Ph.D., University of Texas at Austin;

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

**Lecturers:** Pamela Asmus, Ph.D., Brown University; Jeffrey Foster, Ph.D., University of Rhode Island; Jonathan Hartmann, Ph.D., the Graduate Center of the City University of New York; Diane C. Russo, Ph.D., University of South Carolina; Leon Weinmann, Ph.D., University of Illinois at Urbana-Champaign.

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 by a variety of authors: 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. The major 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 get experience with a variety of written language compositions 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. The English track in the 4+1 Program in Pre-Secondary Education includes courses in literature, writing, and public speaking along with courses in American history and introduction to education.

## 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  
 Plus 16 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.

<u>Category I</u>	<u>Category II</u>	<u>Category III</u>	<u>Category IV</u>
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 371E 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  
 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

## Track in Pre-Secondary Education

The pre-secondary education track requires three additional literature courses, four writing courses, one public speaking course, an American history course, and three education courses.

## 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

E 110 Composition and Literature and fifteen additional credits in English above E 110, selected by the student in consultation with an English 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 Social Sciences and Humanities

## Global Studies, History, Modern Languages, Political Science, and Philosophy

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

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 stud-

ies, in history, and in political science, and minors in global studies, history, political science, philosophy, Arabic, Chinese, Russian, and Spanish-Latin American area studies. Modern languages include elementary and intermediate-level courses in Arabic, Chinese, French, German, Italian, Russian, and Spanish. Faculty members also have organized inter-session and summer study abroad programs in China, the United Arab Emirates, Bahrain, Dubai, Jordan, 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

**Coordinator:** 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  
 GLS 200 Issues in Global History and Cultures  
 GLS 490 Global Studies Internship  
*or* a semester abroad  
 GLS 491 Global Studies Research Seminar  
 PS 241 International Relations

Plus two semesters (six credits) of a modern language

other than the student's native language (Students concentrating in Area Studies should take a language relevant to their specific region.)

Plus two Global Studies electives (Global Studies electives, including special topics and independent studies, must be approved by the Global Studies adviser.)

Plus ten 300-level or 400-level electives

Students must select one of the focus areas described below and complete a minimum of five courses from the designated list. Special topics courses and independent studies may be applied to a concentration as appropriate, but only with prior approval by both the student's adviser and the Global Studies Advisory Committee. Students may alternately elect to construct a customized concentration, but it must be developed in careful consultation with the Global Studies adviser and approved by the Global Studies Advisory Committee.

### **Focus Area in Area Studies – choose *one* of the following areas:**

#### **Area Studies - The Americas**

E 406-409 International Literature  
 HS 350 Latin American History  
 MU 300 Studies in Music I  
 PS 283 Comparative Political Systems: Latin America  
 SP 401 Latin American Culture through Literature and the Media

Special Topics courses as approved by the Coordinator for Global Studies

#### **Area Studies - Europe**

E 406-409 International Literature  
 HS 270 Europe from Renaissance through Enlightenment  
 HS 345 Europe in the 19th Century  
 HS 351 Russia and the Soviet Union  
 HS 353 Modern Britain  
 HS 355 Modern Germany  
 HS 446 Europe in the 20<sup>th</sup> Century  
 MU 201-202 Analysis and History of European Art and Music I and II  
 PS 282 Comparative Political Systems: Europe

RU 401 Russian Culture through Literature and the Media

Special Topics courses as approved by the Coordinator for Global Studies

#### **Area Studies - Asia**

CN 401 Chinese Culture through Literature and the Media

HS 260 Modern Asia

HS 262 Modern Chinese History

HS 264 Modern Japanese History

PS 281 Comparative Political Systems: Asia

Special Topics courses as approved by the Coordinator for Global Studies

#### **International Relations**

CJ 325 Transnational Crime

CJ 535 Global Perspectives on Crime and Justice

CO 205 Intercultural Communication

EC 342 International Economics

HS 207 World History since 1945

LS 350 Global Legal Systems

PS 222 U.S. Foreign Policy

PS 241 International Relations

PS 243 International Law and Organization

PS 355 Terrorism

Special Topics courses as approved by the Coordinator for Global Studies

#### **Global Economy**

EC 200 Global Economy

EC 342 International Economics

EC 440 Economic Development

MK 326 Overview of e-Commerce

MK 413 International Marketing

MK 442 Marketing Research in a Global Environment

Special Topics courses as approved by the Coordinator for Global Studies

#### **Study Abroad**

All Global Studies majors are strongly encouraged to complete at least one study abroad experience.

## Minor in Global Studies

The Global Studies program offers several focus areas for students from other disciplines who wish to enhance their degree program. The minor in global studies consists of 18 credits. All students must complete GLS 100 Introduction to Global Studies. In consultation with their adviser and the Coordinator for Global Studies, they will additionally select five courses from one of the focus areas as listed above.

## History

**Coordinator:** Edmund N. Todd, Ph.D., University of Pennsylvania

**Associate Professor:** Paulette L. Pepin, Ph.D., Fordham University

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

**Lecturers:** Bradley Woodworth, Ph.D., Indiana University; 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

Students in the B.A. history program must complete 121 credits. The 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. Students interested in pursuing a career as a social studies teacher in secondary schools through the Bachelors Plus program will take five education courses instead of free electives in consultation with an adviser from the Education Department.

### Required Courses

HS 101 Foundations of the Western World

HS 102 The Western World in Modern Times

HS 200 History Methods

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  
upper division history course excluding:

HS 211/212

HS 260 Modern Asia

HS 491 Senior Seminar

Plus four upper-division history courses, one history elective at any level, and two restricted electives, one in social science and one in international relations

Plus fourteen electives

## 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

**Coordinator:** Roberto Irizarry, Ph.D., University of Kansas

In an interconnected world, the knowledge of modern languages has become increasingly important and greatly enhances global awareness. The Division offers a variety of courses in Arabic, Chinese, French, German, 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.

Refer to the course section of this catalog for courses beginning with the prefixes AR, CN, FR, GR, IT, RU, and SP.

The Division also offers four minors in Modern Languages:

### Minor in Arabic Language-Area Studies

This minor combines courses in basic and advanced language, literature and the media, as well as area studies. If students begin at a level beyond AR 102, they can take additional courses from the area studies category to meet the 18-credit hour requirement.

#### Required Courses

AR 102 Elementary Arabic II  
AR 201 Intermediate Arabic I  
AR 202 Intermediate Arabic II  
AR 301 Advanced Arabic  
AR 401 Arabic-Speaking Cultures through Literature and the Media

PS 285 Comparative Political Systems: Middle East or

Relevant special topics course in another discipline as selected with Modern Language adviser

### Minor in Chinese Language-Area Studies

This minor combines courses in basic and advanced language, literature and the media, as well as area studies. If students begin at a level beyond CN 102, they can take additional courses from the area studies category to meet the 18-credit hour requirement.

#### Required Courses

CN 102 Conversational Chinese II  
CN 201 Intermediate Chinese I  
CN 202 Intermediate Chinese II  
CN 301 Advanced Chinese  
CN 401 Chinese Culture through Literature and the Media

Plus one of the following:

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

Relevant special topics course in another discipline as selected with Modern Language adviser

### Minor in Russian Language-Area Studies

This minor combines courses in basic and advanced language, literature and the media, as well as area studies. If students begin at a level beyond RU 102, they can take additional courses from the area studies category to meet the 18-credit hour requirement.

#### Required Courses

RU 102 Elementary Russian II  
RU 201 Intermediate Russian I  
RU 202 Intermediate Russian II  
RU 301 Advanced Russian  
RU 401 Russian Culture through Literature and the Media

Plus one of the following:

HS 361 Russia and the Soviet Union

PS 282 Comparative Political Systems: Europe  
or

Relevant special topics course in another discipline as  
selected with Modern Language adviser

## Minor in Spanish Language-Latin American Studies

This minor combines courses in basic and advanced language, literature and the media, as well as area studies. If students begin at a level beyond SP 102, they can take additional courses from the area studies category to meet the 18-credit hour requirement.

### Required Courses

SP 102 Elementary Spanish II

SP 201 Intermediate Spanish I

SP 202 Intermediate Spanish II

SP 301 Advanced Spanish

SP 401 Latin American Culture through Literature  
and the Media

Plus one of the following:

E 409 International Literature - Spain

HS 350 Latin American History

MU 300 Studies in Music I (when offered as Latin  
American area studies in Music)

PS 283 Comparative Political Systems: Latin America  
or

Relevant special topics course in another discipline as  
selected with Modern Language adviser

## Philosophy

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

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

**Lecturer:** Gary Fetzer, M.S., Columbia 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.

The Political Science Department offers pre-law advising and tracking. The American Bar Association statement on preparation for legal education and for the LSAT (Law School Admission Test) serves as a guide for pre-law advising course selection. Courses are selected from the following academic areas in consultation with your Political Science Department advisor: political science, history, English/literature, communication, philosophy, psychology, and sociology.

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**

Students in the B.A. 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 21 credits of political science electives to be chosen with the student's departmental adviser

Plus nine electives

## **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 SOCIAL SCIENCES AND HUMANITIES

## Graphic Design

See VISUAL AND PERFORMING ARTS > Visual Arts.

# Division of Health Professions and Sciences

**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, nutrition and dietetics, and physics. The Division also offers a graduate degree in Human Nutrition, described in the Graduate Catalog.

## Dental Hygiene

**Director:** L. Teal Mercer, M.P.H.

**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 a minimum of 126 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  
 One three-credit elective from CC 5.2  
 One three-credit elective from CC 6  
 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  
 Plus one three-credit elective from CC 6

### Nutrition and Dietetics

**Director:** Georgia Chavent, M.S., R.D., CSSD

**Assistant Professor:** Georgia Chavent, M.S.,  
 Columbia University; R.D., Medical College of  
 Virginia

**Lecturer:** Rosa A. Mo, Ed.D., Columbia University;  
 R.D., Yale-New Haven Hospital

### 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 as a 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 175 Food, Nutrition, and Culture

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 335 Nutrition and Disease II  
 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 five 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  
 HTM 304 Volume Food Production and Service  
 HTM 307 Cultural Understanding of Food and Cuisine

## 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

## History

See DIVISION OF SOCIAL SCIENCES AND HUMANITIES

## 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; Baldev K. Sachdeva, Ph.D., Pennsylvania State University; Bruce Tyndall, M.S., University of Iowa; Shirley A. Wakin, Ph.D., University of Massachusetts

**Professors:** Ali A. Jafarian, Ph.D., University of Toronto; Erik Rosenthal, Ph.D., University of California, Berkeley; Ramesh Sharma, Ph.D., Banaras Hindu University, Ph.D., University of Windsor; James W. Uebelacker, Ph.D., Syracuse University; W. Thurmon Whitley, Ph.D., Virginia Polytechnic Institute and State University

**Associate Professor:** Marc H. Mehlman, Ph.D.,  
University of California, Riverside

**Lecturers:** Adam Bigos, M.S., Georgia Institute of Technology; Roger Fiondella, M.S., University of Bridgeport; Mary E. Hopkins, Ph.D., Florida Atlantic University; Craig Miller, Ph.D., University of Connecticut; Wilma Whitley, M.S., Virginia Polytechnic Institute and State University

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

Plus three restricted electives

Plus eight electives

### 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

DAD 101 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

Plus six hours of mathematics, chosen from M 204 or M 300 or above series

Plus two restricted electives

Plus eight electives

### 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 depends on specific upper-level electives chosen)

Plus five electives

### 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

Plus two restricted electives

Plus five electives

### 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

Plus six electives

### 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 SOCIAL SCIENCES AND HUMANITIES

## 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 AND SCIENCES.

## Philosophy

See DIVISION OF SOCIAL SCIENCES AND HUMANITIES

## Political Science

See DIVISION OF SOCIAL SCIENCES AND HUMANITIES

## Psychology

**Chair:** Stuart D. Sidle, Ph.D.

**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

**Associate Professors:** Alexandria E. Guzmán, Ph.D.,  
State University of New York at Binghamton;  
Stuart D. Sidle, Ph.D., DePaul University

**Assistant Professors:** Tara L'Heureux-Barratt,  
Ph.D., University of Connecticut; W. Amory  
Carr, Ph.D., Fordham University; Amy Nicole  
Salvaggio, Ph.D., University of Maryland; Melissa

L. Whitson, Ph.D., Columbia University Teachers  
College

**Lecturer:** Leonard Wysocki, Ph.D., 6th Year  
Certificate, University of Connecticut

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 the University Core Curriculum, 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.

### Required Core Courses

- P 111 Introduction to Psychology
- P 301 Statistics for the Behavioral Sciences
- P 305 Experimental Methods in Psychology
- P 306 Applied Experimental Psychology
- P 341 History and Systems

### Concentration in General Psychology

The general psychology concentration consists of 21 credits of psychology courses beyond the required core courses.

#### 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 350 Psychological Testing and 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 Child Development

P 217 Adolescent Development  
 P 321 Social Psychology  
 P 355 Organizational Behavior  
 P 370 Theories of Personality

Plus two psychology electives (6 credits) chosen with the academic advisor

Plus P 336 Abnormal Psychology

Plus fifteen electives

Additional required courses (which are used to satisfy Core Curriculum competencies):

BI 121 General and Human Biology with Laboratory I  
 BI 122 General and Human Biology with Laboratory II  
 SO 113 Sociology

### **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 Child Development  
 or  
 P 217 Adolescent Development  
 P 330 Introduction to Community Psychology  
 P 336 Abnormal Psychology  
 P 350 Psychological Testing and 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

Plus fifteen electives

Additional required courses (which are used to satisfy Core Curriculum competencies):

BI 121 General and Human Biology with Laboratory I  
 BI 122 General and Human Biology with Laboratory II  
 SO 113 Sociology

### **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 217 Adolescent 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 Theories 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

Plus eleven electives

Additional required courses (which are used to satisfy Core Curriculum competencies):

BI 121 General and Human Biology with Laboratory I  
 BI 122 General and Human Biology with Laboratory II  
 SO 113 Sociology

## 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

**Assistant Professor:** Jeffrey S. Debies-Carl, Ph.D.,  
 The Ohio State 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

**Interim Chair:** Steven A. Raucher, 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:** John Arabolos, M.F.A., Pratt Institute; Albert G. Celotto, M.A., Indiana University; Todd Jokl, M.A., University of Connecticut; Christopher Reba, M.A., State University of New York – Buffalo; Christy A. Somerville, M.A., California State University, Long Beach

**Lecturers:** Sarah Campernel, M.S., Colorado State University; Jason L. DeGroff, B.M., M.M.E.,

University of Massachusetts; Ricardo Febre, M.F.A., State University of New York – New Paltz; Victor Markiw, M.F.A., SUNY Purchase; Jesse Peck, M.A., Washington State University; Joseph Smolinski, M.F.A., University of Connecticut

## 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. The B.A. program is distinctive in its treatment of music as a world-wide phenomenon. The program 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 (eleven if MU 125-126 sequence is  
 not required)

## 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  
 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 (four if MU 125-126 sequence is not required)

### **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

Plus seven electives (eight if MU 125-126 sequence is not required)

### **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 the B.S. 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

Plus three electives (four if MU 125-126 sequence is not required)

#### **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, Digital Art and Design and Graphic Design,  
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 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.

Coupled with concentrations in Digital Art and Design and Museum Studies, 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 Introduction to Art  
AT 103-104 Basic Design I and II  
AT 105-106 Basic Drawing I and II  
AT 107 Introduction to Museum Studies  
AT 201-202 Painting I and II  
AT 209 Digital Photography and Imaging I  
AT 231-232 History of Art I and II  
AT 302 Figure Drawing  
AT 304 Sculpture I  
AT 315 Printmaking  
AT 401-402 Studio Seminar I and II  
AT 599 Independent Study

Plus one art history elective and two art electives

Plus ten electives

### B.A., Graphic Design

Graphic design is the study of visual and graphic literacy and the art of visual communication through words, symbols, pictures, and graphic elements. The BA in Graphic Design examines communication using multiple media including print, digital design, internet, information design, signage, and exhibition design. The curriculum explores the graphic designer's ability 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 curriculum continues and progresses through advanced conceptual ideas and practical techniques associated with typographic studies, illustration, critical analysis, problem-solving methodology, advanced computer projects, and complex applied design projects. The BA in Graphic Design prepares students for the professional environment of graphic design found in design studios, corporations, and agencies. Additionally, the rigorous course of study provides students with the foundation to continue with graduate studies in the field.

### Required Courses

GD 109 Introduction to Graphic Design  
 GD 110 Applications of Graphic Design  
 GD 211 Intermediate Graphic Design  
 GD 212 Website Creation  
 GD 213 Typography I  
 GD 214 Typography II  
 GD 311 Advanced Graphic Design  
 GD 312 Illustration  
 GD 313 Digital Illustration and Information Design  
 GD 411 Capstone Seminar in Graphic Design  
 GD 412 Professional Practices in Graphic Design  
 GD 598 Internship  
 AT 103 Basic Design I  
 AT 104 Basic Design II  
 AT 105 Basic Drawing I  
 AT 106 Basic Drawing II  
 AT 209 Digital Photography I  
 AT 231 History of Art I  
 AT 232 History of Art II  
 AT 315 Printmaking

### Concentration in Digital Art and Design

This concentration is most appropriate for students interested in careers in the rapidly growing fields of digital design, animation, and website development. In conjunction with a student's studies in Graphic Design, the Digital Art and Design concentration will pair the skills learned in the Graphic Design curriculum with Digital Art and Design studies in web design, computer modeling and animation, and digital and information design. Active markets for Digital Art and Design include: the Internet, where careers in web page creation and website management have grown exponentially in recent years; business, where computer presentations have taken the place of slide shows; education, where teachers are finding new ways to present their material; and the entertainment industry, with the ever-growing use of computers for special effects in games, music videos, and films.

### Required Courses

In addition to the BA Graphic Design major requirements, students must also complete the following:

DAD 102 Digital Art and Design  
 GD 212 Website Creation  
 DAD 301 3D Animation and Computer Modeling  
 DAD 302 Digital Art and Design Seminar  
 Plus five electives

### Minor in Art

A total of 18 credits in art is required for the minor in art. Students must complete the following courses:

AT 101 Introduction to Art  
 AT 107 Introduction to Museum Studies  
 Plus two of the following Art History courses:  
 AT 231 Art History I  
 AT 232 Art History II  
 AT 331 Contemporary Art  
 AT 333 Survey of African-American Art  
 Plus two of the following:

AT 201 Painting I  
 AT 209 Digital Photography and Imaging I  
 AT 302 Figure Drawing  
 AT 304 Sculpture I  
 AT 207 Exhibition Development I  
 AT 208 Exhibition Development II

### Minor in Digital Art and Design

A total of 18 credits is required for the minor in digital art and design. Students must complete the following courses:

DAD 101 Introduction to Multimedia  
 DAD 102 Digital Art and Design  
 AT 209 Digital Photography and Imaging I  
 GD 212 Website Creation  
 DAD 301 3D Animation and Computer Modeling  
 DAD 302 Advanced Digital Art and Design Seminar

### Minor in Graphic Design

A total of 18 credits is required for the minor in Graphic Design. Students must complete the following courses:

GD 109 Graphic Design I  
 GD 110 Graphic Design II



GD 211 Intermediate Graphic Design  
GD 212 Website Creation

Plus two courses from the following:

Any GD 300-level or higher courses

Any DAD 200-level or higher courses

### Minor in Museum Studies

A total of 18 credits is required for the minor in Museum Studies. Students must complete the following courses:

AT 101 Introduction to Art

AT 107 Introduction to Museum Studies

AT 207 Exhibition Development I

AT 208 Exhibition Development II

AT 209 Digital Photography and Imaging I

Plus one of the following:

AT 231 Art History I

AT 232 Art History II

AT 331 Contemporary Art

AT 333 Survey of African-American Art

ID 315 History of Architecture and Interiors I

ID 316 History of Architecture and Interiors II

HS 270 Europe from Renaissance through Enlightenment

### Minor in Photography

A total of 18 credits is required for the minor in Photography. Students must complete the following courses:

AT 209 Digital Photography and Imaging I

AT 210 Digital Photography and Imaging II

AT 309 Photographic Design

AT 310 Photographic Lighting

AT 311 Digital Color Photography

DAD 101 Introduction to Multimedia

### 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 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 319 Interior Systems, Materials and Codes  
 ID 320 Interior Products and Specifications  
 ID 400 Portfolio Presentation  
 ID 411–412 Interior Design V and VI  
 ID 414 Professional Practices for Interior Designers  
 ID 598 Internships for Interiors and Allied Fields  
 or  
 ID 599 Independent Study  
 Plus the following art courses:  
 AT 103-104 Basic Design I and II  
 AT 105 Basic Drawing I  
 AT 213 Color  
 Plus three electives (9 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 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 319 Interior Systems, Materials and Codes  
 ID 320 Interior Products and Specifications  
 ID 400 Portfolio Presentation  
 ID 411–412 Interior Design V and VI  
 ID 414 Professional Practices for Interior Designers  
 ID 598 Internships for Interiors and Allied Fields  
 or  
 ID 599 Independent Study  
 Plus the following art courses:  
 AT 103-104 Basic Design I and II  
 AT 105 Basic Drawing I  
 AT 213 Color  
 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 Sustainable Urban Planning  
 Plus one elective

### **Visual Arts**

See VISUAL AND PERFORMING ARTS.

# COLLEGE OF BUSINESS

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**Richard A. Highfield, B.A., M.B.A., Ph.D., Dean**

**Ben Judd, B.A., M.S., Ph.D., Associate Dean**

## Mission

The College of Business is a leader in student-centered graduate and undergraduate business and professional education for diverse, career-focused, global learners. We provide a high-quality, career-advancing education that emphasizes discovery-based learning and continuous self-improvement. The College achieves distinction by providing an education for a competitive global marketplace. We will ensure student success by integrating real-life learning, communication skills, technological competencies, and an awareness of social responsibility. The College faculty advances business knowledge through contributions to their disciplines, applications to practice, and innovations to pedagogy.

## College Learning Goals

Graduates of our business degree programs should be able to demonstrate:

- Fundamental business, analytical, and technical knowledge
- A global and integrated business perspective
- Social responsibility and ethical awareness
- An ability to communicate, collaborate, and continually self-improve

## 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 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 in several activities each year. 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 a 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.

## Experiential Education Requirement

In addition to participating in activities of the Robert Alvine Professional Enrichment Program, all College of Business students are required to engage in some designated experiential education activity. This may include internships, a practicum, study abroad, faculty-sponsored research, or academic service learning program. This experiential focus is consistent with University policy and provides a link between classroom instruction and career development. Students should meet with their advisor to plan the activity appropriate for their study program. Students will register for BA 500 during their senior year to record completion of their experiential education requirement and participation in the Robert Alvine Professional Enrichment Program. Evening students are exempt from this requirement.

## Complementary Non-Business Study

Most business majors require at least 15 credits of non-business studies beyond core curriculum requirements. All students in business majors are strongly encouraged to meet with their advisors to plan a set of complementary non-business courses which support their career goals. Depending on the major, these courses might focus on foreign language skills, graphic design skills, legal studies, additional science or technology, international history or political science, or other social sciences.

## 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 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. Full-time students must also secure approval from University College before being permitted to enroll in accelerated courses. 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 conform to the following template:

**University Core Curriculum:** 37 credits (40 credits including QA 380)

Electives/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.

*Analysis and Problem Solving*

M 109 Intermediate Algebra

This course fulfills core competency requirement 2.2.

*Using Technology*

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.

*History and Effective Citizenship (choose one)*

PS 121 American Government and Politics

PS 122 State and Local Government and Politics

This course fulfills core competency requirement 4.2.

*Social Interaction (choose one)*

P 111 Introduction to Psychology

SO 113 Sociology

This course fulfills core competency requirement 5.1.

**Non-Business Restricted Electives:**

12 credits minimum plus:

QA 118 Business Mathematics

QA 216 Business Statistics

Most business program majors require at least 15 additional credits in a non-business topic beyond the University Core Curriculum requirements and QA 118 and QA 216. 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 Introduction to 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.

**Assistant Professor:** Xinyi Lu, Ph.D., University of Texas at Dallas

**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.

The department encourages internships, which enable students to combine their education with practical, paid work experience in their career field. For additional details, consult your academic advisor and the Office of Internships and Employer Relations at 203.932.7491.

### **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), Business core curriculum restricted electives (12 credits), non-business elective 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:** Phillip Kaplan, Johns Hopkins University; Ward Theilman, Ph.D., University of Illinois

**Professors:** Richard Highfield, Ph.D., University of Chicago; Robert M. Rainish, Ph.D., City University of New York; 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

**Assistant Professors:** Esin Cakin, Ph.D., City University of New York; Nadejda Doytch, Ph.D., City University of New York

**Lecturer:** Gregory Blosick, Ph.D., Ohio State University

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 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.

The department encourages internships, which enable students to combine their education with practical, paid work experience in their career field. For additional details, consult your academic advisor and the Office of Internships and Employer Relations at 203.932.7491.

## B.S., Finance

Students earning a B.S. degree in finance are required to complete 121 credits, including the core curriculum (37 credits), Business core curriculum restricted electives (12 credits), non-Business elective 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 fulfills 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

**Professor:** 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, Marketing, and Quantitative Analysis**

**Chair:** Cheng Lu Wang, Ph.D.

**Professors Emeriti:** Robert P. Brody, D.B.A., Harvard University; 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, Ph.D., Western University (California), J.D.; George T. Haley, Ph.D., University of Texas at Austin; Ben B. Judd, Jr., University of Texas at Arlington; 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; Cheng Lu Wang, Ph.D., Oklahoma State University

**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; Subroto Roy, Ph.D., University of Western Sydney

**Assistant Professors:** Khadija Al Arkoubi, Ph.D., New Mexico State University; Ahmet S. Ozkul, Ph.D., Clemson University

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 department encourages internships, which enable students to combine their education with practical, paid work experience in their career field. For additional details, consult your academic advisor and the Office of Internships and Employer Relations at 203.932.7491.

### **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 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 (3)
- MG 350 Management of Workforce Diversity (3)  
(Students completing the Concentration in Management of Sports Industries may substitute a 3-credit MG or SM elective for MG 350)
- MG 415 Multinational Management (3)
- MG 512 Contemporary Issues in Business and Society (3)

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:

SM 120 Development of American Sports (3)

Together with QA 118 and QA 216, this course partially fulfills the core curriculum restricted-elective requirement.

### Business Restricted Electives:

SM 230 Management of Sports Industries (3)

SM 235 Marketing and Public Relations in Sports (3)

SM 320 Sports Industries and the Law (3)

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 60 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 Introduction to 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

EC 133 Principles of Economics I

LA 101 Introduction to Business Law and the Regulatory Environment

MG 210 Management and Organization

MG 240 Business Ethics and Diversity

MK 200 Principles of Marketing

### **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

## **Marketing**

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.

The department encourages internships, which enable students to combine their education with practical, paid work experience in their career field. For additional details, students should consult their academic advisor and the Office of Internships and Employer Relations at 203.932.7491.

Students earning a B.S. degree in marketing are required to complete 121 credits, including the core curriculum (37 credits), Business core curriculum restricted electives (12 credits), non-Business elective 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

**Minor in Professional Sales**

Students are encouraged to consider course work that segues well with their specific areas of interest. Students completing the professional sales minor will learn to apply sales theories, employ the foundations of selling, understand buyers, employ communication skills, apply selling strategies, initiate customer relationships, approach customers and deliver sales presentations. Students in the sales minor will be prepared to utilize well-developed and rational decision-making methodologies in handling customer dealings, participate in team selling, employ techniques of self-leadership, and coordinate and execute activities that support the creation of goods and services.

**Minor in Professional Sales  
(Business program majors only)**

Requirements for the minor in professional sales for business program majors only are nine credits beyond the business program core.

Complete the following courses (6 credits)

MK 316 Sales Management (3)

and

MK 317 Negotiation and Sales (3)

Complete 3 additional credits in Sales from the following:

MK 302 Organizational Marketing (3)

or  
 One of the Special Topics, MK 450, courses (3)  
 or  
 Practicum, Internship, or Independent Study (3)

### **Minor in Professional Sales (Non-business and business-related program majors only)**

Requirements for the minor in professional sales for non-business or business-related program majors only are the following 18 credits:

Complete the following courses (12 credits)  
 MK 200 Principles of Marketing (3)  
 MG 210 Management and Organization (3)  
 MK 316 Sales Management (3)  
 and  
 MK 317 Negotiation and Sales (3)

Complete 6 additional credits in Sales from the following:

MK 302 Organizational Marketing (3)  
 or  
 One of the Special Topics, MK 450, courses (3)  
 or  
 Practicum, Internship, or Independent Study (3)

## Quantitative Analysis

The modern corporation operates on the basis of a set of programs of data collection to track its activities and to understand the efficiency and profitability of its processes. The faculty in Quantitative Analysis deliver 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. A minor in quantitative analysis is offered 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.

## 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

**Associate Professor:** Juline Mills, Ph.D., Purdue  
 University

**Assistant Professors:** Ming-Lun Lee, Ph.D.,  
 University of Nevada, Las Vegas; Kevin P.  
 Mongeon, Ph.D., Washington State University

Sports management is a rapidly growing field that provides numerous career options from professional and collegiate sports to sport broadcasting or 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. UNH focuses on the business side of these industries. Our graduates work in numerous business environments leveraging their 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 department encourages internships, which enable students to combine their education with practical, paid work experience in their career field. For additional details, students should consult their academic advisor and the Office of Internships and Employer Relations at 203.932.7491.

### **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:**

SM 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**

SM 230 Management of Sports Industries (3)  
 SM 235 Marketing and Public Relations in Sports (3)  
 SM 320 Sports Industries and the Law (3)  
 MG 331 Management of Human Resources (3)  
 MG 350 Management of Workforce Diversity (3)  
 One SM elective (3)

and

MG 415 Multinational Management (3)  
 or  
 HTM 410 International Tourism (3)

#### **Business Restricted Electives: 12 credits**

SM 325 Sports Facility Management (3)  
 SM 430 Financial Management for Sports Administration (3)  
 SM 475 Sport Event Management (3)  
 SM 598 Internship (3)

### **Minor in Management of Sports Industries**

Requirements for the Minor in Management of Sports Industries are the following 15 credits:

SM 120 Development of American Sports (3)

Plus four courses (12 credits) from the following list:

SM 230 Management of Sports Industries (3)

SM 320 Sports Industries and the Law (3)

SM 325 Sports Facility Management (3)

SM 430 Financial Management for Sports Administration (3)

SM 235 Marketing and Public Relations in Sports (3)

SM 475 Sport Event Management (3)

SM 584 Sport Facility Development/Construction (3)

SM 585 Applied Collegiate Fitness and Athletics (3)

SM 586 Sport Business Development and Sustainability (3)

SM 598 Internship (3)

### **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), Business core curriculum restricted electives (12 credits), non-Business elective 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  
 SM 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.

**Professor:** Jack Werblow, Ph.D., University of Cincinnati

**Associate Professor:** 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 Introduction to 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.



# TAGLIATELA COLLEGE OF ENGINEERING

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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 address 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
- Develop 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
- Integrate the theory and practice of engineering by actively partnering 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 Industrial, System, and Multidisciplinary Engineering (ISME)

- The Department of Mechanical, Civil, and Environmental Engineering (MCEE)

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	ISME
Information Technology	EE/CEN/CS
Mechanical Engineering	MCEE
System Engineering	ISME
<b>Associate in Science</b>	
Computer Science	EE/CEN/CS

**Certificates**

Biomedical Engineering	ISME
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**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	ISME
Mechanical Engineering	MCEE

**Dual Degree**

M.B.A./M.S. Industrial Engineering	ISME
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**Graduate Certificates**

Civil Engineering Design	MCEE
Computer Applications	EE/CEN/CS
Computer Programming	EE/CEN/CS
Computing	EE/CEN/CS
Logistics	ISME
Lean/Six Sigma	ISME
Quality Engineering	ISME

**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 engi-

neering 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.

**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.

**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 year-long, 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:** Pauline M. Schwartz, 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 Instructors:** Tiffany Hesser, M.S.,  
University of New Haven; John G. Haggerty,  
Ph.D., Dartmouth College; Pier F. Cirillo, Ph.D.,  
Boston University; Jeffrey A. Webb, Ph.D.,  
SUNY at Stony Brook

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.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 gov-

ernment 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”). 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 tak-

ing 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

**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; Norman Hosay, Ph.D., University of Wisconsin

**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; Andrew Brooks, Ph.D., University of Strathclyde; Barun Chandra, Ph.D., University of Chicago; David W. Eggert, Ph.D., University of South Florida; Christopher Martinez, Ph.D., University of Texas at San Antonio

**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 non-computer-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:** Christopher Martinez, 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 com-

puter 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/organiza-

tions 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 structures 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 year-long 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 127 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 Signals and Systems  
 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:** David W. Eggert, Ph.D.

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). Its objectives are to inform, challenge, and train our diverse student body for a constantly changing world of technology. Our objective is to educate graduates who will have the following:

- Ability to work effectively and professionally with others

- Ability to work effectively in a variety of contexts using various languages, systems, 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
- Ability to move into a leadership position within a few years of graduation

At the time of graduation, every student should have achieved the following program outcomes:

- Have acquired a solid body of knowledge and understanding of computer hardware, software, and theory, as defined by the Association for Computing Machinery (ACM) curriculum guidelines
- Demonstrate the ability to communicate technical material effectively to a range of audiences in writing, orally, and graphically
- Have the ability to analyze, design, implement, and document a program for a given application
- Demonstrate a professional level of skill in programming, both individually and collaboratively
- Comprehension of engineering trade-offs involved in business choices
- Have the knowledge of the rights, obligations, and legal and ethical concerns of the computing professional
- Understand the local and global impact of computing on individuals, organizations, and society
- Be prepared for career-long learning

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, science, and engineering. Intermediate courses include the study of systems, hardware, and theory. Advanced courses are avail-

able in various application areas such as systems programming and web application and development.

### 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 degree of bachelor of science in computer science.

#### Freshman Year

- CS 110 Introduction to C Programming (3)
- CS 166 Discrete Mathematics for Computing (3)
- CS 210 Java Programming (3)
- EAS 107P Introduction to Engineering (3)
- E 105 Composition (3)
- E 110 Composition and Literature (3)
- FE 001 Freshman Experience (required for all first-time day-division freshmen) (1)
- HS 101 Foundations of the Western World (3)
- or
- HS 102 The Western World in Modern Times (3)
- M 117 Calculus I (4)
- M 118 Calculus II (4)

Plus one Social Interaction core elective (3)

### Sophomore Year

CS 212 Intermediate C Programming (3)  
 CS 214 Computer Organization (3)  
 CS 215 Introduction to Databases (3)  
 CS 216 Computer Organization Laboratory (1)  
 CS 226 Data Structures using Collections (3)  
 EAS 109 Project Planning and Development (2)  
 EE 155 Digital Systems I (3)  
 M 203 Calculus III

Two semesters of a laboratory science (4 + 4)  
 One semester Aesthetic Responsiveness core elective (3)  
 One semester Global Perspective core elective (3)

### Junior Year

CS 247 Networking Essentials and Technologies (3)  
 CS 320 Operating Systems (3)  
 CS 326 Data Structures and Algorithms (3)  
 CS 398 Internship (1)  
 E 220 Writing for Business and Industry (3)  
 or  
 E 225 Technical Writing and Presentation (3)  
 E 300 Writing Proficiency Exam (0)  
 EAS Project Management and Engineering  
 Economics (3)  
 EAS 345 Applied Engineering Statistics (3)  
 One semester Citizenship core elective (3)  
 One semester Math/Science elective (4)  
 CS elective (3)  
 One semester Math/Science elective (3)

### Senior Year

CS 416 Social and Professional Issues in Computing (3)  
 CS 428 Software Project Analysis and Design(3)  
 Project elective:  
 CS 441 Web-Database Application Development (3)  
 or  
 CS 526 Object-Oriented Principles and Practice/C++ (3)  
 Security elective:  
 CS 446 Introduction to Computer Security (3)  
 or  
 CS 534 Cryptography and Data Security (3)  
 CS 504 Senior Software Project (3)  
 CS 536 The Structure of Programming Languages (3)  
 CS 547 Systems Programming (3)

Two semesters CS Senior elective (3 + 3)  
 One semester elective (3)

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:** David W. Eggert, 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

CS 110 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

### 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 formulate problems, analyze appropriate models, conduct empirical tests, gather relevant information, interpret empirical tests, develop appropriate models, develop alternative solutions, 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 Signals and Systems  
 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  
 EE 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 Signals and Systems 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

CS 110 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 398 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

DAD 101 Introduction to Multimedia

GD 212 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 Software Project Analysis and Design  
or

CS 504 Senior Software 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:** John Sarris, 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; 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:

- 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 and program outcomes:

### 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

### Program Outcomes

Upon satisfactory completion of the Civil Engineering program, students should:

- Have the ability to solve civil engineering problems by applying fundamental knowledge of mathematical, computational, scientific, and engineering concepts
  - Have the ability to design and conduct experiments, and to collect, analyze, and interpret data
  - Have the ability to identify, formulate, and solve civil engineering problems
  - Have the ability to use appropriate techniques, skills, and modern engineering tools necessary for civil engineering practice
  - Have the skills to plan, design, construct, and operate a system, component, or process that satisfies performance, cost, time, safety, quality, and environmental constraints
  - Have the ability to function and communicate effectively both at the individual level as well as within multidisciplinary team settings
  - Have the broad-based education necessary to understand the impact of civil engineering solutions in a global, societal, and environmental context
  - Understand professional and ethical responsibility
  - Recognize the need for and gain the ability to engage in life-long learning
  - Have knowledge of contemporary issues
- To help achieve the educational objectives and program outcomes 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.

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, emerging, and sustainable 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 the 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 129 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  
 E 300 Writing Proficiency Exam  
 EAS 232 Project Management and Engineering  
 Economics  
 EAS 345 Applied Engineering Statistics  
 Plus one Core Competency 5.2 elective (EAS 300  
 Global Solutions for Sustainability), 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 Civil Engineering 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, engineer-  
 ing majors may substitute other civil engineer-  
 ing 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 tech-  
 nical 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.

## Engineers without Borders

Engineers without Borders supports community-driven development programs through the design and implementation of sustainable engineering projects and fostering responsible leaderships. It promotes the professional development of members by its programs and relations with other EWB student chapters. To learn more, visit our website at [engineerswithoutborders@newhaven.edu](mailto:engineerswithoutborders@newhaven.edu).

## 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 will be able to:

- Utilize modern techniques to solve mechanical engineering problems within the context of engineering practice
- Design, develop, test, analyze and/or manufacture mechanical engineering components, systems, and/or processes
- Function productively as team members and effective communicators

- Appreciate and address contemporary issues, including ethical, safety, and environmental concerns related to mechanical engineering
- Strive for continuous self-improvement

By the time they graduate, mechanical engineering students should be able to:

- 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. 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. Restricted and technical elective courses offer the opportunity for further learning in areas such as fluids, energy, design, heat transfer, numerical analysis and com-



puters, aerospace sciences, and control systems.

Experienced practitioners from industry may also contribute their expertise in selected courses. Faculty and students work with industry in research and design projects.

### 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 are invited to join the Delta Zeta Chapter of the Pi Tau Sigma mechanical engineering 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.

### Internship

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 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 internship 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 40 years.

### Required Courses

Students earning the bachelor of science degree in mechanical engineering are required to complete 128 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

ME 101 Engineering Graphics

Plus one lab science elective (EAS 120 or a four-credit biology course)

### 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 101 Engineering Graphics

ME 215 Instrumentation Laboratory

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 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)

ME 398 Internship

Plus 3 credits of a restricted ME elective (ME 344 or controls-related course, and 3 credits of a Social Interaction (Core Competency 5.1) elective

### 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 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 101 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.

## 4+1 BS/MS Mechanical Engineering Program

The 4+1 combined BS/MS Mechanical Engineering degree program is available to qualified mechanical engineering upper-level students. Two graduate-level courses (ME 602 and ME 604) taken during the senior year count toward both the BS and MS degrees in Mechanical Engineering. During the fifth year, students complete the MSME degree by taking nine more ME graduate-level courses.

To qualify, students must apply for admission no later than two semesters prior to the anticipated fulfillment of the BSME degree requirements, have a cumulative GPA of at least 3.0 at the time of application to the 4+1 program (upon completion of 90 credits toward the BSME degree), and submit one letter of recommendation by a mechanical engineering faculty member. A minimum grade of B- is required in each of the two overlapping graduate courses for them to apply to both programs.

## Industrial, System, and Multidisciplinary Engineering

**Chairman:** Ismail I. Orabi, 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 Industrial, System, and Multidisciplinary Engineering Department (ISME) strives to promote inter- and multidisciplinary perspectives, education, and research that relates to engineering and technology. The department strives to achieve a process of continuous improvement of the curricula, provide a faculty that is current in their field, maintain state-of-the-art facilities, and develop innovative interdisciplinary and specialized programs.

Goals of the ISME are as follows:

- To attract and retain highly qualified students of diverse backgrounds and prepare them for successful careers and leadership positions
- To promote scholarly activities that enrich the educational programs
- To develop partnerships with business, industry, government, and the scientific community and be responsive to their needs for education, service, and research
- To create design-oriented, active learning environments where students obtain hands-on laboratory and design experience
- To support the Engineering and Applied Science (EAS) “spiral” engineering curriculum

To do this, the department offers the following:

- MS in Industrial Engineering
- MS in Engineering and Operations Management
- BS in System Engineering
- BS in General Engineering for students seeking a comprehensive education in engineering science
- Certificate in Biomedical Engineering for students in other engineering disciplines seeking a basic competency in the discipline and enhanced background in the life sciences
- Elective and required courses to support the needs of students outside the major and minor programs
- The Engineering and Applied Science (EAS) “spiral” engineering curriculum

## Program Educational Objectives

Upon graduation, every student should be able to do the following:

- Exhibit an ability to apply knowledge of basic natural sciences, engineering sciences, and mathematics to engineering problems that require synthesis, including the ability to analyze, design, and implement solutions to engineering problems
- Exhibit an ability to communicate well, both orally and in writing
- Be responsible, well-rounded and aware of broad social issues, and cognizant of the need for personal growth and self-reflection
- Be prepared for direct entry into the professional environment and to further their education at the graduate level.

### First-Year Engineering Program

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:** Ismail I. Orabi, 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. The program 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 student can combine a minor in electrical, mechanical, or chemical engineering 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.

## Certificate in Biomedical Engineering

The undergraduate certificate in Biomedical Engineering offers students an opportunity to obtain academic training in a rapidly developing field of study and complement their primary majors. Students in the certificate program must fulfill the requirements for an undergraduate degree and also meet the additional requirements of the certificate program. It is designed to introduce biomedical engineering and enhance skills in engineering and science. The certificate provides a strong foundation in biomedical engineering life sciences within the clinical environment. Through proper advising, students take classes that will count toward the certificate and major requirements. A total of 15 credits is required for the certificate program.

## Required Courses:

BI 259 Vertebrate Anatomy and Physiology I with Laboratory  
 BI 260 Vertebrate Anatomy and Physiology II with Laboratory  
 BME 300 Introduction to Biomedical Engineering  
 BME 350 Biomechanics  
 BME450 Special Topics in Biomedical Engineering

## B.S., System Engineering

**Program Coordinator:** Amy Thompson, Ph.D.

System engineering, as a formal engineering discipline, traces its history to the 1950s but is playing an even greater role in the 21st century given the advances in information technology, engineering technologies, and the trend in globalization. It is one of the most broad-based disciplines in engineering and its application results in balanced solutions to diverse and complex problems primarily related to product development and commercialization processes. Given the global marketplace, the ever-shrinking levels of both natural and human resources, and increasing product and system complexities, system engineering is becoming 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, reconfigurability, reliability, maintainability, 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 through production, service, and all lifecycle phases, considering all the needs

of the customer. System engineers are specialists and experts in applying the system engineering method to complex product and system development.

### **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 prepared to contribute to their chosen professions in various sectors of the economy. The program objectives are to prepare graduates who:

- Apply system thinking to problems
- Achieve academic and technical competence to pursue professional careers in engineering and technology fields
- Acquire and sustain gainful employment in the field commensurate with their education and career goals
- Excel at working on system engineering and related projects and jobs
- Pursue advanced and graduate studies and engage in career-long education
- Contribute to the profession and the society at large through professional societies, community service, and civic activities
- Act as ethical and responsible citizens

The highly interdisciplinary System Engineering program at the University of New Haven 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, engineering through the Multidisciplinary Engineering Foundation Spiral Curriculum, and system engineering. System engineering students learn system engineering principles using modern and advanced computer applications that prepare a graduate to enter the workforce in virtually all industries and

economic sectors, including high-tech manufacturing, engineered-products companies, consultancy, transportation, service, and government.

The program consists of 128 credits including 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 398 System Engineering Internship  
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 to bridge theory and practice by providing students the opportunity to see firsthand how an engineering enterprise works. The internship must involve a partnership consisting of student, engineering faculty, and employer/organiza-

tion 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 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 one 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.

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

### **Minor in Sustainability Studies**

The minor in Sustainability Studies is directed toward students seeking to better understand environmental considerations in industry, government, non-profit, and academic institutions. Courses enhance students' major area of study by providing links between science, engineering, mathematics, business, economics, and the humanities. The minor takes a problem-solving approach to the discipline as students learn to apply broad knowledge to specific institutional, local, or global problems. Students in this minor develop valuable insights into the nature of current sustainability practices. Students select five courses from the following list of courses. Students must fulfill all prerequisites for the courses chosen.

- AT 340 Contemporary Issues of Art and the Environment
- EAS 300 Global Solutions for Sustainability
- EC 240 Research Methods in Sustainability
- EC 370 Environmental and Natural Resources Economics
- EN 101/102 Introduction to Environmental Science with Laboratory
- EN 370 Ecology of Sustainability
- EN 540 Introduction to Geographic Information Systems
- HS 310 Environmental History
- LS 405 Environmental Law
- SE 310/311 Design for Environment with Laboratory
- SU 312 Introduction to Traditional and Alternative Energy Systems

# HENRY C. LEE COLLEGE OF CRIMINAL JUSTICE AND FORENSIC SCIENCES

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Richard H. Ward, D.Crim., Dean

William M. Norton, Ph.D., J.D., Associate Dean

Mario T. Gaboury, 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 public safety and security and public service. 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.

## 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

### Associate in Science

#### Criminal Justice

- Fire and Occupational Safety

- Legal Studies

### Certificates

- Crime Analysis

- Criminal Justice Management

- Fire/Arson Investigation

- Fire Prevention

- Forensic Computer Investigation

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; Michael P. Lawlor, J.D., George Washington University, Connecticut State Representative; James O. Matschulat, M.B.A., St. John's University; James Monahan, Ph.D., Florida State University; Donna Decker Morris, J.D., Yale University; Martin J. O'Connor, J.D., University of Connecticut, M.Div., Yale Divinity School; Christopher M. Sedelmaier, Ph.D., Rutgers University

**Assistant Professors:** Katherine M. Brown, Ph.D., Sam Houston State University; Leila Dutton, Ph.D., University of Rhode Island; Charles Lieberman, Ph.D., City University of New York – John Jay College of Criminal Justice; Daniel Mabrey, Ph.D., Sam Houston State University; Fadia Narchet, Ph.D., Florida International University; David A. Schroeder, Ph.D., City University of New York – John Jay College of Criminal Justice; Tracy L. Tamborra, Ph.D., City University of New York – John Jay College of Criminal Justice

**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:**

David A. Schroeder, 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:**

Tracy L. Tamborra, Ph.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 3.5 cumulative G.P.A. are eligible for membership. Graduate students who have a 3.5 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 and ten 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 312 The 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 and eight 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 psy-

chology 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 Child Development
  - P 336 Abnormal Psychology
  - P 370 Psychology of Personality
- Plus two restricted electives and seven 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 program 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 complete a study-abroad experience in their language country, taking electives of their choosing to equal a minimum of nine credits. Such experiences in total provide a superior undergraduate education to those anticipating a federal career track or as preparation for a strong graduate program. In support of the concentration, the Criminal Justice faculty 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 (40 credits), the common courses for criminal justice majors listed above (33 credits), and the following specified concentration courses (18 credits), a study-abroad experience of at least nine credits, and 21 elective credits.

**University Core Curriculum** — Specific courses or advisor approval are required for 8 of the 12 University Core Curriculum categories for the Concentration in International Justice and Security as indicated below:

- CC 1.1 E 105 and E 110 (6)
- CC 1.2 Foreign Language (3)
- CC 2.2 Any science with lab approved for the University Core (4)
- CC 2.2 Any qualifying Math above M 109 (3)
- CC2.3 CJ 250 (3)
- CC 3 CS 107 (3)
- CC 4.1 HS 101 or HS 102 (3)
- CC 4.2 Any citizenship course approved for the University Core (3)
- CC 5.1 P 111 (3)
- CC 5.2 Foreign Language (3)
- CC 5.3 O 113 (3)
- CC 6 Any aesthetic responsiveness course approved for the University Core (3)

**Common Courses for Criminal Justice Majors** — See above

### **Concentration Courses**

- CJ 105 Introduction to Security
- CJ 425 White Collar Crime Investigation
- CJ 520 Computer Crime: Legal Issues and Investigation Procedures (3)
- CJ 524 Network Security, Data Protection, and Telecommunications (3)
- CJ 535 Global Perspectives on Crime and Justice (3)
- CJ 578 Homeland Security and the Threat of Terrorism (3)
- FS 106 Emergency Scene Operations
- FS 204 Fire Investigation I
- LS 410 Counterterrorism and the Law
- PS 222 United States Foreign Policy (3)
- PS 241 International Relations
- One restricted elective approved by the advisor (3)

### **Study Abroad**

Elective credits earned as part of a study-abroad experience (9)

### **Electives**

Elective credits (21)

### **Concentration in Investigative Services**

This concentration provides an interdisciplinary educational program for those entering investigative service work. The program 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 and eleven electives

### **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 and ten 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

or

CJ 312 Police and Crime Control

Plus two restricted electives and ten electives

### **Concentration in Victim Services Administration**

This concentration provides students with an interdisciplinary, practice-oriented educational program. It 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 and ten 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

## Criminal Justice Management Certificate

This certificate teaches specific skills to professionals in the criminal justice management field. Courses emphasize the application of modern management principles and practices to the field of criminal justice. The following four courses, or substitutions approved by the adviser, are required for completion of this certificate:

CJ 512 Criminal Justice Management  
 CJ 556 Problem-Oriented Policing  
 CJ 558 Leadership Issues in Policing  
 CJ 540 Computer Applications in Research and Program Evaluation

or

CJ 541 Problem Solving, Planning, Analysis, and Evaluation

## 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 Administration 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:** Michael Adamowicz, Ph.D.; 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.

**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 appropri-

ate 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. At the end of their first year, students declare a concentration in either Forensic Chemistry or Forensic 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 five 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 the regulation of the food we eat, law governs our society. With the impact of globalization as well as new forms of dispute resolution, 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.

Students select a program of study depending on interests and career goals. Pre-law students planning to go to law school or students interested in graduate school in other areas choose either the public affairs or dispute resolution bachelor's degree concentrations. Students interested in careers as paralegals choose the bachelor's degree concentration in paralegal studies, the associate's degree in legal studies, or the paralegal certificate program.

### 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. Three concentration options allow students to focus on particular career aspirations and interests.

The legal studies international track provides an opportunity for students to study abroad for a semester, expanding their experience and knowledge of global legal and policy issues, while directly furthering requirements for their bachelor's degree. In partnership with universities in England, Ireland, Scotland, and Australia, legal studies students with a minimum 3.0 GPA may study abroad in either the spring semester of their sophomore year or fall semester of their junior year.

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

LS 440 Law and Policy

Plus four of the following, or related courses, as approved by program adviser:

LS 340 Equality and Law

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 and 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  
 PS 243 International Law and Organization  
 PS 308 Legislative Process  
 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 conflict management theories and alternative dispute resolution practices, 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 312 Cognitive Psychology  
 P 321 Social Psychology  
 P 330 Introduction to Community 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 who is responsible for the paralegal's work. Paralegals may not provide legal services directly to the public, except as permitted by law. Graduates may also pursue careers in law-related areas of the insurance industry, banking and securities, businesses, non-profit 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 210 Mock Trial  
 LS 226 Family Law  
 LS 244 Estates and Trusts  
 LS 310 Business Organizations  
 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. Paralegals may not provide legal services directly to the public, except as permitted by law. 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's 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. Paralegals may not provide legal services directly to the public, except as permitted by law. 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 310 Business Organizations

LS 326 Real Estate Law

LS 328 Legal Management and Administrative Skills

LS 330 Legal Investigation

## Department of Fire Science and Professional Studies

**Chair:** Sorin Iliescu, Ed.D.

**Associate Professor:** Martin J. O'Connor, J.D.,  
University of Connecticut

**Assistant Professors:** Sorin Iliescu, Ed.D., Johnson  
and Wales University; Ting Guang Ma, Ph.D.,  
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:** Sorin Iliescu, Ed.D.

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 tech-

nology 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 and one fire science or engineering elective

### **B.S., Fire Protection Engineering**

**Coordinator:** Ting Guang Ma, Ph.D.

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. Students 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.

Students are required to complete 62 credits, including the University Core requirements for the associate degree and the following courses:

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 chair of the program. A minimum of 19 credits is required. The courses listed below are required unless a substitution is approved by the chair 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, and industrial fire protection. 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



# UNIVERSITY COLLEGE

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## 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:

- Management
- Dental Hygiene (B.S.)\*
- Liberal Studies (B.A.)
- Professional Studies

*\*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.

## B. S. Professional Studies

The Bachelor of Science in Professional Studies degree is specifically designed to equip adult students with applicable skills and competencies while preparing them to understand, serve, and lead organizations.

This bachelor degree-completion program provides graduates with both theoretical and practical education tailored to enhance their professional capabilities as well as prepare them for new career opportunities. The degree provides a pathway toward a baccalaureate degree for graduates of associate degree programs although students with less credit may also apply. Students possessing a minimum of 30 transferable credits are eligible for admission.

The curriculum includes all courses in the 40-credit Core competencies providing a firm grounding in the liberal arts. The 30-credit

Professional Studies Core provides the fundamentals of professional organization principles. The student will select a 30-credit professional focus track in one of the following areas:

- Arts/Humanities Studies
- Organizational Leadership
- Communication
- Public Administration

Additionally, the student will earn 21 credits in elective courses or a minor. To fulfill degree requirements for the Bachelor of Professional Studies, students must earn a minimum of 121 credits, which includes a minimum of 39 credits in 300-level or higher courses.

### Required Courses:

#### Core Competencies, 40 credits

*(See catalog section on Core Competencies for a list of applicable courses if not identified below)*

- CC1.1 E 105 Composition (3)
- CC1.1 E 110 Composition & Literature (3)
- CC1.2 CO 100 Human Communication, CO205 Intercultural Communications, Modern Language, or Literature (3)
- CC2.1 Science with Laboratory (4)
- CC2.2 M 127 Finite Math (3)
- CC2.3 Analysis and Problem Solving (3)
- CC3.0 Using Technology (3)
- CC4.1 HS 101 Foundations of the Western World or HS 102 Western World in Modern Times (3)
- CC4.2 PS 122 State and Local Government
- CC5.1 SO 113 Sociology (3)
- CC5.2 Global Perspective Elective (3)
- CC6.0 Aesthetic Responsiveness Elective (3)

#### Professional Studies Core, 30 credits

- A 101 Introduction to Financial Accounting (3)
- E 230 Public Speaking (3)
- E 220 Writing for Business and Industry (3)
- GLS 100 Introduction to Global Studies (3)
- PL 333 Professional Ethics (3)
- MG 210 Management and Organization (3)
- P 111 Introduction to Psychology (3)
- SO 390 Sociology of Organizations (3)

- SO 400 Minority Group Relations
- CO 400 Communication in Organizations (3)

#### Professional Focus, 30 credits

Choose one set of professional focus courses from the four following choices.

##### Arts/Humanities Studies

- AT 331 Contemporary Art (3)
- PL 2xx or PL 3xx--One 200- or 300-level course in Philosophy (3)
- CO 306 Public Relations Systems and Practices (3)
- E 3xx or E 4xx Two 300- or 400-level course in English Literature (6)
- HU 300 Nature of Science (3)
- HS 3xx One 300-level history course (3)
- MU 300 Studies in Music I (3)
- P 321 Social Psychology or SO 310 Primary Group Interaction (3)
- PS 390 Political Modernization (3)

##### Communication

- CO 109 Communication for Management and Business (3)
- CO 200 Theories of Group Communication (3)
- CO 205 Intercultural Communication (3)
- CO 300 Persuasive Communications (3)
- CO 306 Public Relations Systems & Practices (3)
- CO 309 Public Relations Writing (3)
- CO 399 Media Campaigns (3)
- CO 410 Management Communications Seminar (3)
- MK 200 Principles of Marketing (3)
- MK 302 Organizational Marketing or CO 335 Advertising Media (3)

##### Organizational Leadership

- CO 200 Theories of Group Communication (3)
- CO 300 Persuasive Communication (3)
- MG 331 Management of Human Resources (3)
- P 212 Business and Industrial Psychology (3)
- P 321 Social Psychology (3)
- P 355 Organizational Behavior (3)
- SO 114 Contemporary Social Problems (3)
- SO 310 Primary Group Interaction (3)
- SO 315 Social Change (3)
- SO 333 Sociology of Aging (3)

## Public Administration

- PA 101 Introduction to Public Administration (3)  
 PA 302 Public Administration Systems and Procedures (3)  
 PA 305 Institutional Budgeting and Planning (3)  
 PA 404 Public Policy Analysis (3)  
 PA 405 Public Personnel Practices (3)  
 PA 408 Collective Bargaining in the Public Sector (3)  
 Four 3-credit courses from the following list:

P xxx Any psychology course  
 EC 133 Principles of Economics I,  
 and/or EC 134 Principles of Economics II,  
 LS 100 Introduction to Legal Concepts,  
 HS 110 American History Since 1607,  
 HS 212 United States Since 1865,  
 or P 330 Community Psychology. (12)

## Electives or Minor, 21 credits

Seven 3-credit elective courses or a minor and electives equaling at least 21 credits.

## Southeastern Campus

The Southeastern Campus 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 Campus offers undergraduate and graduate 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 Campus at 469 Pequot Avenue, New London, CT 06320, or by phone at 860.701.5454.

## Center for Corporate Education

The Center for Corporate Education provides customized corporate training to area and regional business and industry. The Center works to strengthen the knowledge, skills and productivity of the regional workforce. Students can choose from an array of topics offered as seminars, workshops, certificates or credit-bearing programs.

## 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.

## University College Contact Information

University College is located on the second floor of Echlin Hall. Hours are 8:30 a.m. to 6:00 p.m. Monday through Thursday; 8:30 a.m. to 4:30 p.m. on Friday. Students can reach us at 203.932.7180 or [universitycollege@newhaven.edu](mailto:universitycollege@newhaven.edu).





# COURSES

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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.

<b>A</b>		<b>F</b>		<b>M</b>	
A	Accounting	FE	Freshman Experience	M	Mathematics
AR	Arabic	FI	Finance	ME	Mechanical Engineering
AT	Art/Visual Arts	FOR	Forensic Science	MG	Management
<b>B</b>		FR	French	MK	Marketing
BA	Business Administration	FS	Fire Science	MR	Marine Biology
BI	Biology	<b>G</b>		MU	Music
BME	Biomedical Engineering	GD	Graphic Design	<b>P</b>	
<b>C</b>		GLS	Global Studies	P	Psychology
CE	Civil Engineering	GR	German	PA	Public Administration
CEN	Computer Engineering	<b>H</b>		PH	Physics
CH	Chemistry	HS	History	PL	Philosophy
CJ	Criminal Justice	HTM	Hotel and Tourism Management	PS	Political Science
CM	Chemical Engineering	HU	Humanities	<b>Q</b>	
CN	Chinese	<b>I</b>		QA	Quantitative Analysis
CO	Communication	IB	International Business	<b>R</b>	
CS	Computer Science	ID	Interior Design	RU	Russian
<b>D</b>		IE	Industrial Engineering	<b>S</b>	
DAD	Digital Art and Design	IT	Italian	SC	Science
DH	Dental Hygiene	<b>J</b>		SE	System Engineering
DI	Dietetics	J	Journalism	SM	Sports Management
<b>E</b>		<b>L</b>		SO	Sociology
E	English	LA	Business Law	SP	Spanish
EAS	Engineering and Applied Science	LG	Logistics	SU	Sustainability
EC	Economics	LS	Legal Studies	SW	Social Welfare
ED	Education	<b>T</b>		<b>U</b>	
EE	Electrical Engineering	T	Theatre Arts	UNIV University Courses	
EN	Environmental Science				

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## ACCOUNTING

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### 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 standing 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 cur-

rent 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.

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## ARABIC

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**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 201 Intermediate Arabic I**

Prerequisite: AR 102 or permission of the instructor. This course builds upon the skills acquired in the first-year course sequence. Emphasis will be on mastering grammar, speaking skills, listening comprehension, and reading skills. Students will gain the confidence to converse with native speakers on a variety of topics; will be able to write simple texts on everyday themes; and will acquire the skills to read uncomplicated authentic texts, such as newspaper articles on familiar topics. 3 credits.

**AR 202 Intermediate Arabic II**

Prerequisite: AR 201 or permission of the instructor. This course is a second-year, upper intermediate course in Modern Standard Arabic (MSA), which will continue to focus on the four skills of reading, writing, speaking, and listening. In this level, students will gain oral proficiency and should become comfortable to converse on familiar topics with a native speaker, to write short texts on everyday themes, and to read newspaper articles and short stories. Students will also be introduced to aspects of contemporary life and culture in the Arab world through films and cultural video clips. 3 credits.

**AR 301 Advanced Arabic**

Prerequisite: AR 202 or comparable proficiency level as demonstrated in consultation with the instructor. This course is intended to develop

students' proficiencies in speaking, writing, listening, and reading so that they can be at a level necessary for advanced literature and culture courses. It will emphasize composition and oral discussion as well as concepts necessary for a sophisticated appraisal of literature and culture in the target language. This course will be conducted in the target language. 3 credits.

**AR 401 Arabic Cultures through Literature and the Media**

Prerequisite: AR 301 or comparable proficiency as demonstrated in consultation with the instructor. This course is a comprehensive exposure to essential cultural issues and patterns as they have developed historically in the Arabic-speaking world. It will study how these issues manifest through representative works of literature as well as popular and highbrow cultural media such as music and film. The course will also provide a unique opportunity to produce in-depth cultural and literary analyses via oral discussion and written essays. Students will perform select written and oral activities in Arabic. 3 credits.

**AR 450–459 Special Topics in Arabic**

Special topics of selected or current interest in the study of Arabic. 3 credits.

**AR 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.

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## ART/VISUAL ARTS

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**AT 101 Introduction to Art**

This introductory survey course will include studio art practices, art history, and museum studies topics. Foundational studies in studio art will be addressed as well as an introduction to the areas of museum studies and professional gallery practices. Course work will include both hands-on studio projects and research-based assignments. 3 credits.

**AT 103 Basic Design I**

A foundation course which includes exploration of two-dimensional visual elements: line, color, texture, pattern, value, shape, size, placement, figure-ground and their effective use. The course focuses on introductory concepts of two-dimensional design and a close examination of color theory through the interaction of form and color for greatest effectiveness in pictorial compositions. Laboratory fee; 3 credits.

**AT 104 Basic Design II**

This course complements AT 103, with concentration on three-dimensional elements of design including positive and negative volumes, surfaces, structural systems, and other elements, employing a variety of materials. Laboratory fee; 3 credits.

**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 107 Introduction to Museum Studies**

This course initiates a broad introduction to the areas of museum studies and professional gallery practices. The first half of the course focuses on what a museum is, and examines the various types of museums and galleries (contemporary, non-profit, public, private, etc.) The second half investigates the various jobs and responsibilities that professionals have within museums as they work on exhibitions, education, research, collection management, development, and conservation. 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 207 Exhibition Development I**

Prerequisite: AT 107. This course focuses on curatorial practice, content and audience research, and

explores concepts of exhibition design. Students will engage in the process of developing an exhibition project timeline, exhibition budget, fundraising proposals, and promotional materials. The course includes presentations from professionals in the field. It focuses on initial development of an exhibition and leads into concepts and projects that will be executed in AT 208. 3 credits.

**AT 208 Exhibition Development II**

Prerequisite: AT 207. This course builds upon the research-based curriculum of AT 207, and focuses on the practical and hands-on aspects of exhibition development and design. Working from proposals developed in AT 207, students will learn about producing exhibitions and produce an exhibition catalog. This course examines the methodology of obtaining artwork from artists, collectors, and other art institutions. Students will then learn collections management skills through art handling, installation, loans and condition reports, shipping artwork, and lighting. 3 credits.

**AT 209 Digital Photography and Imaging I**

This course is an introduction to photographic methods, form, and content, with an emphasis on the digital photographic process and the “darkroom” of Photoshop. Students will learn how to use the camera, Photoshop, and printers to create original artwork. Through the duration of this course, we will look at photography as a medium and critically examine this form of art and the implications of digital technologies that have emerged

to affect the photographic image. Laboratory fee; 3 credits.

### **AT 210 Digital Photography and Imaging II**

Prerequisite: AT 209 or permission of instructor. The purpose of this course is a continuation from AT 209 where we will examine advanced techniques of digital photography and explore the capabilities of Photoshop in greater depth. The course continues to critically examine imaging and digital photography as a medium of art expression. Laboratory fee; 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 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 includes visual-based exploration of artworks through museum and gallery visits and seeks to understand expressive, social, cultural, political, and economic aspects of the cultures in which specific art styles and visual developments emerged. Includes economic and technological changes in the

societies and their reflections in art. 3 credits.

### **AT 232 History of Art II**

This course is a visual and traditional exploration of Western art from the Renaissance to the twentieth century in Europe and America. Developments in art styles, content and subject matter are related to cultural, political, and historical contexts of the corresponding time period. In addition to in-class studies, this course takes advantage of visual-based learning experiences through museum and gallery visits. 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 elements of lighting and photography. Use of natural and artificial lighting systems and methods for working with digital photographic processes. Emphasis on the portrait and still life image as well as creative problem solving. Laboratory fee; 3 credits.

### **AT 311 Digital Color Photography**

Prerequisite: AT 210. Theory and practice of digital color photography through critical and lab studies of the camera and working with digital photographic files on the computer. Study of current digital 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 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 African 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 340 Contemporary Issues of Art and the Environment**

This course is an interdisciplinary course that focuses on contemporary issues of art and the environment. Lectures, readings, and research will provide an overview of the history of artists working with the land as a medium, and focus on contemporary works and theories by artists such as Robert Rauschenberg, Christo and Jean-Claude, Andy Goldsworthy, and Olafur Eliasson. Students will also work together in groups to create their own environmental art installations to interact with the campus landscape and address issues of sustainability. This course will include visiting artist lectures and field trips to local art venues. 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.

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## BUSINESS ADMINISTRATION

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**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 their program of study, 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, a three-credit practicum in the major field of study, an officially designated Academic Service Learning course, three credits of faculty-mentored research, or a minimum of ten days of study abroad/study away, earning at least three credits of business courses that are transferable into the major program of study. In cases where the internship, practicum, or research would constitute excess credit, a non-credited internship, practicum, or research in the major field of study that meets the standards of the credited experience may be substituted with the approval of the department chair. All College of Business day students must enroll in this course during their senior year. No credit.

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## BIOLOGY

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“\*” 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 techniques, 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 understand-



ing 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.

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## BIOMEDICAL ENGINEERING

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**BME 300 Introduction to Biomedical Engineering**  
Prerequisites: CH 116 or EAS 120, and M 115. Corequisite: BI 259 or equivalent. This course is designed for students in science and engineering who are interested in biomedical engineering. Biomedical engineering blends traditional engineering techniques with biological sciences and medicine to improve the quality of human health and life. This introductory course will explain how mathematics and physical science principles of engineering are applied to solving biological and medical problems. Students will review physiologic systems as a basis for understanding the fundamentals of biomedical engineering. The course will focus on a variety of topics including biomechanics, biomaterials, bioelectrical systems, the development of devices and

prosthetics, bioimaging, and tissue engineering. 3 credits.

**BME 350 Biomechanics**  
Prerequisites: PH 150, M 118, and BME 300. Corequisite: BI 260 or equivalent. An introduction to the basic concepts and methods in mechanics, as applied to biological systems, including mechanics of materials and rigid-body dynamics. The biomedical applications of mechanics will be illustrated. The course is meant to provide an introductory background of biomechanics for students preparing for medical school, industrial positions in the biomedical and biotechnology fields, and for those planning to attend graduate school in bioengineering. 3 credits.

**BME 450 Special Topics in Biomedical Engineering**  
Prerequisites: BME 300, BME 350. This course is designed to allow students to engage in the study of different topics in an area within biomedical engineering. Courses vary in content in response to student interest and demand. 1 credit.

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## CIVIL ENGINEERING

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**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 principles 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 consent of 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 Sustainable Urban Planning**

Prerequisite: senior standing. Engineering, social, economic, political and legal aspects of sustainable urban planning. Emphasis placed on smart growth/smart energy, new urbanism, low-impact development, and transit-oriented development. Case studies of communities in local, nationwide, and global examples. 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, photo-gammetry. 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 standing. 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.

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## COMPUTER ENGINEERING

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### 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.

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## CHEMISTRY

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### 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. Intended primarily for non-science and non-engineering majors. 3 credits.

### 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 116/CH 118 (or EAS 120) and CH 201/CH 203, or permission 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 micro-computer. 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 452–459 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.

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## **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 par-

ticular 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 325 Transnational Crime**

Prerequisite: junior standing. This course is a comprehensive survey course on the internal and external mechanisms which support and foster international crime systems. Crime systems will be looked at via countries as well as continents. The form that crime takes transitionally will also be discussed along with the judicial responses to crime transitionally including corrections. 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 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**

Prerequisite: CJ 100. 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**

Prerequisite: CJ 100. 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. 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 205, P 111, P 336. 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 512 Criminal Justice Management**

Prerequisite: junior or senior standing. An in-depth view of leadership and management skills in a variety of criminal justice settings. Special focus will include problem solving and quality control in agencies. 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 familiar-

izes 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 steganographic 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 578 Homeland Security and the Threat of Terrorism**

This course is designed to familiarize students with the concept of homeland security from administrative, organizational, historical, and critical perspectives. The course will be taught in a critical thinking context rather than a training context. Specific emphasis will be placed on homeland security as a public safety paradigm and the implications of this paradigm on government agencies at the state and local level, overall national security, and public perception/opinion. A key component of this course is the presentation, analysis, and discussion of critical issues in homeland security. This is also an advanced course designed to familiarize students with the history and evolution of terrorism, the key concepts and theories of terrorism, the roles and responsibilities of counterterrorism agencies in the U.S., and the critical issues and controversies of the current "War on Terrorism." Terrorism will be examined from a multidisciplinary perspective, and critical thinking by the students will be encouraged. 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.

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## CHEMICAL ENGINEERING

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**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, com-

puter 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 standing and 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.

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## CHINESE

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**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 *Han 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 Intermediate Chinese I**

Prerequisite: CN 102 or permission of instructor. Intermediate study of Chinese language, both conversational and written. Culture training through exposure to Chinese arts, history, economics, and society. 3 credits.

**CN 202 Intermediate Chinese II**

Prerequisite: CN 201 or permission of instructor. Intermediate study of Chinese language. Extensive reading of Chinese classical and modern fiction, drama, and poetry. 3 credits.

**CN 301 Advanced Chinese**

Prerequisite: CN 202 or comparable proficiency level as demonstrated in consultation with the instructor. This course is intended to develop students' proficiencies in speaking, writing, listening, and reading so that they can be at a level necessary for advanced literature and cultural courses. It will emphasize composition and oral discussion as well as concepts necessary for a sophisticated appraisal of literature and culture in the target language. 3 credits.

**CN 401 Chinese Culture through Literature and the Media**

Prerequisite: CN 301 or comparable proficiency as demonstrated in consultation with the instructor. This course is a comprehensive exposure to essential Chinese cultural issues and patterns as they have developed historically. It will study how these issues manifest through representative works of literature as well as popular and highbrow cultural media such as music and film. The course will also provide a unique opportunity to produce in-depth cultural and literary analyses via oral discussion and written essays. Students will perform select written and oral activities in Chinese. 3 credits.

**CN 450–459 Special Topics**

Selected topics of special or current interest in the study of Chinese. 3 credits.

**CN 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. 3 credits.

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## COMMUNICATION

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**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 leadership 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 standing and 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.

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## COMPUTER SCIENCE

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#### **CS 107 Computers and Their Applications**

Concepts underlying modern application of computer systems. Windows, word processing, spreadsheets, databases, presentation soft-

ware. Not to be taken for credit by computer science majors. 3 credits.

#### **CS 110 Introduction to C Programming**

Prerequisite or corequisite: M 109 or consent of CS coordinator. 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: M 109. 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 110, CS 166. 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 216 Computer Organization Lab**

Pre- or Co-requisite: CS 214 or EE 371. A hands-on exploration of current and historical computer components and devices. Topics include computer boards, interfaces, hard drives, memory, peripherals, and multimedia hardware. Students will take a computer apart and reassemble it. 1 credit.

### **CS 226 Data Structures Using Collections**

Prerequisite: CS 166 is recommended. 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 oper-

ating 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 398 Internship**

Prerequisites: junior standing, approval of adviser. Student will undertake a supervised work experience of at least 200 hours, preferably in the local computer science industry. The outcome will be evaluated by both student and supervisor. 1 credit hour.

**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 Software Project Analysis and 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 extension 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 CS 247 and any one of the following: EAS 345, SE 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 Software Project**

Prerequisites: CS 428 and senior standing in computer science, consent of faculty supervisor and approval of program coordinator. The project that was begun in CS 428 is completed 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 or CS 212 and junior standing. A survey of cryptographic concepts and algorithms and their application to data security. Techniques 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 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.

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## **DIGITAL ART AND DESIGN**

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### **DAD 101 Introduction to Multimedia**

This course is an introduction to technical and theoretical foundations in the field of multimedia and digital art and design. It provides students with a comprehensive background in multimedia and multimedia theory. Students will explore the fundamental applica-

tions and concepts that are the basic building blocks of digital design: digital imaging, Internet and web design, and animation. Practical elements of creating digital presentations, digital portfolios, and the use of authoring software are studied through projects. 3 credits.

### **DAD 102 Digital Art and Design**

Prerequisite: DAD 101. This course builds upon ideas and technologies introduced in DAD 101. It deals with digital media in relation to the fields of art and design. Hardware and software tools are described in detail. Students are introduced to the step-by-step creative and organizing process that results in a finished digital art and design project. The course emphasizes such topics as how to structure information, how to anticipate user experience, and how to generate visually compelling interfaces that successfully communicate the principles of good design and/or artistic expression. 3 credits.

### **DAD 301 3D Animation and Computer Modeling**

Prerequisite: GD 212 or permission of instructor. Introduction to 3D modeling and animation software. Students will explore concepts associated with three-dimensional space and use of the computer to render 3D forms, structures, and virtual environments. Critical issues associated with computer-generated imagery will also be addressed. Laboratory fee; 3 credits.

### **DAD 302 Advanced Digital Art and Design Seminar**

Prerequisite: DAD 301. This course is the culminating offering of the digital art and design curriculum

and minor. It deals with advanced topics in the field and focuses on professional-level development of digitally created communications ranging from 3D modeling to Internet-based design projects. The course revolves around the development and implementation of a semester-long project based on student interest and instructor input and approval. All projects will be published using appropriate medium (Internet, CD, DVD, et al.) 3 credits.

### **DAD 450-459 Special Topics**

Study of selected topics of special or current interest in digital art and design studies. 3 credits.

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## **DENTAL HYGIENE**

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### **DH 105 Introduction to Dental Hygiene I**

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 with Laboratory**

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, exposing, equipment safety, processing, and interpretation. 3 credits.

### **DH 220 Dental Hygiene Concepts I with Laboratory**

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 with Laboratory**

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 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 with Laboratory**

Prerequisites: junior standing and required 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 credits.

**DH 342 Dental Materials with Laboratory**

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 with Laboratory**

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, and treating the medically compromised patient. Clinically, students will have an opportunity to treat more challenging cases. Clinical laboratory fee; 5 credits.

**DH 360 Local Anesthesia with Laboratory**

Prerequisite: junior standing and required 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 with Laboratory**

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 with Laboratory**

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 or the consent of the instructor. 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 or the consent of the instructor. 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.

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## **NUTRITION AND DIETETICS**

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#### **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 175 Food, Nutrition, and Culture**

Prerequisites: web access, fluent in Microsoft Office.. This course



introduces the student to the study of food and culture of diverse groups in Asia, Africa, the Americas, and Europe. It examines how ethnic foods and dietary practices may affect the nutritional status of a population. It explores intercultural communication strategies and studies the history, religion, family structure, and traditional health practices to illuminate the cultural context from which ethnic cuisine emerges, evolves, and influences North American fare. 3 credits.

#### **DI 200 Food Science and Preparation with Laboratory**

Prerequisite: Nutrition major, minor, or permission of instructor. 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 Nutrition Care Process**

Prerequisite or corequisite: DI 315. Provides knowledge of the nutrition care process for patients including nutrition screening and assessment, nutrition diagnosis and terminology, intervention strategies, and monitoring and evaluation tools. Medical terminology, laboratory values, format of the medical record, documenting nutrition care using acceptable medical nutrition therapy (MNT) processes. Diseases covered include: overweight and obesity, diabetes, cancer, cardiovascular disease, gastrointestinal diseases, pulmonary insufficiency, and renal disease. Nutrition care process for managing enteral and parenteral feedings is included, as well as patient interviewing and counseling. 3 credits.

**DI 335 Nutrition and Disease II**

Prerequisite: DI 215. Prerequisite or corequisite: BI 260. This course applies the knowledge of physiology using a body systems approach to describe appropriate medical nutrition therapy in treating and preventing various syndromes and diseases. It provides the latest framework for nutrition therapy and the most current research on the integration of evidence-based practice within the context of the nutrition care process. 3 credits.

**DI 342 Healthy Food Preparation**

Prerequisites: DI 215 and Nutrition major, minor, or permission of instructor. 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. 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 Nutrition**

Prerequisite: DI 215. Emphasizes tools for developing community nutrition programs including planning, needs assessment, implementation, and evaluation. Public health nutrition programs and policies for varying population groups will be discussed for cultural, economic, and social health practices. Budgeting food for low-income populations, complementary/alternative medicine practices, and presenting nutrition education programs will be included. 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 dietitian 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 competen-

cies 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.

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## ENGLISH

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**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 Block 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.)

**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 sixteenth 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; nov-  
elists Hemingway, Faulkner, and  
Fitzgerald. 3 credits.

### **E 478 Contemporary American Literature**

Prerequisite: E 110. Intensive study  
of recent American fiction, nonfic-  
tion, poetry, and drama. 3 credits.

### **E 480 Internship**

Prerequisite: E 110. A work experi-  
ence, arranged through the depart-  
ment, 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.

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## **ENGINEERING AND APPLIED SCIENCE**

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### **EAS 103 Technology in Modern Society**

Scientific and technological devel-  
opments and their implications  
for the future of society. Prospects  
and problems in communications,  
energy sources, automation, trans-  
portation, and other technologies.  
Use and control of technological  
resources for public benefit.  
3 credits.

### **EAS 107 Introduction to Engineering**

Prerequisite: M109 or equiva-  
lent. 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 engi-  
neering problem-solving. Software  
packages used may include spread-  
sheets, 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 con-  
straints using project management  
software. Projects use LabVIEW©  
programming for data acquisition  
and control and CAD tools and  
presentation software for technical  
communication of design informa-  
tion. Students gain proficiency in  
each of these three areas as they  
apply to a series of projects span-  
ning the course. 2 credits.

### **EAS 112 Methods of Engineering Analysis**

Prerequisite: a laboratory science  
course. Corequisite: M 117. Stu-  
dents 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 includ-  
ing solutions, equilibrium, kinetics,  
thermodynamics, and electrochem-  
istry. Extensive laboratory com-  
ponent 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, elec-  
tric 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 300 Global Solutions for Sustainability**

Prerequisites: M 109, M 127, or a higher-level mathematics course, a laboratory science course, and one social interaction course from University Core Competency 5.1. Review and examination of engineered systems and their effects on the global environment; use of global resources for sustainable living, design protocols for sustainable engineered systems, design and build for the environment; life cycle economics; multidisciplinary approach, team-based with hands-on projects, expert guest speakers. 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.

**EAS 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. 1-3 credits.

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## ECONOMICS

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**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 240 Research Methods in Sustainability.**

Prerequisite: M 228. The foundations of quantitative and qualitative decision-making related to general and special considerations in sustainability. Classical inferential statistics, multivariate regression, and introduction to contingent survey methods. Hypothesis testing and probabilistic thinking. Survey and analysis of existing databases and sources of data applicable to the issues of sustainability. Present techniques for the effective collection and presentation of numerical qualitative information using advanced statistical analysis software. 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 gam-

ing 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 structures 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 370 Environmental & Natural Resources Economics**

Prerequisites: EC 134, M 117. Develops the conventional neoclassical economics framework underscoring the analysis of institutional, economic, legal, social, and policy issues related to natural resources and the environment. Analyzes the evolution and development as well as key issues in the field of natural resource and environmental policy. Examination of domestic and global resource issues and policy. Specific policy issues addressed include water resources, air pollution, waste management, energy, the regulatory arena, and climate change. 3 credits.

**EC 380 Sustainable Development**

Prerequisite: EC 134. An introduction to current topics and debates in sustainable development. Examines the impact of economic development upon natural resources and biodiversity. Methods for assembling and appraising empirical evidence and estimating costs and benefits of reducing carbon emissions. Examines concerns over development and issues such as hunger, food supplies, human rights, life expectancy, and poverty. Government policies

in developing countries and their implications for sustainable development. 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.

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## EDUCATION

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**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.

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## ELECTRICAL ENGINEERING

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**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 sinu-



soidal 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 correc-

tion, 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 Signals and Systems

Prerequisites: EE 201 or EAS 230 and Corequisite 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. Top-

ics 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 wide-band 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 Electrical Power Systems Engineering

Prerequisite: EE 202 or EE 247. Changing power systems landscape, electric energy sources including renewable and various distributed generation (DG), environmental consequences of the electrical

energy, AC transmission lines and cables, power flow in transmission networks, loadability of transmission lines, transformers, High Voltage DC (HVDC) transmission lines, power electronics devices and their applications, power quality and power factor, synchronous generators, voltage regulation and stability, peak load issues, ways to prevent voltage collapses, dynamic stability, automatic generation control (AGC). To reinforce the concepts, the course will utilize a number of tools such as PSCAD, POWER WORLD, EMTDC, MATLAB. 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 440 Power Electronics**

Prerequisite: EE 302, EE 247. Switch-mode power electronics, switch-mode DC power supplies, switch-mode converters for DC and AC motor drives, wind/photovoltaic inverters, interfacing power electronics equipment with utility system, power semiconductor devices, magnetic design, electro-magnetic interference (EMI). 3 credits

#### **EE 441 Power Electronics Laboratory**

Corequisite: EE 440. Laboratory to accompany EE 440. PSpice/Simulink-based simulations of converters, topologies, and control in switch-mode dc power supplies, motor drives for motion control, and inverters for interfacing renewable energy sources to utility grid. 1 credit.

#### **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 447 Electric Drives**

Prerequisite: EE 302, EE247. AC/DC electric-machine drives for speed/position control, integrated discussion of electric machines, power electronics, and control systems. Applications in electric transportation, robotics, process control, and energy conservation, computer simulations. 3 credits.

#### **EE 448 Electric Drives Laboratory**

Corequisite: EE 441. To reinforce various concepts from Electric Drives course (EE 441) through hands-on experiments. The Electric Drives laboratory is built around DSP-based electric-drives systems. 1 credit.

#### **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. Fundamen-

tal 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. Senior standing, CS 212 and EE 256. Microprocessors and peripheral devices. Hardware and software aspects of interfacing. Microprocessor-based system design. Introduction to advanced topics such as data communication, memory management, and multiprocessing, as time permits. The course is structured around laboratory exercises. Design of system-on-chip embedded systems using reconfigured devices; embedded programming principle for real-time execution; exploring the use of Linux in embedded systems; interfacing custom HDL designs with software; multi-core

programming and interaction (if time permits). 3 credit hours

### **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.

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## **ENVIRONMENTAL SCIENCE**

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### **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 370 Ecology of Sustainability.**

Prerequisite: BI 320. This course focuses on the ecological underpinnings of the sustainable use of the earth's ecosystems and biotic resources (such as fisheries, timber harvesting, agricultural systems), and the ecological understanding needed to make ecological systems sustainable. These topics are considered within the framework of historical changes to ecosystems and the biosphere, their current status and how the science of ecology is being used in efforts to make ecological systems sustainable. 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. Laboratory fee; 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 534 Environmental Education Instructor Clinic**

Prerequisite: any one of the following: a college-level course in geology, biology, ecology, or science education or permission of the instructor. A course about teaching environmental education and natural history topics that will be conducted in the field. Students will receive intensive field training in natural history and a variety of techniques. Laboratory fee; 3 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 non-profit 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.

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## FRESHMAN EXPERIENCE

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### 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.

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## FINANCE

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### 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 imperfections. 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.

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## **FORENSIC SCIENCE**

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### **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 rec-

ognition, 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.

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## FRENCH

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#### **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.

#### **FR 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. 3 credits.

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## FIRE SCIENCE

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#### **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 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 pro-

tection 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, 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, 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.

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## GRAPHIC DESIGN

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### GD 109 Introduction to Graphic Design

An introduction to the various aspects of graphic design communication. This course will cover a brief history of graphic design, concept development and understanding of graphic design principles using typography, layout, and developing students' skills. Weekly assignments investigate basic problems in graphic form and composition, with emphasis on developing visual literacy and technical skills using both traditional and digital media. 3 credits.

### GD 110 Applications of Graphic Design Production

Today's graphic artists are required to have technical skills and printing knowledge. This is a basic introductory course on how to use the Macintosh computer and the basic skills using the industry's standard computer applications. This course also explores various aspects of production as it relates to the print process. 3 credits.

### GD 211 Intermediate Graphic Design

Prerequisites: GD 109, GD 110 or permission of instructor. In this course, students will further their knowledge of graphic communication and concept development as well as use the computer to execute class projects for presentation. The course will focus on utilizing design principles, typography, grid systems, and layout and learning

the graphic language used to communicate to other design professionals. Problem solving related to design and analysis of client needs are addressed in relation to projects covering logo design and stationary systems, corporate brochures, poster design, book cover design, and CD packaging. 3 credits.

### GD 212 Website Creation

Prerequisites: DAD 101, AT 209 or permission of instructor. A comprehensive investigation of website creation and design. This course will address some of the most important topics for website designers: site evaluation and design, content, structure, layout, industry best practices, and audience. Current applications such as HTML editors will be discussed with the course culminating in the implementation of an interactive website that is uploaded to the Internet. 3 credits.

### GD 213 Typography I

Prerequisite: GD 109 or GD 110 or permission of instructor. Type is everywhere around us and acts as the primary visual component of our language. This course introduces fundamental elements and appreciation of letterforms, language, terminology, and use of typography in graphic design communications, and examines how typographic choices affect the meaning and reception of a message. Projects focus on problem solving through implementing basic design principles of typography to develop and sharpen skills required for the graphic design profession. 3 credits.

### GD 214 Typography II

Prerequisites: GD 213, GD 110 or permission of instructor. This course is a continuation of GD 213, dealing with advanced techniques and understanding of typographic concepts as they relate to graphic design. It examines the continuing history of typography, graphic design, the design process, text, and layout. It emphasizes the practical use of technology and industry standard computer software to execute class projects for portfolio consideration. Projects are designed to generate a further understanding of the graphic design process using type. 3 credits.

### GD 311 Advanced Graphic Design

Prerequisite: GD 211 or GD 213 or permission of instructor. This studio course examines the techniques necessary for preparation of art and copy for professional offset printing. Projects will be designed using traditional and page layout methods. Historic development of printing technology is also examined. Laboratory fee; 3 credits.

### GD 312 Illustration

Prerequisite: AT 105 or permission of instructor. This course introduces the skills associated with the illustration profession: providing black and white and full color artwork for books, magazines, posters, the movie industry, art directors, and designers. This is a basic foundation in preparing students to understand what an illustrator does and how to approach assignments for publications. Students will explore the various styles and techniques used in illustration including pen and ink, pencil, watercolors, painting,

and other mediums to execute the projects. 3 credits.

### **GD 313 Digital Illustration and Information Design**

Prerequisite: GD 312. This course explores conceptual approaches and visualization methods using vector and pixel-based applications. Students will develop their analytical skills exploring word and image relationships alongside diverse graphic conventions. Class projects will be augmented with in-class exercises, demonstrations, lectures, and critiques. 3 credits.

### **GD 316 Studies in Design History**

This course is an exploration of the graphic arts beginning with early printing practices to modern design masters and trends. This lecture-based course examines the foundations of visual communications. Through examples, the course provides an understanding of how to create effective design and elements to avoid in creating visual communications. 3 credits.

### **GD 411 Capstone Seminar in Graphic Design**

Prerequisite: GD 313 or permission of instructor. Drawing on development through previous study, students will concentrate on major projects in the graphic design industry that span all of the media associated with the profession of graphic design. Projects will incorporate digital, print, and 3-D design. 3 credits.

### **GD 412 Graphic Design Professional Practices**

Prerequisite: GD 411 or permission of instructor. This course focuses

on the final preparation for entering the professional graphic design environment. There is an emphasis on providing practical knowledge of business practices in graphic design, marketing, contracts, estimating, and developing requests for proposals. Projects will emphasize portfolio and resume preparation, professional practices, presentations, particular approaches to the portfolio, and making use of discipline-based resources. 3 credits.

### **GD 598 Internship in Graphic Design**

Prerequisite: GD 312 or permission of instructor. Students will have an opportunity to intern within a graphic design, publishing, advertising, or other type of firm associated with the design field. Students may seek their own internship 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).

### **GD 599 Independent Study**

Prerequisite: GD 313 or permission of instructor; consent of the instructor and department chair. Opportunity for the student, under the direction of a faculty member, to explore an area of personal interest associated with graphic design. 1-3 credits with a maximum of 6 credits.

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## **GLOBAL STUDIES**

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### **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 200 Issues in Global History and Cultures**

Investigate key commonalities in the human experience over the past half-millennium that have contributed to the interconnectedness of the world's economic, political, and resource-management systems. Understanding the shared experiences examined will help in comprehending the processes of globalization that have grown in intensity in the second half of the twentieth century and in the early twenty-first century. 3 credits.

### **GLS 401 Arabic Cultures through Literature and the Media**

Prerequisite: permission of the instructor. This course is a comprehensive exposure to essential cultural issues and patterns as they have developed historically in the Arabic-speaking world. It will study how these issues manifest through representative works of literature as well as popular and highbrow cultural media such as music and film. The course will also provide a unique opportunity to produce

in-depth cultural and literary analyses via oral discussion and written essays. Students will perform all written and oral activities in English. 3 credits.

#### **GLS 402 Chinese Culture through Literature and the Media**

Prerequisite: permission of the instructor. This course is a comprehensive exposure to essential Chinese cultural issues and patterns as they have developed historically. It will study how these issues manifest through representative works of literature as well as popular and highbrow cultural media such as music and film. The course will also provide a unique opportunity to produce in-depth cultural and literary analyses via oral discussion and written essays. Students will perform all written and oral activities in English. 3 credits.

#### **GLS 403 Russian Culture through Literature and the Media**

Prerequisite: permission of the instructor. This course is a comprehensive exposure to essential Russian cultural issues and patterns as they have developed historically. It will study how these issues manifest through representative works of literature as well as popular and highbrow cultural media such as music and film. The course will also provide a unique opportunity to produce in-depth cultural and literary analyses via oral discussion and written essays. Students will perform all written and oral activities in English. 3 credits.

#### **GLS 404 Latin American Culture through Literature and the Media**

Prerequisite: permission of the instructor. This course is a com-

prehensive exposure to essential Latin American cultural issues and patterns as they have developed historically. It will study how these issues manifest through representative works of literature as well as popular and highbrow cultural media such as music and film. The course will also provide a unique opportunity to produce in-depth cultural and literary analyses via oral discussion and written essays. Students will perform all written and oral activities in English. 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. 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.

#### **GLS 491 Global Studies Research Seminar**

Prerequisites: senior standing or permission of instructor. Capstone course in which students use the tools of their discipline to examine a selected problem. Required of all Global Studies majors. 3 credits.

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## GERMAN

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#### **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.

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## HISTORY

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#### **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 present. 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 310 Environmental History**

This course investigates the development of natural and built environments in modern times. The problems of global warming are a recent manifestation of environmental problems. Institutional, cultural, and political changes came with the construction of cities, industries, and infrastructures, resulting in problems with air, water, land, and energy. These local and global environmental issues may reflect an unsustainable relationship with nature. 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.

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## HOTEL AND TOURISM MANAGEMENT

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**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. Laboratory fee; 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. Laboratory fee; 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, maintenance (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. Laboratory fee; 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. Laboratory fee; 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 hospi-

tality 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. Laboratory fee; 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. Laboratory fee; 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 mul-

tinational 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. Laboratory fee; 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.

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## **HUMANITIES**

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### **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.

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## INTERNATIONAL BUSINESS

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### 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 stu-

dents 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.

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## INTERIOR DESIGN

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### 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 perception, 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 luminaires. 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 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 develop-

ment 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 parallel 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 319 Interior Systems, Materials, and Codes**

Prerequisite: ID 211, ID 215, or consent of instructor. This course explores the design and construc-

tion 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 320 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 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 414 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 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).

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## **INDUSTRIAL ENGINEERING**

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### **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 prob-

lem 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.

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## LOGISTICS

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**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-IA 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.

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## LEGAL STUDIES

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**LS 100 Introduction to Legal Concepts**

Overview of the American legal system in the context of historical underpinnings. Structural make-up, 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 and the legal professional's responsibilities in different types of organizations and occupational settings. Analysis and discussion of case studies; role playing. 3 credits.

**LS 210 Mock Trial**

Students will develop analytic thinking and oral communication skills while learning theory and techniques of legal advocacy, the trial process, and rules of evidence through a mock trial simulation. Open to all students, the course is especially recommended for those interested in participating in intercollegiate competition on the mock trial team. 3 credits.

**LS 226 Family Law**

A study of legal relations between husband and wife including mar-

riage, 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.

### **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 340 Equality and Law**

Prerequisite: LS 100 or consent of the instructor. This course will survey equal protection law under the U.S. Constitution, statutes prohibiting discrimination, and the interpretation and enforcement of principles of equality and non-discrimination through the courts while considering concepts of equality, social movements seeking equality, and policy considerations. Differences in the protections provided by federal and state law and the seminal equal protection cases in various categories in the context of the corresponding social movements will be included. 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 440 Law and Policy**

Prerequisites: LS 100 and junior or senior standing. Reviews and evaluates selected current law and policy issues and considers underlying philosophical principles including justice, rule of law, and democratic ideals, and the extent to which our legal system gives effect to or undermines these principles. Examines both the effectiveness as well as limitations of using law to implement policy initiatives. 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.

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## MATHEMATICS

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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 alge-

bra, 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 or business math. Other students might consider 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 mathemat-

ics, 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 and culminates in the fundamental theorem of calculus. 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 introduction to differential equations. 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 or placement by the department. 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 combinatorial methods. Topics include counting methods, recurrence, generating functions, enumeration, graphs, trees, coloring problems, network flows and matchings. Special emphasis on reasoning that underlies combinatorial 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, combinatorial 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; topo-

logical 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.

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## MECHANICAL ENGINEERING

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Design elective/required choices are indicated by (D) following course title.

**ME 001 Mechanical Engineering Workshop**

Prerequisite: freshman standing. This one-hour-per-week workshop familiarizes mechanical engineering students with basis practices in a laboratory environment including safety considerations, design planning, layout, fabrication, and tolerances. Demonstrations and actual fabrication as time permits. Spring semester only: No credit.



**ME 101 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, Solid-Works). 2 credits.

**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 215 Instrumentation Laboratory**

Prerequisites: CE 205, E 225 (may be taken concurrently), ME Skills Workshop, EAS 109, ME 001. 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. Computerized data acquisition, calibration, and statistical analysis of data uncertainty. 2 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. Free-body diagrams, equilibrium of forces, friction. Kinematics and dynam-

ics 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 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 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, ME 215 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 controlling 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 361 Fundamentals of Renewable Energy Systems.**

Prerequisites: EAS 211, M 203, or consent of instructor. A study of the technology and engineering design issues of renewable energy systems (solar, wind, geothermal, tidal); availability of renewable resources and assessment of generation capacity. Topics include active and passive solar methods tied to HVAC systems; solar, thermal, and electric power generation alternatives; wind and tidal power engineering; and current waste to energy systems. 3 credits.

**ME 365 Introduction to Energy Efficiency.**

Prerequisites: EAS 224 and EAS 230 or equivalent. Analysis of selected engineering systems with a focus on improvements in electrical/thermal efficiency. Thermal and electrical power management and conservation in buildings with specific focus on HVAC system efficiency, energy efficient technologies (electrical motors, lighting, heat pumps). Energy audits, power management and cogeneration are discussed. 3 credits.

**ME 398 Internship**

Prerequisite: junior standing. 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 an internship, full- or part-time employment, summer job, apprenticeship, or volunteer work. No credit.

**ME 404 Heat and Mass Transfer**

Prerequisites: M 204, ME 305, Corequisite: ME 321 or consent of instructor. Steady and unsteady conduction in one and two dimensions. Heat transfer in walls and cylinders; internal generation of heat. Fins and extended surfaces. Introduction to matrix inversion; finite difference solutions using matrix inversion and time-step iteration methods. Biot, Fourier, Prandtl, Nusselt and other dimensionless numbers. Internal and external forced convection. Heat exchanges, log-mean temperature difference, effectiveness-NTU method. Radiation. Practical examples. 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 215, 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. First course of a two-semester capstone design sequence represent-

ing the culmination of the ME student undergraduate education experience. A minimum of two weeks review/summary of relevant engineering principles. Students expected to apply engineering principles acquired throughout their academic and internship experiences to the design of a system, component, or process. Projects include design methodology, design problem statements and specifications, alternative solutions, feasibility and detailed system descriptions. Consideration of realistic constraints, such as economic factors, safety, reliability, maintenance, aesthetics, ethics, and social and environmental impact. Oral and written presentations. When appropriate, one team with demonstrated commitment to a major project may be selected to further develop that project with the intent of participating in a national competition as a means of satisfying the senior design sequence. Fall semester only. 3 credits.

**ME 432 Mechanical Engineering Design II (D)**

Prerequisite: ME 431. Continuation and completion of projects initiated in ME 431 are carried to completion by the same groups. Emphasis on design, documentation, and project management. Detailed design drawings and prototype construction (or simulation, as appropriate), testing, and evaluation. Midterm, final, oral formal reports and presentations and comprehensive written reports. Course offered only in Spring semester only. 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 300, ME 321. Modeling, analysis, and design control 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. Some lab applications. 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.

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## **MANAGEMENT**

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### **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 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 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 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 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 prob-

lems 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 evaluate the feasibility of extending a new business into a franchise and the potential profitability of engaging in a franchise operation. 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: SM 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.

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## MARKETING

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#### **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 371 Negotiation and Sales.**

Prerequisites: MK 200 and MG 210. Introduces the basic concepts and skills of professional selling, negotiation, including customer analysis, communication skills, effective openings and closings, and customer relations. Selling skills and concepts are developed through the extensive use of sales exercises, role-plays, and presentations. 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, prod-

uct 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.

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## MARINE BIOLOGY

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**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 developing 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.

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## **MUSIC**

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### **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**

Prerequisite: a grade of C or higher in MU 125 or permission

of instructor. 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. Non-music majors are not required to enroll in the laboratory. 3 credits.

### **MU 126 Elementary Music Theory Laboratory**

Exercises in sight-singing, solfège, 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**

Prerequisite: a grade of C or higher in MU 125 and MU 126 or placement by the department. 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; a grade of C or higher in MU 151. 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 continent 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**

Prerequisite: a grade of C or higher in 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 reper-



toire 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**

Prerequisite: 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: a grade of C or higher in 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: a grade of C or higher in 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: a grade of C or higher in 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: a grade of C or higher in 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: a grade of C or higher in 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: a grade of C or higher in 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 450-452 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: a grade of C or higher in 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.

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## **PSYCHOLOGY**

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### **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 Child Development**

Prerequisite: P 111. This course reviews the literature on biological, motor, perceptual, cognitive (including intelligence), language, emotional, social, and gender development in children. Child development history, theory, and research strategies will be discussed, as well as effect of family, peers, media, and schooling. 3 credits.

### **P 217 Adolescent Development**

Prerequisite: P111. Study of human development through adolescence to maturity is examined. The role of maturational changes, and peer and family influences in the process of self-emergence and personal adjustment will be emphasized. The effect of these changes on the learning and teaching processes will

be presented. Adolescent developmental theory and research designs will be discussed. 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, P 305. 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**

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 Applied Experimental Psychology**

Prerequisites: P 301, P 305. This is an advanced course in the use of scientific methodologies in psychological research with special emphasis on experimental design and inferential statistics. The course focuses on the formulation of hypotheses, use of appropriate research design, methods of statistical analysis of data, and dissemination of experimental findings. Students are required to formulate an experimental hypothesis, propose a research study to test the hypothesis, collect and analyze the data, and prepare a complete APA-style poster and report on the research. 3 credits.

### **P 312 Cognitive Psychology**

Prerequisite: P 111. This course introduces students to the impor-

tant 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 unhealthy 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**

Prerequisite: P 111. 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 Practicum I in Psychology**

Prerequisites: junior or senior standing, and permission of instructor. Provides closely supervised practical experience within a professional setting in clinical/community, forensic, or general psychology. The experience can include observing, assisting, assuming regular duties, or pursuing a special project within the professional setting. Supervision, guidance, and review will be provided by faculty as well as placement supervisors. The course will include required classroom meeting(s) to facilitate a better understanding of the issues presented during practicum experience. A comprehensive report analyzing the internship experience is required. 1-3 credits.

**P 332 Practicum II in Psychology**

Prerequisites: P 331, junior or senior standing, and permission of instructor. Provides closely supervised practical experience within a psychology setting in clinical/community, forensic, or general psychology. The experience can include observing, assisting, assuming regular duties, or pursuing a special project within the psychol-

ogy setting. Supervision, guidance, and review will be provided by faculty as well as placement supervisors. The course will include required classroom meeting(s) to facilitate a better understanding of issues presented during practicum experience. A comprehensive report analyzing the internship experience is required. 1-3 credits.

**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 History and Systems**

Prerequisite: P 111. An historical survey of theoretical formulations and influential systems in psychology. Evaluates structuralism, functionalism, behaviorism, Gestalt psychology, psychoanalysis, humanistic and cognitive movements. 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 Psychological Testing and Assessment**

Prerequisite: P 301. This course introduces students to the psychometric aspects of psychological testing and assessment. Principles of test construction and standardization as well as factors that influence reliability and validity are examined. Commonly used psychological instruments such as intelligence, personality, neuropsychological, aptitude, achievement, and personnel tests are surveyed. The historical, legal, and ethical aspects of psychological testing are also reviewed. 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 Theories of Personality**

Prerequisites: P 111, junior standing. Theory and method in the understanding of normal and deviant aspects of personality; theories 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.

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## PUBLIC ADMINISTRATION

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**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 non-profit 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 decisionmaking 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 analy-

sis 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.

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## PHYSICS

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“+” 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. All the major topics 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 theo-

ry. 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 occupa-

tional 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.

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## PHILOSOPHY

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**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 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.

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## POLITICAL SCIENCE

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“+” 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. Recognition 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 recruit-

ment 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 current 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.

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## QUANTITATIVE ANALYSIS

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**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 dif-

ferent 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.

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## RUSSIAN

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#### **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 301 Advanced Russian**

Prerequisite: RU 202 or comparable proficiency level as demonstrated in consultation with the instructor. This course is intended to develop students' proficiencies in speaking, writing, listening, and reading so that they can be at a level necessary for advanced literature and culture courses. It will emphasize composition and oral discussion as well as concepts necessary for a sophisticated appraisal of literature and culture in the target language. This course will be conducted in the target language. 3 credits.

#### **RU 401 Russian Culture through Literature and the Media**

Prerequisite: RU 301 or comparable proficiency as demonstrated in consultation with the instructor. This course is a comprehensive

exposure to essential Russian Cultural issues and patterns as they have developed historically. It will study how these issues manifest through representative works of literature as well as popular and highbrow cultural media such as music and film. The course will also provide a unique opportunity to produce in-depth cultural and literary analysis via oral discussion and literary essays. Students will perform select written and oral activities in Russian. 3 credits.

#### **RU 450–459 Special Topics**

Selected topics of special or current interest in the study of Russian. 3 credits.

#### **RU 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. 3 credits.

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## SCIENCE

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“\*” 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.

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## SYSTEM ENGINEERING

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**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; operational and environmental factors in design; 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 310 Design for Environment**

Prerequisites: EAS107P, EAS112, M 115, and a chemistry course. Methods and concepts concerning the design of engineered systems and processes and assessment of their effects on the global environment, minimization of residues, materials selection and packaging, designing products for recycling, disassembly, and disposal. Decision making in new product development and creating environmental objectives. Incorporating design for environment into the design process. Use of product design matrices, environmental effect analysis, life cycle analysis, and other design for environment tools. 3 credits.

**SE 311 Design for Environment Laboratory**

To be taken with SE 310. Uses specialized software and tools to analyze products and systems to determine their effects on the global environment. Students will analyze existing products by disassembly, data collection and analysis in order to analyze residues, materials, packaging components, assembly and disassembly methods. Students will explore concepts and methods to redesign products for recycling, disassembly, and environmentally friendly dispels. Decision making in new product development an creating environmental objectives. Specialized tools include use of product design matrices, environmental effect analysis, life cycle analysis, and other design for environmental tools. 1 credit.

**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 398 System Engineering Internship**

Prerequisite: junior standing. An opportunity for students to apply theoretical concepts in system engineering to real-world problems with industry. The internship is designed to expose students to professional practice and culture and provide an opportunity to gain professional experience under the direction of practicing professionals and a faculty advisor. A minimum of 300 hours of work related to system engineering or close-ly related engineering function is required. 1 credit hour.

**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, designing for environmental factors 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, sys-

tems 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.

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## **SPORTS MANAGEMENT**

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### **SM 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.

### **SM 230 Management of Sports Industries**

Prerequisites: SM 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.

### **SM 235 Marketing and Public Relations in Sports**

Prerequisites: SM 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.

### **SM 320 Sports Industries and the Law**

Prerequisite: SM 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.

### **SM 325 Sports Facility Management**

Prerequisites: SM 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.

### **SM 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.

### **SM 475 Sports Event Management**

Prerequisite: SM 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.

### **SM 584 Sport Facility Development/Construction**

Prerequisite: SM 325 and senior standing. This course takes the students through the entire process of building a sport facility. From the planning process and site acquisition steps through hiring architects and builders, the course is detailed and focused primarily on larger sport facilities. 3 credits.

### **SM 585 Applied Collegiate Fitness and Athletics**

Prerequisite: senior standing. SM 585 focuses on the applied process of managing collegiate fitness and athletic programs. Issues covered include arranging travel, scheduling events, purchasing insurance, hiring officials, handling sport media, town/gov. relationships, laundry and equipment processing, and a host of other actions required to run a collegiate program. 3 credits.

**SM 586 Sport Business Development and Sustainability**

Prerequisite: senior standing. Sustainability is not just a marketing gimmick, but a way of life and a good business model. This class examines various issues from green buildings, to renewable energy, recycling programs, new technologies, and how to develop passionate “green” followers. The class will focus on sport and hospitality industries, but all business segments will also be covered. 3 credits.

**SM 597 Practicum**

Prerequisite: junior standing. 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.

**SM 598 Internship**

Prerequisite: junior standing. On-the-job experience in selected organizations in management. 3 credits.

**SM 599 Independent Study**

Prerequisite: junior standing. Independent study on a project of interest to the student under the direction of a faculty member designated by the department chair. 3 credits.

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**SOCIOLOGY**

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**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, pri-

mate 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 sociological 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 260 Genocide in Modern Times: the Call of Memory**

Prerequisite: sophomore standing. This course examines the role of memory in shaping historical, literary, artistic, and other responses to major genocides committed since the turn of the 20th century. The course will examine works produced by victims, perpetrators, resisters, by-standers, up-standers, and others, with emphasis on the genocides of Armenia, Rwanda, East Timor and the Sudan, and especially the Nazi Holocaust. The course relies on accounts of responses to genocidal events by individuals and groups from multiple viewpoints, and is intended



to enable students to better understand the nature of this criminal act, its roots, its manifestations, and the need to prevent it. 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**

Prerequisite: P 111. 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 socio-cultural 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.

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## SPANISH

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**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 301 Advanced Spanish**

Prerequisite: SP 202 or comparable proficiency level as demonstrated in consultation with the instructor. This course is intended to develop students' proficiencies in speaking, writing, listening, and reading so that they can be at a level necessary for advanced literature and cultural courses. It will emphasize composition and oral discussion as well as concepts necessary for a sophisticated appraisal of literature and culture in the target language. This course will be conducted in the target language. 3 credits.

### SP 401 Latin American Culture through Literature and the Media.

Prerequisites: SP 301 or comparable proficiency as demonstrated in consultation with the instructor. This course is a comprehensive exposure to essential Latin American issues and patterns as they have developed historically. It will study how these issues manifest through representative works of literature as well as popular and highbrow cultural media such as music and film. The course will also provide a unique opportunity to produce in-depth cultural and literary analyses via oral discussion and written essays. Students will perform select written and oral activities in Spanish. 3 credits.

### 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.

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## SUSTAINABILITY

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### SU 312 Introduction to Traditional and Alternative Energy Systems

Prerequisites: EAS 112, M 117, and PH 150. An introduction to the technical and economic fundamentals of traditional and alternative energy systems. Course introduces the processes and com-

ponents of energy generation and conversion systems including fuel cells, passive solar heating, fossil fuel and nuclear energy plants, cogeneration, and others. Exploration of the conservation principle as applied to these systems including the comparison of fossil fuel and biofuel energy intensities, steady-state analysis of energy transfer in a solar heater, and power losses in simple circuits. Comparative economics analysis based upon operating costs and profiles, as well as capital investment considerations for various technologies. 3 credits.

### SU 398 Sustainability Internship

Prerequisite: Junior standing. An opportunity for students to apply theoretical concepts in environmental sustainability to real-world problems. The internship is designed to expose students to professional practice and culture and provide an opportunity to gain professional experience under the direction of practicing professionals and/or a faculty advisor. A minimum of 300 hours of work related to environmental sustainability or closely related topic is required. 1 credit.

### SU 498 Senior Project I

Prerequisite: senior standing. This course is intended for students to research and inquire in-depth into a specific problem in environmental sustainability, working with an instructor and/or advisor. The problem can be a research problem, an on-campus problem, a local government problem, community service activity, or a problem in private business. Student activities include developing a well-written problem statement considering scope, conducting a thorough liter-

ature review, collecting and analyzing data from pertinent sources to gain insight into the problem, and attending seminars and lectures on the state-of-the-art and advanced concepts related to the problem. 3 credits.

### SU 499 Senior Project II

Prerequisite: SU 498. This course is intended for students to create a solution to the complex problem related to environmental sustainability previously developed in the prior project course. Students apply analysis methods, decision-making methods, design methods, management principles, and their communication and teamwork skills to solve the problem. 3 credits.

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## SOCIAL WELFARE

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### 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.

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## **THEATRE ARTS**

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#### **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 150 Acting**

Developing of acting skills for the stage through games, improvisation, and scene study. 3 credits.

#### **T 225 Beginning Dance**

This course will introduce fundamental principles of dance – basic movement, dance vocabulary, and movement combinations. Exercises are designed to build strength, increase flexibility, and provide a solid foundation to all dance styles. 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 250 Acting II**

Prerequisite: T 150. An intensive course in scene study utilizing exercises and methods for advanced problem identification, text analysis, and characterization within the context of different styles of plays. Laboratory fee; 3 credits.

#### **T 275 Stagecraft I**

Fundamentals of theatrical design – scenic, costume, properties, and lighting – as well as stage management are studied in theory and in practice. Participation in the design and building of the main stage production is a requirement of the course. Laboratory fee; 3 credits.

#### **T 342 Directing I**

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 350 Playwriting**

Prerequisites: E 110 and T 250. Basic playwriting techniques examining both dramatic structure and the creative process will be explored through a series of specific exercises in order to facilitate the development of technique based on dramaturgical ideas. Through the study and practice of playwriting, the student will gain a knowledge and appreciation of the playwright's work through their own individual practical application. By semester's end, students will develop one or more longer pieces based on their work in the course. The final exam will include staged readings of each student's work. 3 credits.

**T 375 Stagecraft II**

Prerequisite: T 275. A continuation of the technical skills covered in Stagecraft I. Students will be required to focus on specific areas of technical theatre developing and designing sets, lights, properties, and costumes for several hypothetical productions covering various theatrical genres. Students will be required to assemble a portfolio of each production which will include (but not limited to) extensive research done for the project, design renderings and/or models, and lighting posts. Oral portfolio presentations for every individual project will be required for each student. 3 credits.

**T 442 Directing II**

Prerequisites: T 150, T 250, T 342, T 350. The class is a deeper and further examination of the director's art and craft. This class will explore both traditional and non-traditional texts and concepts. These will be utilized in order to broaden the imagination and vocabulary of the director's work. Literary texts not originally written for the theatre including short stories, poetry, and works of non-fiction will be used for source material. Directors will be responsible for assembling, creating, and writing their own adaptations from these texts. Non-traditional adaptations of existing plays will also be explored. Staged showcases of student work will be presented throughout the semester as part of the mid-term and final exams. 3 credits.

**T 450-459 Special Topics**

Selected topics of special or current interest in the study of theatre. 3 credits.

**T 485 Student Theatre Company**

Prerequisites: MK 200 or MG 210; to be taken only in the final semester of the senior year. Students, with the help and guidance of a faculty advisor will develop and run their own theatre company. The class, operating under a specific budget, will choose a season of plays to be presented to the university. All decisions, including management, artistic directing, marketing, directing, and casting, will be made by the students taking the course. The professor will act only as an advisor and mediator to the students in order to give students as free a hand as possible to run the theatre company in any way they see fit. Specific guidelines will be imposed and monitored by the professor/advisor. 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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## UNIVERSITY COURSES

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**UNIV 450-459 Special Topics**

Special topics of selected or current interest from a variety of university disciplines. 3 credits.

**UNIV 501 Oskar Schindler Humanities Course**

An investigation of the underlying principles of good behavior with an emphasis on encouraging such behavior. Taught from a cross-disciplinary perspective by the current Oskar Schindler Humanities Foundation Endower professor. Topics will vary and can include, but are not limited to, relevant humanities, humanitarianism, and humanitarian intervention, altruism, empathy, good corporate citizenship, and scientific contributions to solving problems in the human condition. The course emphasis will be determined by the current Oskar Schindler Endowed Professor each term. 3 credits.

**UNIV 599 Independent Study**

Prerequisite: consent of Oskar Schindler Endowed Professor. An opportunity for the student, under the direction of the Schindler Professor, to explore and acquire competence in a special area of interest related to the purposes of the Oskar Schindler Humanities Foundation Endowed Professorship through a directed independent learning experience. The topic and format to be pre-approved by the Schindler professor. 1-3 credits.



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Hogan, Andrea, B.A., M.S., Director of International Student Services

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Tyler, Wanda, B.S., M.A., Director of Intercultural Relations

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Schneider, Michael, B.S., M.S., Director of Campus Recreation

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Gallagher, Patrick, Director of Facilities

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DiBlanda, Kim, R.N. Assistant Director

Corsi, Christine, R.N. Part-Time Staff Nurse

Deshpande, Judy, M.S.N., F.N.P., A.P.R.N.-B.C.

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Maniatis, Marc P., B.S., M.S., M.B.A., Director of Student Accounts and Risk Manager

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Criscuolo, Ellen, Data Communications Specialist

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Lender, Andrea, A.S., Administrative Secretary II

Lew, Elizabeth, B.S., M.B.A., Director of Development

Lukowski, Christopher, B.A., M.B.A., Associate Director of Development

Mortali, Paula, B.S., Alumni Relations Associate

Neary, Marya, B.A., Annual Fund Officer

Norman, Michelle, Coordinator of Research and Prospect Management

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Pjatak, Jennifer, B.S., Director of Alumni Relations

Sardalla, Noel, A.A., Administrative Secretary II

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Yale, Judith, A.S., B.S., Development Project Coordinator

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### Athletics

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### Audiovisual Services

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### Bursar's Office

Maniatis, Marc P., B.S., M.S., Director of Student Accounts and Risk Manager

### Campus Bookstore

Cartier, Cheryl, Manager

### Campus Card Services

MacDougall, Alan, B.A., Director of Academic Computing

### Campus Police

Starkel, Henry A., B.S., M.S., Chief



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**Center for Learning Resources**

Malewicki, Debra, L., B.A., B.F.A., M.A., Director

**Counseling Center**

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**Dining Services**

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**Disability Services and Resources**

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**Financial Aid**

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**Health Services**

Cappuccia, Paula, R.N., Director

**Intercultural Relations**

Tyler, Wanda, B.S., M.A., Director

**International Student Services**

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**Registrar**

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**Student Activities**

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**UNH Website**

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**Veterans' Affairs Officer**

Apotrias, Michaela, Assistant Registrar

**WNHU Radio Station**

Lane, Bryan, B.A., General Manager

# Undergraduate Academic Calendar

## 2010-2011

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### FALL SEMESTER 2010

<b>August</b>	Tuition and residence charges due	Monday, Aug. 2
	Residence halls open for new students; Fall Convocation	Sunday, Aug. 22
	Orientations	Monday-Tuesday, Aug. 23-24
	Residence halls open for returning students	Monday, Aug. 23
	Classes begin	Wednesday, Aug. 25
<b>September</b>	Labor Day - no classes	Monday, Sept. 6
	ADD deadline	Wednesday, Sept. 8
	DROP deadline	Tuesday, Sept. 21
<b>October</b>	No classes, Fall Break	Monday-Tuesday, Oct. 11-12
	Last day to petition for January graduation	Friday, Oct. 15
	Midterm grades due	Friday, Oct. 22
<b>November</b>	Residence halls close	Wednesday, Nov. 24
	Thanksgiving Break - no classes	Wednesday-Sunday, Nov. 24-28
<b>December</b>	Last day of Undergraduate classes – Follow Monday	
	Schedule	Wednesday, Dec. 8
	Reading day	Thursday, Dec. 9
	Exams begin	Friday, Dec. 10
	Last day of the semester	Thursday, Dec. 16
	Residence halls close	Friday, Dec. 17
<b>January 2011</b>	Commencement, 2 p.m.	Saturday, Jan. 15

### INTERSESSION 2011

<b>January</b>	Classes begin	Monday, Jan. 3
	Martin Luther King Day - no classes	Monday, Jan. 17
	Classes end	Wednesday, Jan. 19

**SPRING SEMESTER 2011**

<b>January</b>	Tuition and residence charges due	<b>Monday, Jan. 3</b>
	Residence halls open for new students	<b>Tuesday, Jan. 18</b>
	Orientation	<b>Wednesday, Jan. 19</b>
	Residence halls open for returning students	<b>Wednesday, Jan. 19</b>
	Classes begin	<b>Thursday, Jan. 20</b>
<b>February</b>	ADD deadline	<b>Thursday, Feb. 3</b>
	DROP deadline	<b>Wednesday, Feb. 16</b>
<b>March</b>	Last day to petition for May graduation	<b>Tuesday, Mar. 1</b>
	Residence halls close	<b>Friday, Mar. 11</b>
	Spring Recess - no classes	<b>Monday-Sunday, Mar. 14-20</b>
	Classes resume	<b>Monday, Mar. 21</b>
<b>May</b>	Classes end	<b>Wednesday, May 4</b>
	Reading day	<b>Thursday, May 5</b>
	Exams begin	<b>Friday, May 6</b>
	Last day of the semester	<b>Thursday, May 12</b>
	Residence halls close	<b>Friday, May 13</b>
	Commencement, 10:00 a.m.	<b>Sunday, May 15</b>

**SUMMER SESSIONS 2011**

<b>May</b>	First Summer Session classes begin	<b>Monday, May 16</b>
	Memorial Day - no classes	<b>Monday, May 30</b>
<b>June</b>	Last day to petition for August awarding of degrees	<b>Wednesday, June 15</b>
	First Summer Session Ends	<b>Monday, June 27</b>
<b>July</b>	Second Summer Session classes begin	<b>Tuesday, July 5</b>
<b>August</b>	Second Summer Session ends	<b>Monday, Aug. 15</b>
	Awarding of Degrees	<b>Saturday, Aug. 20</b>

# INDEX

- A**
- Absence, Leave of .....47
  - Academic Advising.....19
  - Academic Calendar .....320
  - Academic Credit .....45
  - Academic Integrity Policy .....53
  - Academic Regulations.....45
  - Academic Requirements,
    - Financial Aid .....61
  - Academic Services, Office of.....23
  - Academic Support Systems .....23
  - Academic Status and Progress .....47
  - Academic Worksheets .....47
  - Accounting Courses (A).....184
  - Accounting, Department of.....116
  - Accreditation.....9
  - Adding a Class .....51
  - Administration.....290
  - Admission to the University.....37
  - Admission Procedures.....40
    - Full-Time Admissions .....37
      - New Full-Time Students/  
Freshmen .....40
      - Full-Time Transfer Students.....40
      - International Students.....41
    - Part-Time Admissions .....42
      - Degree Seeking.....42
      - Non-Degree Seeking.....43
  - Admission, Policy.....37
  - Adult and Professional Studies,
    - Center for.....179
  - Advanced Placement .....46
  - Aid, Financial.....61
  - Alpha Phi Sigma-Alpha Tau Chapter...163
  - Alumni Auditors .....44
  - Alumni Magazine, University.....26, 34
  - Alumni Relations .....34
  - American Society of Civil
    - Engineers, Student Chapter.....149
  - American Society of Mechanical
    - Engineers, see ASME.....153
  - Applied Mathematics .....101
  - Arabic Courses (AR) .....185
  - Art, B.A. ....109
  - Art/Visual Arts Courses (AT).....186
  - Arts and Sciences, College of.....71
  - ASCE, see American Society
    - of Civil Engineers.....149
  - ASME (American Society of
    - Mechanical Engineers).....153
  - Associate's Degrees.....12
  - Associate's Degree Core Requirements...19
  - Athletic Facilities.....30
  - Athletic Grants-in-Aid .....64
  - Athletics .....29
  - Attendance Regulations.....53
- B**
- Bachelor's Degrees .....12
  - Bachelor's Degree Core Requirements ...16
  - Bartels Hall .....34
  - Beckerman Recreation Center,
    - David A. ....30
  - Biochemistry Concentration .....76
  - Bioengineering.....157
  - Biology and Environmental Science,
    - Department of.....75
  - Biology Courses (BI).....188
  - Biotechnology, B.S. ....77
  - Black Studies.....88
  - Board, Administration, and Faculty .....285
  - Board Fees .....58
  - Board of Governors.....285
  - Bookstore, see Campus Bookstore.....34
  - Business Administrative Courses (BA)..188
  - Business Law Courses (LA) .....248
  - Business, School of.....113
- C**
- Calendar, Academic .....320
  - Campaign Management, see
    - Public Policy
  - Campus Access Services .....27
  - Campus Bookstore.....34
  - Campus Card.....24
  - Campus Facilities .....32
  - Campus Recreation .....30
  - Campus Security Act.....14
  - Career Services Center .....25
  - Center for Adult and
    - Professional Studies .....179
  - Center for Dispute Resolution .....35
  - Center for Learning Resources .....23
  - Center for Family Business .....35
  - Center for the Study of Crime Victims'
    - Rights, Remedies, and Resources.....35
  - Certificates.....12
  - Changes .....51
  - Changing a Major.....52
  - Charger Bulletin, The .....26, 31
  - Charger Gymnasium.....30
  - Chariot, The.....31
  - Chemical Engineering.....131
  - Chemical Engineering Club .....133
  - Chemical Engineering
    - Courses (CM).....203
  - Chemistry (Arts and Sciences).....80
  - Chemistry (Engineering).....134
  - Chemistry and Chemical Engineering,
    - Department of.....130
  - Chemistry and Forensic Science Club..135
  - Chemistry Courses (CH) .....195
  - Chi Epsilon.....150
  - Chinese Courses (CN) .....205
  - Civil, and Environmental Engineering,
    - Department of Mechanical, .....146
  - Civil Engineering.....146
  - Civil Engineering Courses (CE).....191
  - Civil Engineers, American
    - Society of .....149
  - Class, Dropping/Adding a.....51
  - Class, Withdrawal from a.....51
  - Class, Year of Study .....48
  - Clubs and Organizations.....31
  - College of Arts & Sciences .....71
  - College of Business.....113
  - College of Criminal Justice and Forensic
    - Sciences, The Henry C. Lee .....161
  - College of Engineering, Tagliatela.....127
  - Colleges of the University .....10
  - Commencement, see Graduation
  - Communication Courses (CO).....205
  - Communication, Film and Theater,
    - Department of (Arts & Sciences).....81
  - Community-Clinical Psychology.....104
  - Computer Engineering Courses (CEN).....193
  - Computer Engineering .....137
  - Computer Engineering, and Computer
    - Science, Department of Electrical, ...135
  - Computer Facilities.....32
  - Computer Science Courses (CS) .....208
  - Computer Science, Department of
    - Electrical, Computer
      - Engineering and .....135
  - Computer Science (Mathematics) .....100
  - Computer Science .....139
  - Connecticut Independent Colleges
    - Student Grant Program .....63
  - Coordinated Course.....45
  - Core Curriculum .....16
  - Corrections .....164
  - Counseling and Psychological
    - Services.....26
  - Councils (Student Government).....31
  - Courses (Descriptions) .....184
  - Coursework Expectations.....54
  - Courses Available at Other Colleges.....45
  - Credit, Academic .....45

Credit by Examination.....	46
Credit, Transfer .....	45
Credit, Ways of Earning .....	45
Crime Analysis .....	164
Crime Analysis Certificate.....	167
Criminal Justice Certificates.....	167
Criminal Justice Club .....	163
Criminal Justice Courses (CJ) .....	197
Criminal Justice, Department of.....	162
Curricula, University.....	16
CWSP, see College Work Study Program	

## D

Dean's List.....	50
Degrees Offered by the University (see also Programs of Study listing on pages 6-7) .....	12
Dental Hygiene.....	94
Dental Hygiene Courses (DH) .....	212
Developmental Studies Program .....	24
Dietetics, see Nutrition and Dietetics	
Dietetics, General Courses (DI) .....	214
Dismissal/Readmission Procedure.....	50
Dining Services .....	29
Dispute Resolution Concentration.....	171
Diversity policy.....	13
Dropping/Adding a Class.....	51
Drug Policy.....	14

## E

Economics Courses (EC) .....	220
Economics and Finance, Department of (Business) .....	117
Education, Department of .....	84
Education Courses (ED) .....	222
Electrical, Computer Engineering, and Computer Science, Department of..	135
Electrical Engineering .....	142
Electrical Engineering Courses (EE).....	222
ELS Language Center .....	180
Employment, Student .....	25, 64
Engineering and Applied Science Courses (EAS) .....	219
Engineering School of.....	127
Engineering Tuition Differential .....	56
English Courses (E).....	216
English, Department of.....	86
Entrepreneurship, Minor in .....	121
Environmental Engineering, Department of Mechanical, Civil, and .....	146
Environmental Science Program .....	78
Environmental Science Courses (EN) .....	227
Evening Accelerated Business Program.....	114

Evening Student Council.....	31
Event Management, Tourism and.....	124
Expenses, Tuition, Fees and.....	56
External Credit Examinations .....	46

## F

Facilities, Athletic.....	30
Facilities, Campus .....	32
Faculty .....	294
Family Educational Rights & Privacy Act (FERPA).....	13
Fees and Expenses, Tuition .....	56
Field Experience.....	47
Film and Theater, Department of Communication (Arts & Sciences) ...	81
Finance .....	118
Finance Courses (FI).....	229
Finance, Department of Economics and (Business).....	117
Financial Aid.....	61
Fire and Occupational Safety .....	176
Fire Administration.....	174
Fire/Arson Investigation Certificate.....	174, 177
Fire Prevention Certificate .....	177
Fire Protection Engineering .....	175
Fire Science.....	174
Fire Science and Professional Studies, Department of.....	173
Fire Science Club.....	174
Fire Science Courses (FS).....	231
Fire Science Technology .....	175
Foreign Students, see International Students	
Forensic Computer Investigation Certificate.....	167
Forensic Psychology .....	164
Forensic Science.....	168
Forensic Science Club, Chemistry and.....	135
Forensic Science Courses (FOR) .....	230
Fraternalities and Sororities .....	31
French Courses (FR) .....	231
Freshman Experience Course (FE).....	229
Freshman Experience Seminar .....	22, 24
Full-time Students, Academic Status and Progress .....	47

## G

General Biology .....	77
General Engineering.....	155
General Psychology.....	103
German Courses (GR) .....	235

Global Studies, History, Modern Languages, Political Science, and Philosophy .....	88
Global Studies.....	88
Global Studies, Courses (GLS).....	236
Government, Student.....	31
Grade Point Average .....	49
Grading System.....	48
Graduate Degrees.....	13
Graduate School.....	11
Graduation Fees.....	58
Graduation Criteria.....	54
Grants .....	63
Grants-in-Aid (University and Athletic).....	63-64
Graphic Design.....	109
Gymnasium .....	30

## H

Health Professions and Sciences.....	94
Health Services.....	27
History, Modern Languages, Political Science, and Philosophy, Global Studies, .....	88
History Courses (HS).....	237
History, Department of .....	90
History (of the University).....	10
Honors.....	55
Honors Program .....	20
Hospitality and Tourism Management, Department of Sports Management.....	123
Hotel and Restaurant Management Courses (HR) .....	239
Hotel and Restaurant Management, B.S. ....	124
Housing, see Residential Life	
Humanities Courses (HU) .....	242

## I

IEEE, see Institute of Electrical and Electronics Engineers	
Independent Study.....	46
Industrial Engineering .....	159
Industrial Engineering Courses (IE).....	246
Industrial Fire Protection.....	177
Information Protection and Security Certificate.....	168
Information Technology.....	144
Institute of Electrical and Electronics Engineers.....	139, 144
Institute of Law and Public Affairs, The.....	172
Intercollegiate Athletics.....	29
Intercultural Relations, Office of.....	28

Interior Design.....	111
Interior Design Courses (ID).....	243
International Business.....	118
International Business Courses (IB).....	243
International Credential	
Assessment and Services.....	181
International Justice and Security.....	165
International Services.....	28
International Student	
Acceptance Fee.....	56
International Students,	
Admission Procedure.....	41
Internships and Employer Relations	
Office.....	26
Intersession.....	320
Intramural Programs (Sports).....	30
Investigative Services.....	166
Italian (IT).....	248
<b>J-K</b>	
Journalism Courses (J).....	248
Juvenile and Family Justice.....	166
<b>L</b>	
Laboratory Fees.....	58
Language Center, ELS.....	181
Late payment fees.....	58
Law Enforcement Administration.....	166
Law Enforcement Science	
Certificate.....	168
Learning Resources, Center for.....	23
Leave of Absence.....	52
Legal Studies.....	169
Liberal Studies, BA.....	74
Library, Marvin K. Peterson.....	33
Literary Club.....	87
Loans.....	64
Logistics Courses (LG).....	249
Legal Studies Courses (LS).....	249
<b>M</b>	
Major.....	48
Major Aid Programs.....	63
Major, Changing a.....	52
Make-up Policy.....	54
Management Courses (MG).....	258
Management, Marketing, and	
Quantitative Analysis,	
Department of.....	119
Management of Sports	
Industries.....	124
Marine Biology.....	79
Marine Biology Courses (MR).....	260
Marketing, Department of.....	121
Marketing Courses (MK).....	259
Mathematics Courses (M).....	251
Mathematics, Department of.....	98
Matriculation.....	47
Meal Plans.....	29
Measles.....	28
Mechanical Engineering, B.S. ....	150
Mechanical Engineering	
Courses (ME).....	254
Mechanical, Civil, and Environmental	
Engineering, Department of.....	146
Mechanical Engineers, American Society	
of (Student Chapter), see ASME	
Minor.....	48
Minority Affairs, see Intercultural Relations	
Modern Languages, Political Science,	
and Philosophy, Global Studies,	
History,.....	88
Modern Language Study.....	86
Modern Languages.....	91
Multidisciplinary Engineering	
Systems.....	154
Music.....	106
Music Industry.....	107
Music and Sound Recording.....	108
Music Courses (MU).....	262
<b>N</b>	
New Students, Admission Procedure.....	40
Newspaper (The Charger Bulletin).....	31
Nondiscrimination Statement.....	13
Nutrition and Dietetics.....	96
Nutrition and Dietetics Courses	
(DI).....	214
<b>O</b>	
Occupational Safety, Fire and.....	176
Off-Campus Activities.....	31
Office of Academic Services.....	23
Organizations, Clubs and.....	31
<b>P</b>	
Paralegal Studies Certificate.....	172
Paralegal Studies Concentration.....	171
Parent Loans for Undergraduate	
Students (PLUS).....	64
Parking Permits.....	24
Part-time Students Academic	
Standing and Progress.....	47
Payments.....	59
Pell Grants.....	63
Performing Arts, Department of	
Visual and.....	105
Perkins Loan Program.....	64
Peterson Library, Marvin K.....	33
Phi Alpha Theta.....	90
Philosophy.....	92
Philosophy (of the University).....	10
Philosophy Courses (PL).....	270
Philosophy, Global Studies, History,	
Modern Languages, Political	
Science, and.....	88
Physics Courses (PH).....	268
Physics, Department of.....	98
Placement.....	39
Placement, Advanced.....	46
PLUS, see Parent Loans for	
Undergraduate Students	
Police, University.....	24
Political Science, and Philosophy, Global	
Studies, History, Modern	
Languages,.....	88
Political Science Courses (PS).....	270
Political Science, Department of.....	92
Prearchitecture (Interior Design).....	112
Premedical/Pre dental/Preveterinary.....	76
Private Security Certificate.....	168
Probation and Dismissal.....	50
Procedure, Dismissal/Readmission.....	50
Professional Studies, Center for	
Adults and.....	179
Professional Studies, Department of	
Fires Science and.....	173
Proficiency Examination, Writing.....	55
Programs of Study, Listing.....	6
Programs, Major Aid (Financial).....	63
Psi Chi Honor Society.....	103
Psychology Club.....	103
Psychology Courses (P).....	264
Psychology, Department of.....	102
Psychology, Forensic.....	164
Public Administration.....	125
Public Affairs Concentration.....	170
Public Affairs, The Institute	
of Law and.....	172
Public Administration Courses (PA).....	267
Public Policy (Campaign	
Management).....	94
Publications (Student).....	31
<b>Q</b>	
Quantitative Analysis Courses (QA).....	273

**R**

Radio, WNHU .....	32
Readmission Procedure .....	50
Recording Facilities .....	106
Recreation Center, David A. Beckerman.....	30
Refund Policy, Residence Hall .....	60
Refund Policy, Tuition .....	59
Registration .....	44
Repetition of Work.....	51
Research and Professional Facilities.....	35
Residence Hall Fee and Withdrawal Policies.....	60
Residency Requirement.....	54
Residential Life .....	28
Restaurant Management, Hotel and.....	124
Return of Title IV Funds.....	62
Room Fees .....	58
Rubella.....	28
Russian Courses (RU) .....	274

**S**

Satisfactory Progress .....	49
Scholarships .....	65
School, Graduate.....	11
Science Courses (SC) .....	274
Security Act, Campus.....	14
Seamless Five-Years BS/MS in Electrical and Computer Engineering .....	136
Smoke-Free Policy .....	14
Social Welfare Courses (SW) .....	281
Society of Fire Protection Engineers (SFPE).....	174
Sociology Courses (SO) .....	278
Sociology, Department of .....	105
Sororities, Fraternities and .....	31
Sound Recording, Music and.....	108
Southeastern Campus, UNH .....	179
Spanish Courses (SP) .....	280
Sports (Intramural and Varsity) .....	29, 30
Sports Management, Hospitality and Tourism Management, Department of .....	123
SSL, see Stafford Student Loan	

Stafford Student Loans.....	64
State Scholarships.....	64
Statistics (Mathematics) .....	101
Student Activities .....	29
Student Center (Bartels Hall).....	34
Student Employment .....	25, 64
Student Government.....	31
Student Loans .....	64
Student Ombudsman .....	27
Student Publications .....	31
Student Right-to-Know and Campus Security Act .....	14
Student Services .....	24
Student Status, Transfer of Full-time.....	47
Part-time .....	47
Summer Sessions.....	321
Supplemental Educational Opportunity Grant (SEOG).....	63
System Engineering.....	157
System Engineering Courses (SE) .....	275

**T**

Tagliatela School of Engineering.....	127
Theatre Arts .....	83
Theatre Arts Courses (T) .....	282
Theater, Department of Communication, Film, and (Arts & Sciences).....	81
Theatre Productions.....	84
Tourism and Event Management.....	124
Tourism Management, Department of Sports Management Hospitality and.....	123
Transfer Credit for Writing Courses.....	87
Transfer of Credit to the University.....	45
Transfer of Student Status.....	48
Transfer Students, Admission Procedure .....	40
Tuition Differential.....	56
Tuition Management Services.....	64
Tuition Refund Policy .....	59
Tuition, Fees, and Expenses.....	56
Tutoring, see Center for Learning Resources	

**U**

Undeclared Major .....	75
Undergraduate Degrees.....	12
Undergraduate Student Government Association (USGA) .....	31
University Advancement, Office of.....	34
University Alumni Magazine.....	26, 34
University College.....	179
University Core Curriculum .....	16
University Community .....	23
University Dining Services .....	29
University Grants-in-Aid.....	63
University Mission .....	8
University Vision .....	8
University Guiding Principles.....	8
University Values .....	8
University Philosophy .....	10
University Policies.....	13

**V**

Varsity Sports.....	29
Victim Services Administration.....	166
Victim Services Certificate .....	168
Visual Arts .....	109
Visual and Performing Arts, Department of .....	105

**W**

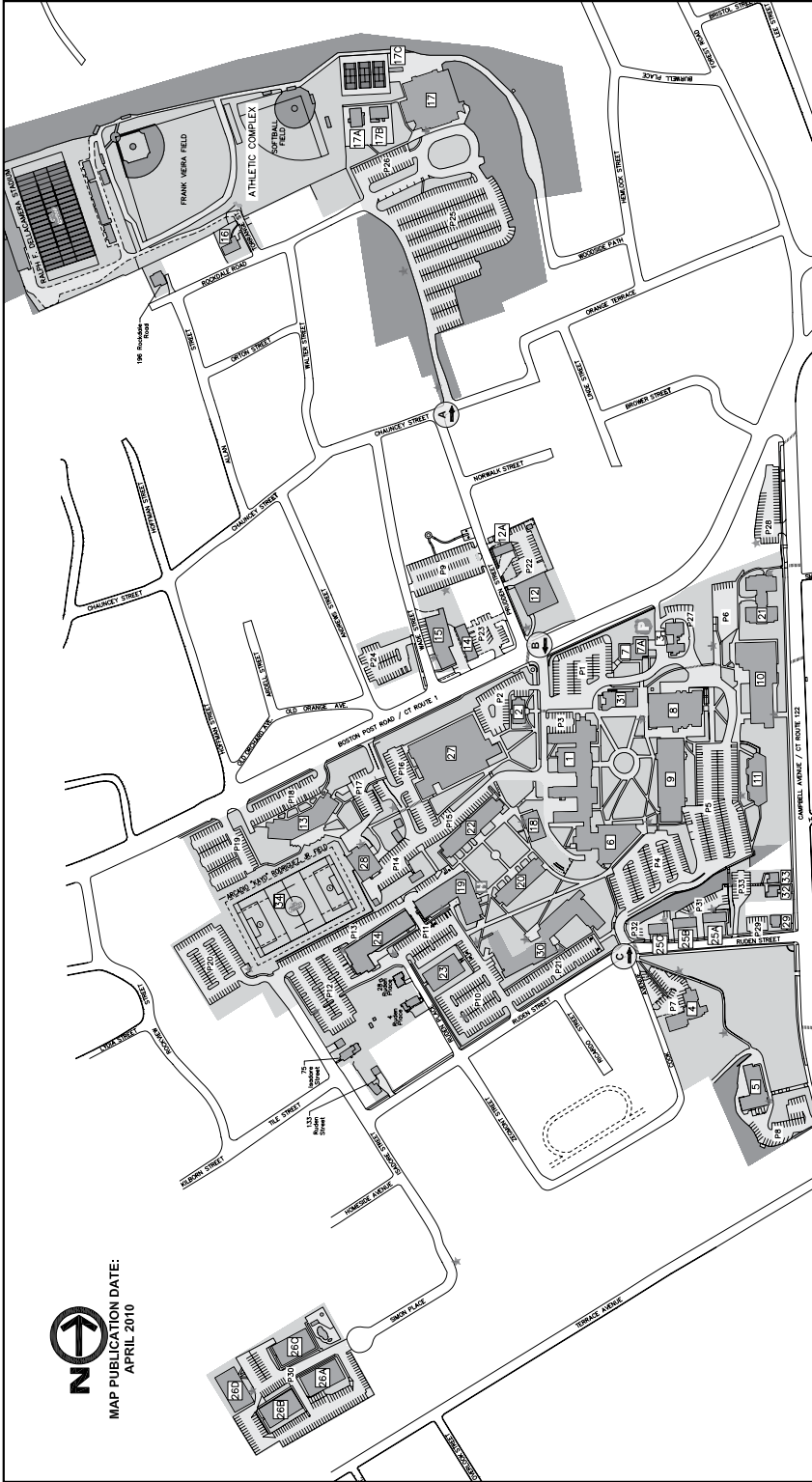
Ways of Earning Credit .....	45
Withdrawal from a Class.....	51
Withdrawal from the University .....	53
WNHU Radio .....	32
Work, Repetition of.....	51
Work-Study Program.....	64
Worksheets, Academic .....	47
Writing Proficiency Examination.....	55

**Y**

Yearbook (The Chariot) .....	31
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**CAMPUS MAP**  
**UNIVERSITY OF NEW HAVEN**

1. Maxcy Hall - Office, College of Arts and Sciences, College of Business, Financial Aid
2. Bayer Hall - Undergraduate Admissions
3. Gate House - Faculty and Administrative Offices
4. South Campus Hall - Graduate & Undergraduate Registrar's Offices
5. Hangar Hall - Classrooms, South Campus
6. Marvin K. Peterson Library
7. UNH Campus Store
8. Bartels Hall - Campus Center, Dining Hall
9. Buckman Hall - Tagliatela College of Engineering
10. Dodds Hall - Dods Theater, Classrooms
11. Kaplan Hall - Classrooms, Career Services, Center for Experiential Education

12. Echlin Hall - Information Services, Campus Card Office, University College, Fire Science, ELS, Graduate Admissions, International Admissions, Adult-Graduate-Veteran Student Services
13. Levy Family Fire Investigation Laboratory  
Relations and University Advancement.
14. Student Building - Training Hall, Human Resources
15. DODD'S CENTER
16. Athletic Offices - Athletic Complex
17. Charger Gymnasium - Athletic Complex  
Emergency Shelter
- 17A. Football Offices
- 17B. Coaches Offices
- 17C. Sports Medicine
18. Psychology Building  
Services, Campus Access Services, Residence Hall, C-Stores - 33
19. Sheffield Hall - Health Services, Counseling and Psychological Services, Campus Access Services, Residence Hall, C-Stores - 33
20. Bixler Hall - Office of Residential Life, Residence Hall
21. Bethel Hall - Residence Hall
22. Botwinik Hall - Residence Hall, Food Services
23. Durham Hall - Residence Hall - 19 Ruden Place
24. Winchester Hall - Residence Hall, Facilities - 31 Ruden Place
- 25A. Ruden Street Apartments - Residence Apartments - Units 13-15
- 25B. Ruden Street Apartments - Residence Apartments - Unit 19
- 25C. Ruden Street Apartments - Residence Apartments - Units 21-23
- 26A. Forest Hills Apartments - Residence Apartments - Units 22-24
- 26B. Forest Hills Apartments - Residence Apartments - Units 25-28
- 26C. Forest Hills Apartments - Residence Apartments - Units 17-19
- 26D. Forest Hills Apartments - Residence Apartments - Units 21-23
27. David A. Beckerman Recreational Center  
Emergency Shelter
28. Arbeiter Maenner Chor - German Club
29. 1124 Campbell Avenue - Offices
30. Soundview Hall - Residence Hall

31. Henry C. Lee Institute Building  
- College of Criminal Justice and Forensic Science
32. 1132 Campbell Avenue - Residence Apartments
33. 1136 Campbell Avenue - Residence Apartments
34. Arcadio "Kayo" Rodriguez, Jr. Field

- ★ Emergency Phone - Campus Police
- Ⓟ Campus Police
- Ⓜ Health Services
- Ⓜ Athletic Complex Entrance
- Ⓜ Boston Post Road Entrance
- Ⓜ Ruden Street Entrance





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