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Residential Programs Catalog

A Unique Institution

Norwich University is unique among institutions of higher education. No other university combines a military tradition of nearly two centuries, a broad range of undergraduate degree programs, and innovative on-line graduate programs. Undergraduate students who enroll in the Corps of Cadets follow a disciplined military regimen, while civilian students lead a more traditional college lifestyle. Both groups reside on the Northfield campus, attending classes and participating in sports and other activities together. In keeping with its mission, the University provides opportunities for all students to develop leadership skills. Norwich also maintains a strong commitment to community service.

Founded in 1819

Founded in 1819 by Alden Partridge, Norwich University was the first private military college in the United States. Here the idea of the “citizen soldier” developed, a guiding philosophy that later became the impetus for the creation of the Reserve Officer Training Corps (ROTC). Norwich was the first private college or university to offer engineering. Norwich was also the first school to offer military training to women, in 1974, preceding the armed service academies by two years.

Academic Recognition

Norwich University is accredited by the New England Association of Schools and Colleges, Inc., through its Commission on Institutions of Higher Education. Inquiries regarding the accreditation status by the New England Association should be directed to the administrative staff of the institution. Individuals may also contact:

Commission on Institutions of Higher Education
New England Association of Schools and Colleges
209 Burlington Road, Suite 201
Bedford, MA 01730-1433
(781) 271-0022
E-Mail: cihe@neasc.org

The Bachelor of Science in Nursing program is accredited by the National League for Nursing and the Vermont State Board of Nursing (VSBN). The civil, electrical, and mechanical engineering curricula are accredited by the Engineering Accreditation Commission (EAC) of the Accreditation Board for Engineering and Technology (ABET), and the University is a member of the American Society for Engineering Education. The architecture program is accredited by the National Architecture Accreditation Board (NAAB). The programs offered by the School of Business and Management are accredited by the Association of Collegiate Business Schools and Programs. Teacher Licensure is available in secondary and elementary tracks. These programs are accepted for teaching licenses in Vermont and hence in the several other New England and Middle Atlantic states with which the State of Vermont has interstate licensure agreements. Graduate programs with specialty accreditation include the Master of Business Administration, which is accredited by the Association of Collegiate Business Schools and Programs (ACBSP), and the Master of Science in Nursing Administration, and Masters of Science of Nursing Education, which are fully approved by the Vermont State Board of Nursing and accredited by the American Association of Colleges of Nursing (AACN), Commission on Collegiate Nursing Education (CCNE).

Diversity

Norwich students have come from 50 states and numerous foreign countries. The university’s minority enrollment is consistently one of the largest representations by percentage of any Vermont college or university.

Opportunity at Norwich

The student-to-faculty ratio is low and the vast majority of our faculty holds terminal degrees. The University offers students 32 undergraduate academic majors from which to choose, and a Master of Architecture that follows the completion of a four-year Bachelor of Science in Architectural Studies. Norwich also offers online master degrees and a degree completion program through the College of Graduate and Continuing Studies.

Equal Opportunity

Norwich University is committed to providing equal opportunity in education and employment to qualified persons. The University admits students without regard to race, color, religion, national or ethnic origin, age, sexual orientation, or qualified disability and does not discriminate in the administration of its educational and other admissions policies, scholarship and loan programs, employment practices, athletic and other university administered programs.

Implementation of this policy shall be in compliance with Title VI and Title VII of the Civil Rights Act of 1964; Title IX of the Education Amendments of 1992; the Equal Pay Act of 1963; Age Discrimination in Employment Act of 1967; Section 504 of the Rehabilitation Act of 1973; the Vermont Fair Employment Practices Act; the American with Disabilities Act of 1990; and other pertinent federal and state non discrimination laws and statutes.

Contact Title IX Coordinator, 802-485-2144, with questions, compliance concerns, or discrimination complaints regarding gender equity. Contact the Director of Human Resources, 802-485-2075, with questions, compliance concerns, or discrimination complaints regarding gender equity.

Student Responsibilities

Academic Policies and Academic Regulations

All students at the University are responsible for adhering to all academic policies as defined in this Catalogue and the Academic Regulations. While representatives of the University, including academic advisors, are available to assist students in planning to meet requirements for graduation and interpreting and implementing academic and student life policies, the ultimate responsibility lies with each student.

The Honor Code

The Honor Code states, "A Cadet will not lie, cheat or steal, nor tolerate those who do." The fundamental nature of these principles precludes the necessity of legislating detailed regulations to govern conduct in matters of honor. All Norwich students are expected to live up to the terms of the Honor Code, whether Cadets or not.

Every effort has been made to ensure the accuracy of the information in this catalogue; however, courses and programs are subject to change. Students are strongly encouraged to consult with their advisor, their individual degree audit, and the latest course listing found on the Registrar's Office website.

The catalogue does not constitute a contractual agreement between the university and the student.

Additional information on campus activities and regulations are available in the Student Handbook, available in the Commandant's Office and the Dean of Students Office.

Norwich University
158 Harmon Drive
Northfield, Vermont 05663
802-485-2000

Vision, Mission, Guiding Values

The Vision for Norwich University

Norwich University will be a learning community, American in character yet global in perspective; engaged in personal and intellectual transformation, and dedicated to knowledge, mutual respect, creativity, and service.

The Mission of Norwich University

To give our youth an education that shall be American in its character – to enable them to act as well as to think – to execute as well as to conceive – “to tolerate all opinions when reason is left free to combat them” – to make moral, patriotic, efficient, and useful citizens, and to qualify them for all those high responsibilities resting upon a citizen in this free republic.

Statement of Guiding Values

Norwich University was founded in 1819 by Captain Alden Partridge, U. S. Army, and is the oldest private military college in the country. Norwich University is a diversified academic institution that educates traditional age students in a Corps of Cadets or as civilians, and adult students. Norwich identifies the following as our guiding values:

1. We are men and women of honor and integrity. We shall not tolerate those who lie, cheat, or steal.
2. We are dedicated to learning, emphasizing teamwork, leadership, creativity, and critical thinking.
3. We accept the right to diverse points of view as a cornerstone of our democracy.
4. We encourage service to nation and others before self.
5. We stress being physically fit, and drug-free.
6. We live the Norwich motto, "I will try!" — meaning perseverance in the face of adversity.
7. We stress self-discipline, personal responsibility, and respect for law.
8. We hold in highest esteem our people and reputation.

General Education Goals

Norwich University General Education Goals are designed to provide students with the intellectual tools to experience, explore and master new topics throughout a period of life-long learning. To this end, at least forty credit hours in every major must be dedicated to basic literacy in English, mathematics, humanities, social sciences, and science outside the area of major concentration. Required 100 level courses in English, language, and mathematics must be completed by the end of the sophomore year. If a student fails to meet this requirement, he/she must enroll for these courses first semester junior year. Students majoring in both liberal arts and professional programs must complete the following competencies to meet graduation requirements:

1. Students must be able to write with clarity and precision, and read and listen with comprehension. They must be able to exercise the skills of independent inquiry, that is, to find, analyze, synthesize, and critically evaluate information. This objective will be met beginning with EN 101-EN 102, be reinforced by reading and writing throughout the curriculum, and culminate in a capstone course in each major. Wherever graded written work is required, part of the grade must be used to evaluate clarity and precision, and to reinforce the writing mechanics learned in EN 101-EN 102.
2. Students will achieve an understanding of mathematical and quantitative reasoning and its place in today's world. They should understand how to construct mathematical models as a means of formulating problems and be able to apply appropriate logical, quantitative, and technological methods to solve problems. All students must complete two mathematics courses, exclusive of MA 005 Preparatory Mathematics and MA 103 College Algebra I.
3. Students will possess a knowledge of and appreciation for the variety of human expression found in cultures and civilizations of the United States and the world. This will be achieved by requiring all students to take one course in history, one course in literature, and one course in arts and humanities.
4. Students will gain a basic level of literacy in current scientific knowledge and theories and develop an appreciation for the natural world, in part through classroom and hands-on laboratory experiences by completing two courses in laboratory science. This will expose students to the scientific method and provide the critical thinking skills, necessary to make intelligent, well informed decisions.
5. Students will possess an understanding of the institutions and processes that are characteristic of human societies. This will be accomplished beginning with a course in psychology, sociology, economics or political science.
6. Students must be able to think critically and make ethical decisions. Critical thinking begins with integration of course work from all general education areas and culminates in the capstone course in each major. Ethical decision-making begins with adherence to the honor code. Students must be able to recognize ethical issues and articulate ethical decisions. This will be achieved in a course that includes the requirement that students deal with ethical ambiguities and articulate ethical decisions.
7. Students are encouraged to develop leadership skills through participation in leadership classes and activities.

Specific Courses that Fulfill Degree Requirements

English Requirement		
EN 102, EN 108, or equivalent must be completed by the end of the second year.		
Mathematics Requirement		
Select Two Mathematics courses		
MA 005 Preparatory Mathematics (Must be finished by the end of the first year if it is required.)		
One hundred level Math courses must be finished by the end of the second year.		
History Requirement		
One History course (HI). Any History course except HI 209		
Literature Requirement		
(Bachelor of Arts candidates have more restrictive literature requirements.)		
One Literature course from:		
English (EN):		
EN 201	World Literature I	3
EN 202	World Literature II	3
EN 205	World Literature for Foreign Nationals I	3
EN 206	World Literature for Foreign Nationals II	3
EN 210	Modern Short Story	3

EN 220	Children's Literature	3
EN 225	Survey of British Literature I	3
EN 226	Survey of British Literature II	3
EN 227	Survey of American Literature I	3
EN 228	Survey of American Literature II	3
EN 240	Technical Aspects of Theatrical Design	3
EN 244	The Literature of Leadership	3
EN 245	Science Fiction Literature	3
EN 250	Crime in Literature	3
EN 251	Literature of the Sea	3
EN 270	Military Literature	3
EN 320-EN 399		
EN 406	Major Figure Seminar	3
EN 420	Thematic Seminar-Literature	3
EN 450	Senior Seminar	3
French (FR):		
FR 321	A Survey of French Literature I	3
FR 322	A Survey of French Literature II	3
FR 327	French Literature of the Twentieth Century I	3
FR 328	French Literature of the Twentieth Century II	3
FR 350	Topics Course (if literature topic)	3
FR 415	Seminar: Topics in French Literature	3
FR 421	Reading and Research on a Topic in French Literature and Civilization	3
German (GR):		
GR 322	Survey of German Lit I: From the Beginnings to 1848	3
GR 324	Survey of German Literature II: 1848 to 1945	3
GR 326	Survey of German Literature III: 1945 to the Present	3
GR 350	Topics Course (if literature topic)	3
GR 415	Seminar on a Topic in German Literature and Culture	3
GR 421	Reading and Research in German Literature or Civilization	3
Spanish (SP):		
SP 321	Introduction to the Literature of Spain I	3
SP 322	Introduction to the Literature of Spain II	3
SP 327	Hispano-American Literature I	3
SP 328	Hispano-American Literature II	3
SP 350	Topics Course (if literature topic)	3
SP 415	Seminar: Topics in Spanish or Latin-American Literature and Culture	3
SP 421	Reading and Research in Spanish or Latin-American Literature and Culture	3
Arts and Humanities Requirement		
Select one of the following:		
English courses above EN 206 (except EN 240, EN 241, EN 242)		
MU 101	Music Appreciation	3
MU 271	History of Jazz	3
All Philosophy (PH) courses		
All modern language courses (Chinese, French, German, and Spanish) numbered 112 and above		
All Fine Arts (FA) courses		
All Studio Arts (SA) courses		
Communication:		
CM 109	Introduction to Mass Media	3

CM 261	Interpersonal Communications	3
CM 335	Television Criticism	3
CM 436	Communications Law and Ethics	3
Social Science Requirement		
Select one of the following:		
Psychology	PY	
Sociology	SO	
Economics	EC	
Political Science	PO	
Ethics Requirement		
Select one of the following:		
AP 436	Project Delivery and Documentation	4
CM 436	Communications Law and Ethics	3
EG 450	Professional Issues	3
EG 043	Conference	0
EN 450	Senior Seminar	3
NS 422	Leadership and Ethics	3
PH 303	Survey of Ethics	3
PH 322	Business Ethics	3
PH 323	Environmental Ethics	3
PH 324	Criminal Justice Ethics	3
PH 350	Medical Ethics	3
PY 360	History and Systems of Psychology	3
SM 439	Leadership & Management in Sports Medicine	3
SSDA 400	The Capstone Project	6

Degrees and Programs

Norwich University awards the following degrees: Bachelor of Arts; Bachelor of Science; Master of Arts degrees in Military History, History and Diplomacy; MS degrees in Nursing, Information Science, Business Continuity Management, and Organizational Leadership; Master of Architecture; Master of Business Administration; Master of Civil Engineering.

Baccalaureate Degrees

Bachelor of Arts

Majors are offered in criminal justice, English, history, international studies, political science, studies in war and peace, psychology, Chinese, and Spanish.

Bachelor of Science

Majors are offered in accounting, architectural studies, athletic training, biochemistry, biology, chemistry, civil engineering, communications, electrical and computer engineering, computer science, computer security and information assurance, criminal justice, education, electrical engineering, engineering management, environmental science, geology, management, mathematics, mechanical engineering, nursing, physical education, physics, sports medicine, and strategic studies and defense analysis.

Graduation Requirements for all Baccalaureate Degrees

Students are subject to the degree requirements specified in the catalog. The B.A. requirements are embedded within the B.A. degree programs and are the responsibility of the College of Liberal Arts to verify for degree completion. For new first time students, the catalog requirements are determined by the year they enter Norwich. For transfer students, re-admitted students, and students who change majors, the determination of catalog year is made by the student's advisor at the time of transfer, re-admission, or change of major.

1. A cumulative grade-point average of 2.00.
2. A minimum of 120 semester credits.
3. Meet the residence requirement given in Section IX of the Academic Rules and Regulations.
4. Satisfy the catalog degree requirements of a catalog year that is within ten years of the graduation year.
5. Satisfy the General Education requirements

Two Majors

A student may elect to earn two majors. Such action requires the approval of both departments.

B.A. Requirements

1. Thirty-six semester courses of at least three degree credits each.
2. Eight semester courses of 3 or more credit hours each in the major field of concentration approved by the department concerned and completed with a grade of “C” or higher.
3. EN 201 or EN 205, and EN 202 or EN 206.
4. Knowledge of a foreign language as indicated by: satisfactory scores (570) on the College Entrance Examination Board Listening and Reading Achievement tests; or by passing an achievement test administered by the Department of Modern Languages; or by passing six hours of a foreign language at the 112 level; or by passing three hours of a course taught in a foreign language at the 206 level or higher. (NOTE: Modern Language Topics courses taught in English do not satisfy this requirement.) Students who test out of modern language courses at the 111 and/or 112 level have six credits of modern language waived for 111 and six credits waived for 112. The waived credits are replaced with free electives. Students who demonstrate knowledge of a foreign language by passing modern language at the 206 level or higher have 12 credits waived that are replaced with free electives. This requirement must be completed prior to the start of the junior year.
5. Four semester courses each of three or more credit hours, representing two or more of the following areas:
   Communications courses: CM 109, CM 261, CM 335, and CM 436.
   English courses: All catalog courses above 206 EXCEPT EN 240, EN 241, and EN 242. Fine Arts courses: FA 221, FA 222, FA 240, FA 250, and . Music and Philosophy courses: MU 101, MU 271, and all catalog courses in Philosophy. Modern Language courses: All courses in Chinese, and all other catalog courses above 112.
6. Four semester courses of 3 or more credit hours each representing two or more of the following areas:
   criminal justice (exclusive of CJ 102 and CJ 301), economics, cultural geography, history, psychology, political science and sociology. The university requirement for a history course may be one of these four courses.
7. Two semester courses in laboratory science and two semester courses in mathematics, exclusive of MA 005 Preparatory Mathematics and MA 103 College Algebra I. The science courses must have a laboratory component and must be offered or approved by the School of Mathematics and Sciences.

B.S. Requirements

For BS requirements, refer to the individual program descriptions.

Life on Campus

Two Lifestyles. One University

Since 1993, Cadets and civilian students have shared the same campus at Norwich University, creating a college culture set apart from the usual in the nation. While students in The Corps of Cadets participate in intense military training, all of our students benefit from a distinctive and structured learning environment that promotes academic success as well as leadership development.

Our students choose Norwich because it is the best "fit" for them. Students from both lifestyles choose Norwich for similar reasons - rigorous academics, a robust athletic program, a variety of extracurricular activities, and a safe environment.

A Cohesive Team

For the majority of the day, students in both lifestyles are completely integrated. All of our students attend the same classes, play on the same athletic teams and are involved in the same clubs and extracurricular activities. Although Cadets and civilian students have separate residences; a walk through the library, the dining hall or the gymnasium will show all of our students living, learning, working and playing together without regard for the lifestyle choice each student has made.

Co-Curricular Service - Learning Projects

Students who would like to participate in a service-learning project outside the classroom may be interested in the co-curricular projects available through the Service-Learning and Volunteer Program Offices. Although wonderful learning experiences; such projects do not typically provide academic credit. Examples of co-curricular projects include:

- Business Plan projects for Habitat for Humanity,
- Hunger in America projects,
- On-going substance abuse education peer response network,
- Volunteer program trips.

Interested students should stop by the Service-Learning Program Office.

Leadership Opportunities

"If your actions inspire others to dream more, learn more, do more and become more, you are a leader." - John Quincy Adams

At Norwich, you'll learn what this means by participating in a wide range of challenging leadership experiences designed to strengthen your mind and body.

Powerful opportunities focusing on leadership and character development are the norm at Norwich whether you're a civilian student or a member of the Corps of Cadets. This is the place where average people learn to become influential citizens and soldiers who change the world.

You'll develop competencies common to leaders through a series of situations and progressive levels of responsibility that test your limits. Those competencies will prepare you for the real world and put you in demand with employers.

As a member of the Corps, you'll have opportunities to lead groups of Cadets ranging from 10 to 1500. You might become cadre your sophomore year and assist in training incoming freshmen. As a junior or senior cadet, you might command a platoon, a company, a battalion, or the entire regiment. In addition, all Cadets are required to participate in six semesters of ROTC, which offers additional leadership training opportunities.

Traditional students build leadership skills through community service, clubs and organizations, student life and athletics. You might organize a fund drive, co-chair an event, serve as captain of an athletic team, or greet visitors as an ambassador for Norwich.

Student Volunteer Programs

In keeping with the mission and tradition of Norwich University, students, staff, and faculty engage in a variety of community service activities. Successful blood drives are held several times each year supported by both volunteer workers and donors from the Norwich family; Norwich students actively participate in tutoring/mentoring programs through the Northfield Youth Center and the Northfield Middle/High School, as well as other area high schools; and patients at the Veterans Hospital are cheered by visits from members of Naval ROTC. The Norwich University Volunteer Organization (NUVO), Circle K, Semper Fi, Golden Anchors, and the Arnold Air Force Society are all student groups focused on community service activities that regularly provide service to the town of Northfield.

All student groups on campus are encouraged to participate in community service activities. Resident Assistants plan one group community service activity per semester for traditional students living in the residence halls. NU VISIONS, an alternative break program that provides students with the

opportunity to volunteer their services in various parts of the United States, is offered to all students. NU VISIONS trips usually take place during spring break with weekend service trips interspersed throughout the academic year.

In addition, at the beginning of each academic year a Volunteer Fair is held on campus which allows the university community to sign up for volunteer activities directly with local community-based organizations. Students who wish to volunteer with a local agency or community-based organization on an on-going basis are encouraged to visit the Office of Community Service Programs and receive a Volunteer Referral that matches the students' interests with the needs of local agencies/community-based organizations. Leadership and service projects consist of work with the elderly, youth, homeless, hungry, and economically disadvantaged. All students are encouraged to become active as volunteers as part of their college experience with the aim of developing graduates who are "ready, not reluctant" to serve their community and nation.

The Honor Code

In addition to being the oldest private military college in the United States, Norwich University has maintained a reputation for developing leaders of high principle. In keeping with this tradition, University President Major General Ernest N. Harmon, USA (Ret.) in 1951 laid the foundation for a formalized Honor Code at Norwich by commissioning a nationwide study of collegiate honor systems to be conducted by Commandant of Cadets Major General Oscar R. Cauldwell, USMC. Elements of the Honor Codes of West Point, Annapolis, and Williams College were used to form the foundation of the Norwich University Honor Code. The President, Commandant, members of the Senior Honor Society, and other leaders of the Corps of Cadets formulated the structure to administer and maintain an honor code, and with the full support of the Corps of Cadets, the Norwich University Honor Code was officially implemented in the fall of 1951.

The Norwich University Honor Code is based on the principles that a student will not evade the truth, deceive, or tolerate those who do. Stated in even simpler terms, the Honor Code requires that every student conduct himself or herself at all times in a completely honest and forthright manner. The fundamental nature of these principles precludes the necessity of legislating detailed regulations to govern conduct in matters of honor, since a student is either honest or not.

Athletics

Vision

The Department of Athletics' Vision is to create and support an environment where student-athletes can achieve athletic success at university, regional, and national levels while maintaining a high degree of academic achievement. It is also our goal to nurture loyalty among our graduates through their experiences in athletics.

Mission

The Norwich University Athletic Department's mission is to provide well-rounded athletic programs as integral parts of the educational process of the university. We offer equal opportunities for male and female student-athletes to participate in a wide variety of intercollegiate sports and adhere to the NCAA Division III rules and philosophy. We monitor the academic progress of our student-athletes and support them in their quest to achieve academic success at the university. We provide services and activities to promote positive health and well being of all our student-athletes through the whole-person concept by fostering the growth of fair play and sportsmanship, leadership, self-discipline, personal integrity, and social responsibility.

Facilities

Athletic facilities at Norwich are among the very best in the Northeast. Andrews Hall, the health, physical education, and sports center, houses racquetball courts, classrooms, training, and physical therapy rooms and a 1200-seat basketball arena. The Jacob Shapiro Field House contains a 200-meter, four-lane track; four tennis courts; and a climbing wall. Plumley Armory houses an indoor swimming pool, a weight room, a wrestling room, an indoor track, and basketball courts. Kreitzberg Arena, The University's ice hockey facility, is a state of the art arena which seats 1410 and can accommodate 5000 spectators for certain events. A football field surrounded by an exercise course and an outdoor track, plus fields for soccer, baseball, softball, rugby, and lacrosse complete the University's athletic facilities.

Men's Sports

There are 11 varsity sports for men at Norwich University. All varsity sports teams compete at the NCAA Division III level and are affiliated in one of five athletic conferences. In recent years, Norwich men's teams have been regularly found in the national rankings, won conference titles, and won three national championships in ice hockey. Below is a list of men's athletics offered at Norwich University.

Baseball
Basketball
Cross Country
Football
Ice Hockey
Lacrosse
Rugby
Soccer
Swimming & Diving
Tennis
Wrestling

Women's Sports

There are 9 varsity sports for women at Norwich University. All current women's varsity teams compete at the NCAA Division III level and are members of the Great Northeast Athletic Conference, NERFU and ECAC. Below is a list of women's athletics currently offered at Norwich.

Basketball
Cross Country
Ice Hockey
Lacrosse
Rugby
Soccer
Softball
Swimming & Diving
Volleyball

Club Sports

Club sports at Norwich University do not have varsity status, but participants do travel and compete with teams from outside the University. Recreational clubs offer students an opportunity to pursue other enjoyable athletic activities.

Academic Clubs & Professional Societies

A variety of academically related clubs, societies, and organizations is available to Norwich students. Students with similar interests enjoy the opportunity to collaborate on specific academic subjects and to take part in professional activities.

Alpha Chi (all disciplines)

This is the national college honor society for all academic disciplines.

Alpha Nu Omega

This is the local Norwich chapter of Alpha Phi Sigma National Criminal Justice Honor Society. Official national web site: www.alphaphisigma.org (http://www.alphaphisigma.org).

American Chemical Society Student Chapter (ACS)

The Norwich Chemistry and Biochemistry Department has sponsored an ACS Student Chapter since the 1950s. ACS is the world's largest scientific society. Student chapters bring guest speakers to campus, perform service to promote interest in chemistry among high school and grade school students and organize social events. Members have excellent opportunities to network with chemists and biochemists and have access to career services such as the ACS Careers Jobs Database, resume reviews, and the salary comparator. Official ACS web site: www.acs.org (http://www.acs.org).

American Institute of Architecture Students (AIAS)

A national student organization that promotes excellence in architecture, education, training, and practice; fosters appreciation of architecture and related disciplines; and organizes architecture students and combines their efforts to advance the science of architecture. Official AIAS web site: www.aiasnatl.org (http://www.aiasnatl.org).

American Society of Civil Engineers (ASCE)

The aim of this chapter is to afford the civil engineering student association with others who share the interest in civil engineering profession, and thus prepare for entry into the profession and the national society. Official ASCE web site: www.asce.org (http://www.asce.org).

American Society of Mechanical Engineers (ASME)

Students with a strong interest in mechanical engineering gain such benefits as a subscription to cutting-edge technology information in ME Magazine, scholarship opportunities, mentoring within the profession, free conference attendance, etc. Official web site: www.asme.org (http://www.asme.org).

Association for Computing Machinery (ACM)

LAN party hosted by ACM Members help each other explore the world of computer science and engineering; create and share knowledge with one another and the larger ACM community; and do their best to make Norwich University a better place to study computers and related technology. Official web site: acm.norwich.edu/.

Beta Beta Beta (BBB)

An honor and professional society affiliated with the American Association of the Advancement of Science, for all students interested in biological sciences. Activities include sponsoring speakers, and attending conferences, field trips, and social activities. Official BBB web site: www.tri-beta.org (http://www.tri-beta.org).

Business Club

The Business Club provides an opportunity for students to learn more about the scope of business in all of its forms.

Chi Epsilon

This is a national honorary civil engineering fraternity.

Criminal Justice Student Association (CJSA)

Founded in 1986, the Criminal Justice Student Association was developed for the purpose of education and as a social and fraternal organization for all criminal justice majors.

Delta Mu Delta

This is the national honor society in business administration. Official national web site: www.deltamudelta.org (http://www.deltamudelta.org).

Education Club

This club promotes service-learning opportunities for the students that are community related. It provides numerous opportunities for exploration of the teaching profession in state, out of state and abroad.

Eta Kappa Nu (electrical and computer engineering)

This is the Electrical and Computer Engineering Honor Society. Official national web site: www.hkn.org (http://www.hkn.org).

French Club

This is a club for all students who are interested in pursuing further the language of French. All levels of knowledge of the language are accepted.

Geology Club

This is a club for students majoring or minoring in Geology and Environmental Science, as well as all those interested in the earth sciences and human interaction with the Earth. In particular, this club wants to facilitate the interaction of students with similar interests. Also, the club enables students to interact with professional and academic Earth Scientists and Geologists to gain a fuller understanding of the job market, graduate schools, academic research, and professional research.

German Club

This club provides an atmosphere where members may practice or learn more German. It is the club's belief that providing a comfortable place outside the class to practice German will result in better grades in German. To be in the club, it is not necessary to speak fluent German.

Institute of Electrical and Electronic Engineers (IEEE)

The purposes of IEEE are scientific, educational, and professional. The branch sponsors technical conferences where state-of-the-art equipment is displayed, and it sponsors tutoring in electrical engineering topics. Official IEEE web site: www.ieee.org (http://www.ieee.org).

Norwich University Cyber Security and Forensics Club (NUCSFC).

The goal of this organization is to teach to all who will listen techniques to keep their information systems safe from prying eyes who may seek to use these increasingly vital tools for less than moral goals. Although we are not a summer program, we are attempting to expand our organization and increase our outreach on our campus and perhaps even to other campuses; this may eventually include some form of summer program. It is for this reason that we are seeking the financial help of your organization. We are willing to do our best to meet any and all requirements to gain assistance in our mission of promoting cyber-literacy.

Mathematical Association of America (MAA)

The MAA encourages students to continue study in the mathematical sciences, provides opportunity to meet with other students interested in mathematics by hosting regional conferences, and provides career information in the mathematical sciences. The Norwich MAA student chapter hosts annual Pi Day festivities. Members are encouraged to speak at colloquia during Mathematics Awareness Month in April and throughout the year. MAA Web site: www.maa.org (http://www.maa.org).

Omicron Delta Epsilon (economics)

This is the national economics fraternity. Official national web site: www.cba.ua.edu/~ode/ (http://www.cba.ua.edu/~ode).

Pi Gamma Mu

This is an honor society broadly concerned with the social sciences. Its primary objectives are to encourage the study of the social sciences among graduate and undergraduate students and faculty members throughout the world, and to recognize outstanding achievement. Official web site: www.pigammamu.org/ (http://www.pigammamu.org).

Pi Sigma Alpha

This is the Political Science Honor Society. The objectives of this organization are to: stimulate productive scholarship and intelligent interest in the subject of government, politics, and policy; seek to promote a better understanding of government, politics, and policy among its members; promote worthwhile curricular and extracurricular activities related to political science; advance and diffuse knowledge and interest in political science; to organize and conduct seminars, conferences, research, discussion groups, and publications in the subject of political science. Official website: www.apsanet.org/~psa/ (http://www.apsanet.org/~psa).

Political Science Club, *Politeia*

POLITEIA is an organization dedicated to promoting interest in political affairs and political science. This interest includes and is not limited to: current events, current research in politics and political science, an awareness of professional opportunities, and leadership within the Corps of Cadets and civilian lifestyles. Official web site: www.norwich.edu/voices/jasonjagemann.

Pre-Law Society

The purpose of the *Pre-Law Society* is to advance the scholarly study of law and to facilitate the implementation of such study to benefit to our society. It is the vision of the *Pre-Law Society* to offer assistance to students at Norwich University by helping them make informed decisions in selecting law as a career, the application process, determining a law school, and the practice law in any law-related profession. Website: www.norwich.edu/voices/jasonjagemann.

Psi Chi (psychology)

This is an honor society and scholarship society for psychology. Official web site: www.psichi.org/ (http://www.psichi.org).

Russian Club

This is a culturally diverse club that came together to acquire more knowledge of Russian life, language, and traditions. The Russian club has many people with different levels of Russian language or ability. The club does have tutoring sessions for those interested in learning the language.

Sigma Iota Rho

This is the honor society for international studies. Open to undergraduate and graduate international studies students. Official web site: www.sigmaiotarho.org (http://www.sigmaiotarho.org).

Sigma Tau Delta

This is the national English honor society. Official national web site:www.english.org/sigmatd/ (http://www.english.org/sigmatd).

Student Nurses' Association

Members participate in a number of University activities, organize American Red Cross blood drives, tutor underclassmen, and participate in fund-raisers for a spring dinner with professional speakers in various Nursing disciplines. Norwich Student Nurses' Organization web page. Official National Student Nurses' Association web site: www.nsna.org (http://www.nsna.org).

Spanish Club

This club promotes further knowledge of the Spanish language. It educates and helps others learn about the Spanish culture, and helps its members keep in touch with Spanish culture. All who are interested are welcome to join and brush up on their language skills, as well as discuss the culture of Spanish-speaking societies.

Society of Women Engineers (SWE)

The Norwich chapter of the Society of Women Engineers brings members together to forge friendships and give members an opportunity to explore the professional world of engineering. Official SWE web site: www.swe.org (http://www.swe.org).

Tau Beta Pi (engineering)

This is a national engineering honor society. Official National Tau Beta Pi web site: www.tbp.org (http://www.tbp.org).

Upsilon Pi Epsilon

The mission of UPE is to recognize academic excellence at both the undergraduate and graduate levels in the Computing and Information Disciplines. Official UPE website: upe.acm.org/ (http://upe.acm.org).

Special Interest Clubs

The list of sanctioned clubs at Norwich is driven by student interest. Some groups, like the Pegasus Players, have been established for quite some time and are enthusiastically supported by the faculty, staff, and student body. Other clubs may be less traditional, and are formed to explore the special interests of a small group of students. To learn how to create a club--and receive funding from the University--contact Director of Student Activities, Intramurals & Recreational Sports.

Aero Club

The purpose of the NU Aero Club is to have fun while gaining aeronautical knowledge by educating, motivating, and experiencing first-hand what aviation is about. The simulator provides members with the knowledge and training to help them eventually succeed in a military and/or civilian aviation career.

Animation Club

This is a club for all those interested in watching Japanese animation.

Campus Choraleers

The Campus Choraleers is a group of approximately 40 mixed voices that performs choral works from all periods. This group sings at Christmas concerts for various local programs and at three or four concerts on tour in the spring. The Campus Choraleers is open to all University students.

Cigar Club

The purpose of the Cigar Club is to disseminate information about cigars, gain practical knowledge about operating a small business, learn to deal with expenses, inventory, management, and scheduling of personnel.

Democratic Club

This club's mission is to establish an organization in order to provide political support for the Democratic Party and social education for the Norwich University community.

Grenadiers Jazz Ensemble

The Grenadiers Jazz Ensemble is a "Big Band" that plays music from the swing era to the top-40 tunes of today. The band performs regularly on campus at major dances and concerts and yearly performs in off-campus concerts at high schools throughout New England, the United States, and Europe. The Grenadiers is open to all University students by audition.

The Harold "Doc" Martin Society (HDM)

The HDM society is a multicultural group that aids in raising money for various charities. It is also committed to bringing cultural awareness to Norwich University.

Maroon and Gold Key

These students assist the Dean of Enrollment Management and the entire University community in the recruitment and retention of students. The organization conducts tours of the campus for all guests, hosts overnight visits of prospective students, and assists at Open Houses and some off-campus recruitment events.

Norwich University Activities Counsel (NUAC)

This club enhances and supports the academic mission of the institution and provides student activities, programs, and services to facilitate learning and personal development of all students. It serves as an agent for students, faculty, and staff to interact and promote a united, healthy campus community outside of the classroom.

NUEMS

This organization provides emergency medical services for the Northfield campus. It also educates and trains Norwich University students, staff, and faculty in emergency medical service.

NU Tactical Society (NUTS)

The NU tactical society seeks to relieve the stress of the college environment by providing students with a creative outlet. The historic war games are designed in a realistic military format and allow for multiple players to test their tactical skills.

Pegasus Players

The Pegasus Players is the resident theater company for Norwich University. It is composed of students, faculty, and community members. This club provides opportunities for students and others to act, design, build sets, and make costumes. Through their work in Pegasus, students not only have the chance to learn the basic skills of theater, but may also earn academic credit (EN 242).

NU Robotics Club

The NU Robotics Club is a diverse group of students from many different disciplines in the university. The students explore new ideas in robotics, organize and participate in robotic competitions, and coach K-12 student competition teams. Teamwork, leadership, and innovation are themes in many of the projects they elect to pursue.

WNUB (radio station)

WNUB is a non-commercial, educational FM radio station licensed by the Federal Communications Commission to the Trustees of Norwich University and broadcasts at a frequency of 88.3 MHz in stereo with a power of 285 watts. It is managed and operated by a student staff under the guidance of a Communications faculty advisor. Its broadcast studios and business office are located in the Communications Center. In addition to its popular music programming, WNUB broadcasts regular newscasts (using its AP radio news wire), public service announcements, special educational programming, and live Norwich sports. Nearly 100 students from all class years participate in WNUB, both as a Communications course requirement and as an extracurricular activity.

Republican Club

This club's members support the Republican Party and fundamental conservative ideals. Members are involved with politics and political activities on campus.

***The Norwich Guidon* (student newspaper)**

The Norwich Guidon, the student newspaper of Norwich University, is published twice monthly and has won numerous awards for excellence in its class. Reporters, editors, and managers for *The Norwich Guidon* are students at the University who work under the guidance of a Communications faculty advisor.

Student Government Association (SGA)

The Norwich University Student Government Association is a group of students representing the entire student body and is responsible for voicing concerns of the student body to the administration. The main goal of SGA is to promote the general welfare of all students and to foster positive improvements on campus.

Television Production Unit

Produced by students in the Communications program, the series Norwich Today and Our American Journey have won numerous national awards from professional organizations such as the Society for Professional Journalists, the Academy of Television Arts & Sciences. These include national first place awards and "College Emmys." The series air on public-access cable as well as on the Burlington-based CBS affiliate, WCAX-TV. Individual programs have also made appearances on Vermont Public Television and nationally on The History Channel. The production unit provides video support for the Strategic Information Warfare Unit of the Vermont National Guard and additionally produces "NTV: Norwich Music Television" which features licensed contractual service from the major recording labels. More information is available on the Television Production Unit pages.

War Whoop

The Norwich University yearbook, *War Whoop*, is produced by a voluntary student organization.

Exchange Programs

Overseas Study Programs

Travel and study abroad are recognized by Norwich University as valuable elements in a student's general education. Students who wish to study abroad under one of the programs approved for possible inclusion in an undergraduate's regular curriculum at Norwich University must have a grade-point average of 2.5 or better, must demonstrate proficiency in the language of the country in which they plan to study, and must present well in advance of their proposed stay in the foreign country a coherent program of study satisfactory to the chair of their department and the Registrar of the University (see Academic Regulations). There are a number of excellent overseas study programs for which credit is granted by American institutions of higher learning. Among the countries in which such opportunities exist are Great Britain, France, Germany, Austria, Switzerland, Italy, Spain, Japan, China, and Russia.

Exchange Programs

Opportunities to participate in exchange programs with other American or foreign colleges are available to Norwich students. These exchange opportunities are often specific to a student's major course of study.

Corps of Cadets and ROTC

For more than 180 years, Norwich University has prepared young men, and since 1974 young women, for roles as “citizen soldiers.”

When Captain Alden Partridge founded the university at Norwich, Vermont in 1819, he established the first private college in the United States to include in its basic organization military training for its students. Today, the U.S. Army officially credits Captain Partridge’s “citizen soldier” concept as the forerunner of today’s Reserve Officer Training Corps (ROTC).

The Norwich University Corps of Cadets is organized as a self-governing group in which each cadet learns the value of discipline and the essential nature of leadership. Participation in ROTC, including military labs and physical training, is an integral part of the Corps leadership experience. Cadets must enroll in either Army, Air Force, Navy or Marine Corps ROTC to maintain membership in the Corps of Cadets. To be eligible to graduate in uniform as a member of the Corps of Cadets and qualify for a Corps diploma, a cadet must successfully complete three years, six semesters, of ROTC courses, 2 each, at the 100, 200, and 300 levels respectively. Cadets seeking commissions are required to complete a fourth year of ROTC and meet all other requirements established by the commissioning branch.

The ROTC programs exist to commission well-educated officers into the Army, Air Force, Navy, and Marine Corps in sufficient numbers to meet the requirements of these services. The general objectives of the programs are to provide understanding of the principles of military, aerospace, and naval science; to develop comprehension of associated professional knowledge; to build attitudes of integrity, honor, and individual responsibility; and to encourage appreciation of national security requirements. These objectives support the mission of Norwich University and the Corps of Cadets and augment the training plan necessary to prepare cadets for service to the Nation as soldiers and citizens.

To be enrolled in Norwich University’s ROTC program or courses, a student must be a member of the Corps of Cadets, with the exception of nursing students.

Academic Advising

Each Norwich University student has an academic advisor assigned. The academic advising system of Norwich University views the advisor-advisee association as a partnership. Both members of the “team” have responsibilities that, when properly fulfilled, enhance the student’s opportunity for academic success. For the relationship to be a successful one there must be open and candid communication between the advisor and the advisee. Responsibilities of the advisor include facilitating the student’s academic transition from high school to college; working with the student in formulating a class schedule each semester; reviewing the degree evaluation with the advisee; assisting the advisee with petitions and/or forms; making referrals to the Academic Achievement Center; and advising of career opportunities available to a student in his or her academic major. Advisee responsibilities include working with the advisor on class schedules; informing the advisor of illness or problems that may affect academic performance; responding to advisor messages in a timely fashion; and reviewing the degree evaluation so as to know which courses are required to meet graduation requirements.

Student Services

Career Development Center

The Career Development Center assists undergraduate students and alumni of the University in seeking employment in a field consistent with their academic training and interests. In support of this mission, a broad range of programs and services are provided.

Career Fairs are offered throughout the year. A current list of upcoming fairs, as well as other services offered, may be found at the Career Development Center website, www.alumni.norwich.edu/s/758/index.aspx?sid=758gid=1pgid=331.

Counseling & Psychological Services

The Norwich University Counseling and Psychological Services Department staff provides for the mental health needs of the University population. Individual and group counseling for students, faculty, and staff is available in a confidential setting. Psychological testing is administered upon request. In addition, thematic groups and psycho-educational workshops can be provided in response to specific needs. These services are conducted by a highly trained staff of licensed professional psychologists and doctoral level psychology interns.

Dining and Housing

Dining

Some of our students will call the place one eats a dining hall, some a mess hall - one way or the other it is a focal point on the campus. The residential dining plan provides 19 meals a week as well as mid-morning and afternoon snacks. The Corps Freshmen (Rooks) and some of their leaders eat separately on the upper deck, of dining hall. All other students (upper-class Corps, civilian, and commuter students) eat together on the main Floor. In addition to the dining hall Norwich has The Mill snack bar. The Mill operates with extended hours during the academic year.

Housing

At Norwich, there are three residential housing areas, the Upper Parade, Crawford Hall, and South Hall. Upper Parade has eight residence halls and cadet barracks built around the parade ground, where the fall and spring parades and ceremonies take place. Crawford Hall, a short walk from the Upper Parade, houses residential civilian students. South Hall is the newest residence hall and also houses residential civilian students. Norwich currently has approximately 1600 residential beds on campus. All Corps of Cadets and most freshman and sophomore civilian students reside on campus as well as some of our upper-class civilian students.

Information Technology

The Norwich University Information Technology department supports all academic and administrative computing and telecommunications. Information Technology is comprised of the Computer Services Department, the Telecommunications Department, the Center for Academic Technology, and the Information Operations Development Center. Computer Services operates a Help desk located at 115 Partridge Hall and a Help desk phone line. The Help desk offers computing help, network services, e-mail accounts, and training to students, faculty and the administration of the university. Computer Services provides a robust network computer environment including student computer labs, the campus network, help desk services, and administrative computing. Student computing labs are located in Partridge Hall, Tompkins Hall, Kreitzberg Library, Dewey Hall, Webb Hall, and Chaplin Hall. The student computer labs are configured with common software and interface as well as network authentication, which allows students to accomplish academic computing tasks at any lab on campus. Students receive network and electronic mail accounts for academic use. The Telecommunications Department provides telephone services for students, faculty, and staff. Student residence halls are equipped with live phone jacks in each room. Students may activate phone accounts for long distance service via Student Telephone Services, which provides billing and collection services. The Center for Academic Technology, CAT, supports faculty integration of technology into the curriculum. CAT provides training for faculty and other development opportunities. Student intern and work study resources support traditional staff in these efforts.

Kreitzberg Library and Norwich University Archives

The Kreitzberg Library is committed to providing the best possible facilities, services and resources to meet the expanding needs of Norwich University students and faculty. The Kreitzberg Library building, named for principal donors Barbara and Fred Kreitzberg ('57), offers six comfortable and attractive floors for collections, research and study. There are spaces for individual and group study, computer labs with access to the Norwich University network, photocopiers, scanners, and media equipment. The fifth floor is a climate-controlled, limited access space that houses the Norwich University Archives and Special Collections.

The growing collections now comprise approximately 160,000 books and over 30,000 print and online journals. Eight professional librarians and ten support staff offer the full range of academic library services, including reference service, interlibrary loan, and individual and group library instruction. The Kreitzberg Library's catalog, databases and online journals are available from off as well as on-campus, providing easy access for students in their dormitories or across the world. During the academic term, the library is open until midnight five days a week, and reference librarians are

available in person or via email every day. Please visit the following web site to learn more about the Kreitzberg library's collections and services: http://www.norwich.edu/academics/library/index.html

The Library building also houses the Academic Achievement Center and the Counseling Center on the fourth floor.

Sullivan Museum and History Center

A museum has been located on the Norwich University campus since 1902. The first museum was located in Dewey Hall and moved to the Carnegie Library (the present day Chaplin Hall) in 1908. In 1955, the museum moved to the basement of White Chapel. In October 2005, groundbreaking was held for the museum's new, permanent home next to the Kreitzberg Library. The Sullivan Museum and History Center officially opened in January 2007.

The Sullivan Museum and History Center, a 16,000 square foot building designed for both permanent and rotating displays, contains a theater, a resource center, exhibit preparation and conservation areas, offices, and a classroom. This modern facility is dedicated to the telling of the Norwich University story and the careful preservation of the University's rich history.

Academic Achievement Center

The Academic Achievement Center offers an opportunity for individualized assistance with many aspects of academic life in a supportive, personalized atmosphere. Students may voluntarily choose from a wide variety of service options: help with time management, planning, and organizational skills; learning style assessment; instruction in study, reading, and writing strategies as well as note taking, memory skills, and exam preparation strategies; tutorials and review sessions in selected course subject areas; and counseling for academic problems. Services are provided by a professional staff consisting of a full-time director and full and part-time learning specialists supplemented by a trained, supervised student tutorial staff providing subject-area tutorials.

Services for students with learning or other disabilities are another part of the Center's offerings. A student who has formally diagnosed disability is advised to notify the university regarding specific need for accommodations as soon as notification of acceptance is received. To be eligible to request accommodations for disabilities, a student must provide recent diagnostic information (no more than three years old) provided by a licensed practitioner with appropriate credentials. A comprehensive evaluation is required (test scores, interpretation, diagnosis, and recommendations). Permanent physical disability is exempt from the three-year limit.

Center personnel work closely with academic advisors, instructors, and administrators to create a comprehensive support system for students who wish to enhance their academic achievement. Services are voluntary and arranged by appointment. Both day and evening hours are maintained in order to offer easy access for students in all programs.

For more information, please contact the Academic Achievement Center at 1-802-485-2130

Orientation and Training for New Students

All first-year students are required to report to the University prior to the beginning of classes each semester for a period of orientation. This orientation period is primarily designed for meeting with advisors and registering for academic courses. Additional seminars by Student Activities, Library Services, Academic Achievement Center, and IT Services are also scheduled, as well as social/entertainment activities. Cadets will be issued uniforms and equipment and begin basic training during orientation in the fall semester.

Religious Services

Norwich is non-sectarian. However, believing that acquisition of and/or affirmation of one's own personal spiritual convictions is an essential part of each individual's character development and education, the University provides religious services in White Chapel throughout the year. Two Catholic masses and at least one Protestant worship service are conducted weekly. Two part-time Catholic Fathers and one full-time Protestant Chaplain minister to the Northfield campus. An Islamic prayer group meets each Friday, and Jewish students avail themselves of the local synagogue in nearby Montpelier.

Local houses of worship for different faiths and denominations, including addresses, phone numbers, and identification of spiritual leaders, is listed on the bulletin board outside the Chaplain's Office. Many religious groups offer free transportation to our students for attendance at services. After the initial week of training, recruits may leave campus to attend such religious services.

Further information can be obtained by contacting the Chaplain's Office:

- Telephone: 802.485.2128
- Pager: 802.479.3862
- Email: chaplain@norwich.edu

Alumni Association

Vision

We are committed to creating a unified, informed, and proud body of alumni who will collectively involve themselves with the interests and activities that perpetuate Norwich University and the Norwich family.

Mission

Our mission is to understand the various needs of our members and the Norwich Family, in order to develop and support meaningful programs and services that will enhance the value of being a Norwich alumnus.

General

The Norwich University Alumni Association was founded in 1856 and serves the University in an advisory capacity. The board represents a broad range of alumni who contribute their time and talents to supporting the work of the Alumni Office and Norwich University. The Alumni Association represents the more than 20,000 living alumni of Norwich University. The Association directs the programs designed to foster the continued participation of alumni in the activities of their alma mater. These programs include the annual Homecoming Weekend, the class agent system, coordination of a nationwide system of regional alumni clubs, and cooperation in both the admissions ambassadors and the alumni career network programs. Graduates from the university automatically become lifetime members of the Association and are able to participate in all of the programs available to every alumnus.

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Emeriti

The dates after the names indicate years of full-time service to Norwich University.

LORING EDWARD HART (1957-1982) President Emeritus of the University B.A., 1948, Bowdoin College; M.A., 1951, Miami University; Ph.D., Harvard University.

W. RUSSELL TODD (1982-1992) President Emeritus of the University B.A., 1950, Norwich University; M.B.A., 1964, University of Alabama; M.D.S. (Hon), Norwich University; MAJ GEN, USA (Ret.)

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The dates after names indicate years of full-time service to Norwich University.

ARNOLD J. AHO (1990-2007) Charles A. Dana Professor Emeritus of Architecture B.S., 1965 and B.Arch., 1966, Rensselaer Polytechnic Institute; M.Arch., 1971, University of Pennsylvania. Registered Architect.

WALLACE ERNEST BAINES (1960-1988) Charles A. Dana Professor Emeritus of Physical Education B.A., 1951 and M.A., 1953, Arizona State University; Ed.D.,1962, Boston University; Ed.D., 1988, Norwich University.

ROY DUANE BAIR (1973-2003) Professor Emeritus of Biology B.S., 1965, Norwich University; M.S., 1968 and Ph.D., 1973, University of Cincinnati.

JOHN DONALD BARON (1976-2002) Professor Emeritus of Civil Engineering B.S.C.E., 1965, M.S.C.E., 1967 and Ph.D., 1973, Purdue University. Registered Professional Engineer.

PETER NEVIUS BARTRAM (1985-2009) Professor Emeritus B.S., 1967, Michigan State University; M.Sc., 1969 and Ph.D., 1974, The Ohio State University. Registered Professional Engineer.

WILLIAM FRANCIS BEATTY (1966-1989) Professor Emeritus of Management B.A., 1960 and M.A., 1963, The George Washington University.

JAMES RICHARD BENNETT (1983-2008) Professor Emeritus of Music B.S., 1965, Gorham State College; M.M., 1966, University of Michigan.

LEROY C. BUTLER (1977-2005) Professor Emeritus of Chemistry B.S., 1960, Wake Forest College; Ph.D., 1966, University of Vermont.

ELIZABETH ANN CARNEY (1981-1998) Professor Emeritus of Nursing B.S., 1963, Southern Connecticut State University; M.Ed., 1977, St. Michael's College; M.S.N., 1988, Southern Connecticut State University.

KENNETH W. CARTER (1981-1992) Professor Emeritus of Graduate Studies A.B., 1952, Antioch College; M.A., 1957, Columbia University; Ph.D., 1971, Ohio State University.

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RICHARD W. HERRMANN (1981-2000) Professor Emeritus of Liberal Studies A.B., 1954, Union College; A.M., 1955; and Ed.D., 1974, Harvard University.

JOHN HURD, II (1978-2010) Professor Emeritus of Economics, B.A., 1959, Yale University; Ph.D., 1969, University of Pennsylvania.

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FREDERICK DUANE LARSEN (1957-2000) Charles A. Dana Professor Emeritus of Geology B.A., 1952, Middlebury College; M.A., 1960, Boston University; Ph.D., 1972, University of Massachusetts.

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ANITA FREGOSI RISTAU (1972-1993) Professor Emeritus of Nursing B.S.N., 1959, University of Vermont; M.S., 1977, St. Michael's College.

ROBERT THOMAS ROTONDI (1977-2010) Professor Emeritus of Accounting, B.S., 1969 and M.B.A., 1971, Fordham University. Certified Public Accountant. Certified Fraud Examiner.

ROBERT EDWARD SCHMIDT (1981-2009) Professor Emeritus of Architecture B.S.C.E., 1968, Newark College of Engineering; M.S., 1979, University of Vermont.

T. GENE SESSIONS (1974-1998) Professor Emeritus of History B.A., 1959 and M.A., 1963, Southern Methodist University; Ph.D., 1974, The American University.

EUGENE ANTHONY SEVI (1975-2013) Professor of Civil Engineering; Sc.B., 1968, Brown University; M.S., 1969, University of Colorado. Registered Professional Engineer; Diplomat, American Academy of Environmental Engineers.

GEORGE LEROY SHELLEY III (1978-2005) Professor Emeritus of Linguistics and Anthropology A.B., 1951, Duke University; M.S., 1959, Georgetown University; Ph.D., 1978, Hartford Seminary Foundation; COL, USMC (Ret.)

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THERESA ANN THOMAS (1972-2000) Professor Emeritus of Nursing Diploma, 1953, Fanny Allen Hospital School of Nursing; B.S., 1962, Boston College; M.A., 1964, Columbia University; Ed.D., 1985, Nova University.

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FREDERICK EUGENE WHITE (1983-2013) Professor of Civil Engineering; B.S.C.E., 1967 and M.S. Sanitary Engineering, 1969, Virginia Polytechnic Institute; Ph.D. Environmental Engineering, 1980, Pennsylvania State University. Registered Professional Engineer.

MARGARET BLACKBURN WHITE (1981-1992) Professor Emeritus of Graduate Studies B.A., 1956, Maryville College; M.A., 1966 and Ph.D., 1968, University of Rochester.

STEPHEN A. WIITALA (1980-2009) Professor Emeritus of Mathematics B.A., 1968 and M.A., 1971, Western Washington University; M.A., 1973 and Ph.D., 1975, Dartmouth College.

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The date after a name indicates the year that full-time faculty service began at Norwich University; the date after the academic rank indicates year of promotion to that rank; and the date following a position indicates the year that position was assumed.

DEBORAH AHLERS (1991) Head of Reference and Interlibrary Loan Services with Rank of Assistant Professor (1991); B.A., 1989, SUNY Binghamton; M.L.S., 1991, SUNY Albany.

MICHAEL C. ANDREW (1993) Associate Professor of Political Science (2002), Chair of the Department of History and Political Science (2005); B.A., 1986, de Sales University M.A., 1990, and Ph.D., 1994, SUNY at Binghamton.

JIMMY L. ANDERSON Major, Field Artillery, U.S. Army, Assistant Professor of Military Science (Executive Officer) (2011); B.A., 1996, Metropolitan State College of Denver; M.H.R, 2003, University of Oklahoma, 2008, U.S. Army Command General Staff College Intermediate Level Education

MARIUS B. BALAS (2011) Captain, Chemical Corps, U.S. Army, Assistant Professor of Military Science (Operations Officer) (2011); B.A., 2002, Kent State; M.S., 2007, Webster University

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CAROLE L. BANDY (1995) Associate Professor of Psychology (2003); B.A., 1970, Rhodes College; M.S., 1973, University of Memphis; Ph.D., 1989, The George Washington University.

WILLIAM HOWARD BARNARD (1974) Professor of Biology (1992); B.A., 1968, Franklin College; Ph.D., 1979, Indiana University.

NARAIN D. BATRA (1986) Professor of Communications (1990); B.A., 1956, Punjab University; M.A., 1958, Delhi University; Ph.D., 1980, Gujarat University.

JANICE BEAL (2006) Coordinator of Public Services with rank of Assistant Professor (2006); B.A. 1974, University of Illinois; MSLA, 1975, University of Illinois.

FREDERICK CLARK BEDFORD (2011) Visiting Assistant Professor of Mechanical Engineering (2011); B.S. 1985, St. Lawrence University, M.S. 1992 University of New Hampshire, Ph.D. 2001 University of Wisconsin-Madison.

VERNER R. BERRY (2008) Military Science Instructor (2008); Master Sergeant, U.S. Army.

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JACQUES N. BENEAT (2002) Associate Professor of Electrical and Computer Engineering (2002); DEA, 1990, Universite de Brest; Ph.D., 1993 Worcester Polytechnic Institute; Doctorate, 1994, Universite de Bordeaux.

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MATTHEW W. BOVEE (2010) Assistant Professor of Management (2010); B.Sc., 1981, Arizona State University; M.A., 1986, The University of Kansas; and, Ph.D., 2004, The University of Kansas.

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SHERI BROWN (2003) Assistant Professor of Nursing (2010); B.S.N 2001, Norwich University; MSN, 2006 SUNY, Stony Brook.

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JOHN BRUNZELL (2007) Military Science Instructor (2007); B.S. 2005, Touro University; Sergeant First Class, U.S. Army; B.S. 2011, Norwich University.

PETER A. BURMEISTER (2010) Lecturer in Psychology (2010); B.A., 2000, Columbia University; M.A., 2002, Fairleigh Dickinson University; Certificate, 2002, Assisi Institute.

KENNETH W. BUSH (1986) Professor of Communications (2001); B.A., 1980 and M.A., 1982, Brigham Young University.

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DIANE BYRNE (2002) Associate Professor of Psychology and Education (2008), Director of the Teacher Education Program (2002); B.S., 1973, Wright State University; M.Ed., 1991 University of Vermont; National Board Certified Teacher (2000); Ph.D., 2008, Union Institute and University.

JOSEPH EDWARD BYRNE (1973) Professor of Chemistry (1989), Associate Vice President for Academic Affairs (2006); B.A., 1967, LaSalle College; M.S., 1970 and Ph.D., 1972, University of Maine.

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HELEN SUE CAUDILL (1984) Professor of English and Theater (2000); B.A., 1977, Catawba College; M.A., 1979, Pennsylvania State University; Ph.D., 1988, University of Pittsburgh.

FRANCES S. CHEVALIER (1983-86, 1990) Professor of French (2005); B.S., 1969, Douglass College; M.A., 1979, Rutgers University; Ph.D., 1995, Rutgers University.

WILLIAM H. CLEMENTS (1987) Professor of Criminal Justice (2001), Vice-President for Academic Affairs (2011), Dean of the College of Graduate and Continuing Studies (2005); B.S., 1980, Clarkson University; M.A., 1982 and Ph.D., 1987, University of Delaware.

JEFFREY B. COOPER (2008) Assistant Professor of Aerospace Studies (2008), B.A., 1984, Central Washington University; M.A. 2007 Norwich University; Major USAF.

JOSE A. CORDOVA (2008) Director, Master of Business Administration (2008); M.A. Administrative Studies, 1978, Ohio University; M.A. Economics, 1979, Ohio University; PhD. 1987, Ohio University.

FRANCIS BRETT COX (2002) Associate Professor of English (2008); B.A., 1981, University of South Carolina; M.A., 1984, University of South Carolina; Ph.D., 1992, Duke University.

WENDY COX (2000) Associate Professor of Architecture (2010); B.S. 1981, Miami University (Ohio); M. Arch. 1989, Colorado State University. Registered Architect.

MARILYN CRANE (2012) Associate Professor of Nursing (2012); D.N.P. 2010.

ELEANOR D'APONTE (2000) Assistant Professor of Architecture (2004); B.A. 1988, Barnard College; M.Arch 1991 University of Virginia. Registered Architect.

THOMAS J. DESCOTEAUX (2002) Professor of Civil Engineering (2007), Director of Master of Civil Engineering (2004); Master of Science in Business Continuity programs (2011); B.S., 1985, M.S., 1987 and Ph.D., 1992, The University of Connecticut. Registered Professional Engineer.

MEGAN DOCZI (2011) Assistant Professor of Biology (2011); B.A., 2003, Drew University; Ph.D., 2010, University of Vermont.

RICHARD K. DUNN (2000) Professor of Geology (2013); B.A., B.S., 1987, University of Minnesota Duluth; M.S., 1990, Wichita State University; Ph.D., 1998, University of Delaware.

SANQUANETTA L. ELLIS (2010) Captain, U.S. Army, Assistant Professor of Military

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JAMES EHRMAN (2004) Director, Master of Arts in Military History (2006) and Master of Arts in History programs (2011); B.A. 1991, Creighton University; M.A., 1997, and Ph.D. 2006, Kansas State University.

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MARSHA DELAINE FARNUM (2011) Lecturer in Nursing (2011); B.A., 1975 University of South Florida, M.S.N. 2011, Liberty University.

GEOFFREY A. FARRELL (2010) Assistant Professor of Military Science (2010); B.S. 2002, United States Military Academy, Contractor, COMTek.

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PATRICIA FERREIRA (1996) Associate Professor of English (2004); B.A., 1982, Keene State College; M.A., 1988, University of Vermont; Ph.D., 1996, McGill University.

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KEVIN FLEMING (2006) Professor of Psychology (2009); B.A. 1985, Lehigh University; M.A. 1987, Ph.D. 1990, University of New Hampshire.

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EDUARDO H. HERNANDEZ (1979) Associate Professor of Sports Medicine (1988); B.S., 1972; B.A., 1981, and M.Ed., 1976, Norwich University; M.A. 1986, Middlebury College.

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VIRGINIA KUNKEL (1995) Lecturer in Biology (2009); B.S., 1980, Colorado State; M.S., 1983, Pennsylvania State.

MATTHEW A. LANDRUM (2010) Recruiting Operations Officer (2010); B.S. 1998, Ball State University; Major, U.S. Army.

DANIEL W. LANE (2000) Associate Professor of English (2006); Chair, Department of English and Communications (2008), B.A., 1991, Hamilton College, M.A., 1994, Binghamton University; Ph.D., 2002, University of Delaware.

CHRISTINE LATULIPPE (2011) Assistant Professor of Mathematics (2011); B.A., 2000, Sonoma State University; M.Ed. 2001, Lewis and Clark College; Ph.D. 2007, Montana State University.

JOCELYN LATULIPPE (2011) Assistant Professor of Mathematics (2011); B.S., 2000, Sonoma State University; M.S. 2002 and Ph.D., 2007, Montana State University.

GERARD T. LaVARNWAY (1983) Professor of Mathematics (2001), B.S. 1978, Norwich University; M.S., 1983 and Ph.D., 1999, University of Vermont.

CHARLES LERCHE (2004) Associate Program Director of Academics, Master of Arts in Diplomacy Program (2004); B.A., 1972, Haverford College; M.A. 1973, American University; Ph.D., 1977, University of Ibadan.

RONALD ADRIEN LESSARD (1979) Professor of Electrical and Computer Engineering (1995); B.S.E.E., 1969; M.S.E.E., 1970 and Ph.D., 1978, University of New Hampshire.

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GARY THOMAS LORD (1969) Charles A. Dana Professor of History (1990); B.A., 1964 and M.A., 1968, University of New Hampshire; Ph.D., 1976, University of Virginia.

MATTHEW LUTZ (2007) Assistant Professor of Architecture (2007); B.F.A., 1993, Savannah College of Art and Design, M.Arch., 1999, Virginia Polytechnic Institute and State University. Registered Architect.

HERBERT A. MARBLE (2010) Military Science Instructor (2010); Master Sergeant, U.S. Army.

ANN MARCHEWKA (2010) Lecturer in Nursing (2010); M.S.N., 1972 and M.B.A., 1985, Boston University; Ph.D., 1994, Brandeis University.

CARL GREY MARTIN (2010) Assistant Professor of English (2010); B.A., 1995, University of Massachusetts, Dartmouth; M.Litt., 1999, University of Aberdeen, Scotland; Ph.D., 2005, Tufts University.

HEATHER A. MARTIN (2008) Assistant Professor of Nursing (2009); B.S.N., 1998 University of Vermont; Post Bac Pre-Med Certificate, University of Vermont; M.S.N., 2005, University of Phoenix.

ELIZABETH MATHAI (2002, 2005) Lecturer in Mathematics (2012); B.Sc. 1993, M.Sc. 1995, and Ph.D. 2001, Bangalore University, India.

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VALERIE A. McCARTHY (2008) Professor of Nursing (2008); Chair of the Nursing Department; B.S.N. 1979 Fitchburg State College; M.S., 1982 Boston College School of Nursing; Ed.D., 1991, University of Massachusetts at Amherst.

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MICHAEL B. McGINNIS (2013) Dean, College of Science and Mathematics; B.S., 1992, Elizabethtown College; Ph.D., 1977, University of Tennessee.

ROBERT JAMES McKAY (1981) Professor of Philosophy (1997); Philip A. Gauss Chair in Philosophy (1992), B.A., 1969, Swarthmore College; M.A., 1973 and Ph.D., 1980, University of Chicago.

DANIEL J. McQUILLAN (2002) Associate Professor of Mathematics (2008); B.A., 1991, Carleton University; M.S., 1992, University of Western Ontario; Ph.D., 1998, University of Western Ontario.

RICHARD A. MILIUS (2007) Lecturer in Chemistry (2008); B.S., 1972, Marquette University; Ph.D., 1981, Northeastern University.

MELVIN EUGENE MILLER (1981) Charles A. Dana Professor of Psychology (2008); Director of Counseling and Psychological Services (1983), B.A., 1968, Westminster College; M.A., 1972, West Georgia College; Ph.D., 1981, University of Pittsburgh; C.A.G.S., 1979, Duquesne University.

MEHDI MOHAGHEGH (1986) Professor of Economics and Finance (2002); B.A., 1973, College of Business (Rasht, Iran); M.A., 1978, University of Teheran; M.A., 1985 and Ph.D., 1986, Clark University.

TRAVIS MORRIS (2011) Assistant Professor of Criminal Justice (2011); B.A. Criminology, 1996, Northern Illinois University; M.S., 2004, Eastern Kentucky University; Ph.D., 2011, University of Nebraska at Omaha.

JEFFREY R. MOUNTAIN (2011) Associate Professor of Mechanical Engineering (2011), Chair of Mechanical Engineering (2011); B.S., 1989, M.S., 1990, and Ph.D., 1994, The University of Texas at Arlington; Registered Professional Engineer.

JAMES MURDOCK (2011) Lecturer in Sports Medicine (2011); B.S., 1980, University of New Hampshire; M.Ed., 1991, University of Virginia.

TODD M. NEUHARTH (2003) Lecturer in Sports Medicine (2003), Chair of the Sports Medicine Department (2007); B.A., 1988 University of Minnesota, Morris; M.A., 1990 University of South Dakota.

KELLY NOLIN (2003) University Archivist and Special Collections Librarian with rank of Assistant Professor (2003); B.S., 1990, Lyndon State College; MLIS, 1992, University of Rhode Island.

CHRISTOPHER J. NUTTALL (2011) Assistant Professor of Naval Science (2011); BS., 2005, Auburn University; Lieutenant, USN.

LAWRENCE OLIVER (2011) Professor of Naval Science and Commanding Officer NROTC unit (2011); B.S., 1986, Jacksonville University; M.S. 2009, National Defense University, Colonel, USMC.

DARLENE OLSEN (2006) Associate Professor of Mathematics (2006); B.A. 1994, Geneseo State College; M.S., 1997, SUNY Albany, M.S., 2011, SUNY Albany, Ph.D., 2003, SUNY Albany.

JEFFREY OLSON (2006) Associate Professor of Mathematics (2013); B.A., 1994, Macalester College; M.S., 2003, Ph.D., 2006, University of Illinois at Chicago.

DAVID WALTER ORRICK (2002) Lecturer of Criminal Justice (2002); LL.B., 1968, University of Southhampton, England; M. Phil, 1969 University of Cambridge, England; M.A., 1970, Ph.D., 1985 SUNY of Albany.

JANINE OSTERMAN (2008) Lecturer of Sports Medicine and Clinical Coordinator (2008); B.S., 1999, Alfred University; M.S., 2003, Frostburg State University.

SCOTT L. PAGE (1999) Chair of Biology and Physical Education (2010), Associate Professor of Biology (2005); B.S., 1994, Grand Valley State University; Ph.D., 1999, Wayne State University.

ARTHUR K. PALLONE (2012) Assistant Professor of Physics (2012); B.S., 1991, University of Michigan; M.S., 1995, Indiana University of Pennsylvania; Ph.D., 2000, Colorado School of Mines.

GARY DOUGLAS PARKER (1978) Charles A. Dana Professor of Physics (2007); B.A., 1965, Dartmouth College; M.S., 1970, University of Colorado; Ph.D., 1973, University of Denver.

REINA PENNINGTON (1999) Associate Professor of History (2005); B.A., 1978, University of Louisville; M.A., 1993 and Ph.D. 2000, University of South Carolina.

ANDREW J. PETERSON (2008) Assistant Professor of Aerospace Studies (2008); B.S., 2000, Southern Illinois University; M.S. 2005, Air Force Institute of Technology, Captain, USAF.

JOSHUA PETRUSA (2007) Electronic Resources Librarian with rank of Assistant Professor (2007); B.A. 2004, DePaul University; MLIS, 2007 University of Illinois.

STEPHEN M. POMEROY (2006) Lecturer (2008) Associate Dean, School of Business & Management (2010); B.S., 1978, The Citadel; M.B.A., 1988, National University; M.M.S., 1994, Marine Corps University; M.S., 2000, National War College; Colonel, USMC (Ret).

ROBERT D. POODIACK (1999) Professor of Mathematics (2013), Chair of the Mathematics Department (2013); B.S., 1988, Cornell University; M.A., 1994, Western Connecticut State University; Ph.D., 1999, University of Vermont.

MICHAEL W. PRAIRIE (2008) Assistant Professor of Electrical and Computer Engineering (2008); B.S., 1983, Norwich University; M.S., 1984, Air Force Institute of Technology; Ph.D., 1991, North Carolina State University.

MARGARET PRIBULICK (2010) Assistant Professor in Nursing (2010); B.S.N., 2006 and PhD., 2009, State University of New York at Binghamton.

MICHAEL S. PUDDICOMBE (2001) Charles A. Dana Professor of Management (2010), Professor of Management (2001); B.A., 1976, Boston University; M.B.A., 1988, University of Rhode Island; D.B.A. 1998, Boston University.

DIANE RAVENSCROFT (2004); B.Sc. 1986, Dalhousie University; M.Ed., 1999 Saint Michael's College.

JOSEPH J. RIZZOLO (1982) Associate Professor of Chemistry (1988); B.S., 1975, Virginia Military Institute; Ph.D., 1982, University of South Carolina.

MEGAN L. REMMEL (2013) Assistant Professor of Political Science (2013); B.A., 2008, Furman University; M.A., 2012, University of Illinois and Urbana-Champaign.

THOMAS ROBERGE (2006) Lecturer, Physical Education (2007); B.S., 1992, Johnson State College; M.S., 2005, St. Michael's College, ABD, North Central University.

H. STEWART ROBERTSON, JR. (1990) Professor of Spanish (2002), Chair of the Department of Modern Languages (2006); B.A., 1970, SUNY at Oswego; M.A., 1974, SUNY at Potsdam; Ph.D., 1986, University of Texas at Austin.

ANTHONY A. RUTKOWSKI (2009) Lecturer in Chemistry (2012); B.S., 1980, The Pennsylvania State University; Ph.D., 1985, University of Vermont.

DANIEL SAGAN (2006) Associate Professor of Architecture (2011); Architecture Program Director (2011); B.A., 1986, Yale University; M.Arch, 1992, Yale University. Registered Architect.

GREGORY SAUER (2001) Coordinator of Technical Services with rank of Assistant Professor (2001), B.A., 1988, Norwich University; M.L.S., 1992, Southern Connecticut State University; M.A., 1995, Western Connecticut State University.

ARTHUR SCHALLER (1999) Associate Professor of Architecture (2003); B.S. in Architecture, 1969, University of Cincinnati. Registered Architect.

EDWIN SCHMECKPEPER (2009) Professor of Civil Engineering (2013), Chair of Civil Engineering (2012); B.S., 1978, Valparaiso University; M.S., 1986, PhD., 1992, University of New Hampshire, Registered Professional Engineer.

LISA D. SCHRENK (2002) Associate Professor of Architecture and Art History (2007); B.A., 1983, Macalester College; M. Architectural History, 1988, University of Virginia; Ph.D., 1998, University of Texas, Austin.

RICK A. SELVESTER (2010) Military Science Instructor (2010); Sergeant First Class, U.S. Army.

ADAM F. SEVI (2008) Assistant Professor of Civil Engineering (2008); B.S., 1995, Norwich University; M.S., 2002, University Missouri-Rolla; Ph.D., 2008, Missouri Institute of Science and Technology.

STANLEY K. SHERNOCK (1985) Charles A. Dana Professor of Criminal Justice (2006); Chair of the Department of Justice Studies and Sociology (1987) B.A., 1968, University of California; M.A., 1971, Indiana University; Ph.D., 1979, University of Virginia.

GINA SHERRIFF (2011) Assistant Professor of Spanish (2011); B.A., 2001, Carleton College; M.A., 2004, Middlebury College; M.A., 2007, Yale University; M.Phil., 2008, Yale University; Ph.D., 2010, Yale University.

PENNY R. SHTULL (1997) Associate Professor of Criminal Justice (2007); B.S.W. 1982, McGill; M.A. 1984, John Jay College of Criminal Justice; M. Phil, 1993, and Ph.D., 1997, City University of New York at John Jay College of Criminal Justice.

STEPHEN V. SMITH, (2010) Colonel, U.S. Army, Professor of Military Science (2010); B.S., 1984, Norwich University, M.S., 1995, Rensselaer Polytechnic Institute; M.A., 2008, U.S. Army War College.

STEVEN SODERGREN (2007) Assistant Professor of History (2007); B.A., 1999, Cornell College, M.A. 2001, University of Kansas, Ph.D., 2006, University of Kansas.

XIAOPING SONG (2007) Assistant Professor of Chinese Language and Culture (2007); B.A., 1981, Wuhan University, China; M.A., 1983, Wuhan University, China: M.A., 1987, York University, Canada; Ph.D., 1995, University of Manitoba, Canada.

PAUL STAFFORD (2007) Assistant Professor of Military Science (2007); B.S. 1990, Norwich University, Major, U.S. Army.

JUDITH STALLINGS-WARD (1993) Associate Professor of Spanish (2010); B.A., 1977, University of Texas; M.A., 1986, Middlebury College; M.A., 1989, Yale University; Ph..D., 1993, Yale University.

PETER R. STEPHENSON (2004) Lecturer in Information Assurance; Chief Information Security Officer (2007); B.S.E.E., 1999, Summit University; M.A., 2007, Norwich University; Ph.D., 2004, Oxford Brookes University. Certified Information Systems Security Professional, Certified Information Security Manager, Fellow Institute for Communications Arbitration and Forensics.

JOHNNIE LEE STONES (1979) Professor of Psychology (1997), Chair of the Department of Psychology (2005); B.A., 1967, Windham College; M.A., 1972; M.S., 1975, and Ph.D., 1987, University of Colorado.

KAREN SUPAN (2012) Assistant Professor of Mechanical Engineering (2012); B.S., 2000, Minnesota State University Mankato; M.S., 2002, Institute of Paper Science and Technology; PhD., 2005, University of Florida.

RAHMATHULLAH SYED (1984) Professor of Physics (2003); B.Sc. and M.Sc., 1963, Sri Venkateswara University, India; M.S., 1980 and Ph.D., 1983, The Catholic University of America.

PAUL EDWARD TARTAGLIA (1977) Professor of Mechanical Engineering (1990); B.M.E., 1967, University of Detroit; M.S.M.E., 1968, Northwestern University; Dr. Engr., 1970, University of Detroit.

THOMAS FRANK TAYLOR (1980) Professor of History (1996); B.A., 1971, Miami University (Ohio); M.A., 1977 and Ph.D., 1981, Syracuse University.

LASHA TCHANTOURIDZÉ (2011) Director, Master of Arts in Diplomacy (2011); B.A., Philosophy 1992, Tbilisi State University, Georgia; B.A., Film 1994, Tbilisi State University, Georgia; M.A., International Politics 1996, Queen's University, Kingston, ON, Canada; Ph.D., Politics 2001, Queen's University, Kingston, ON, Canada.

MOSES TEFE (2012) Assistant Professor of Civil Engineering (2012); B.S.C.E., 1992 Iniversity of Science and Technology, Kumasi, Ghana; M.S.C.E., 2004, UNESCO-IHE, Delft, Netherlands; PhD, 2012, University of Alabama.

ARON P. TEMKIN (2010) Professor of Architecture (2010), Dean of the School of Architecture and Art (2010); B.Arch., 1992, Carnegie Mellon University; M.Arch., 1997, Cranbrook Academy of Art. Registered Architect.

C. DART THALMAN (2000) Visiting Associate Professor of Political Science (2000); B.A., 1966, University of Utah; M.A., 1967, M.A.L.D., 1969, Ph.D., 1979, Fletcher School of Law and Diplomacy, Tufts University.

WACLAW TIMOSZYK (1988) Associate Professor of Mathematics (1991); M.Sc., 1967, Technical University of Wroclaw, Poland; Ph.D., 1974, University of Wroclaw, Poland.

ERNEST DeCARTERET TRUE (1974) Professor of Mathematics (1989); B.A., 1962 and M.A., 1964, University of Maine; Ph.D., 1972, Montana State University.

SPRING ULMER (2010) Visiting Assistant Professor of English (2010); B.F.A., 1996, Cooper Union University; M.F.A., 2003, University of Arizona; M.F.A. 2009, University of Iowa.

FRANK THOMAS VANECEK (1976) Professor of Computer Science (1994), Dean of the School of Business and Management (1988); B.S., 1974, University of Dayton; M.S., 1976, Worcester Polytechnic Institute; D.B.A., 1982, Kent State University.

JOE A VERDUZCO (2011) Marine Officer Instructor (2011); BS., 1991 The Citadel; Major, USMC.

STEVEN A. VEVES (2010) Assistant Professor of Military Science (2010), B.S. 2002, Norwich University; Captain, U.S. Army.

AIMEE VIEIRA (2006) Assistant Professor of Sociology (2007); B.A. 1993, M.A. 1996, Michigan State University; Ph.D., 2008, Université de Montréal.

DONALD MacPHERSON WALLACE (1962) Professor of Mechanical Engineering (1987); B.S.M.E., 1960, University of Vermont; M.S., 1962, University of Illinois; Eng.Sc.D., 1968, Columbia University. Registered Professional Engineer.

ROBERT WALKER (2010) Executive Officer NROTC Unit and Assistant Professor of Naval Science (2010), B.A., 1991, Norwich University; M.S. 1999, Naval Post-Graduate School; Commander, USN.

JONATHAN WALTERS (1989) Professor of English (2002), Dean of the School of Humanities (2005); B.A., 1972, University of Warwick, England; M.A., 1978 and Ph.D., 1988, University of Miami.

DAVID JOHN WARD (1991) Professor of German (2004); B.A., 1974, Duke University; Ph.D., 1984, University of Texas at Austin.

DAVID S. WESTERMAN (1982) Charles A. Dana Professor of Geology (2000), Associate Vice President for Research (2007); B.S., 1969, Allegheny College; M.S., 1971 and Ph.D., 1972, Lehigh University.

GREGORY DONALD WIGHT (1977) Charles A. Dana Professor of Engineering (2008), Professor of Civil Engineering (1994), Associate Dean of the David Crawford School of Engineering; B.S.M.E., 1967, Massachusetts Institute of Technology; M.S.M.E., 1968, University of Florida. Registered Professional Engineer.

LEA WILLIAMS (2006) Associate Professor of English (2009); B.A. 1992, American University of Paris; M.A. 1996 University of Oregon; Ph.D. 2001, University of Oregon.

MARK WINKER (2007) Assistant Professor of Military Science (2007); B.S. 2003, Norwich University; M.S. 2010, Norwich University, Captain, U.S. Army.

DAVID E. WOOLF (1992) Charles A. Dana Professor of Architecture (2012); B.S., 1974, University of Cincinnati; M.Arch., 1977, Harvard University; M.F.A., 1995, Vermont College. Registered Architect.

ELIZABETH C. N. WUORINEN (2005) Associate Professor of Physical Education (2011); B.A., Central Michigan University; M.S., 1991, Northern Michigan University, Ph.D., 2007, University of Michigan.

THOMAS H. YANDOW (2000) Associate Professor of Accounting (2012), Program Director – Accounting (2008); B.S.B.A., 1976, Bryant College; M.B.A., 1998, Lincoln University; M. Acc., 2004, Golden Gate University. Certified Public Accountant.

Academic Regulations

Academic Regulations

These academic regulations pertain to Norwich University's undergraduate Bachelor of Arts and Bachelor of Science degrees. These regulations are subject to change. Norwich University students and faculty will be notified of any changes made during the academic year.

Section I - Degrees

1. **Degrees Awarded**
   a. The Bachelor of Arts degree is awarded with majors in criminal justice, Chinese, English, history, international studies, political science, psychology, Spanish, and studies in war and peace.
   b. The Bachelor of Science degree is awarded in accounting, architectural studies, athletic training, biology, biochemistry, chemistry, civil engineering, communications, computer security and information assurance, computer science, education, electrical and computer engineering, engineering management, environmental science with concentrations in engineering or science, and outside the sciences, geology, management, mathematics, mechanical engineering, nursing, physical education, physics, and sports medicine.
2. **Requirements**
   The requirements for all degrees are to be found in the University Catalog. Degree candidates are subject to the degree requirements of the class year to which they are assigned at the time of their admission, or readmission, to the degree program.
3. **Two Degree Programs**
   Well qualified students may elect to fulfill the requirements of the Bachelor of Arts and Bachelor of Science or two Bachelor of Science degrees in a program directed toward two degrees subject to the approval of the departments or schools concerned. Two degrees may take more than four years to complete.
4. **Conferring of Degrees (Graduation)**
   a. The faculty, through the Committee on Academic Standings and Degrees (CASD), shall recommend to the President students who have completed degree requirements.
   b. No degree shall be conferred or diploma awarded until the Registrar's Office determines that all degree requirements are met.
   c. No degree shall be conferred or diploma awarded until the recipient has paid all University bills or arranged for payment to the satisfaction of the Chief Financial Officer.
   d. No undergraduate degree shall be conferred or diploma awarded until the Vice President for Student Affairs and Commandant has cleared the student's record.
   e. Only those undergraduate students who have met graduation requirements, or are in good standing and enrolled in courses, after the withdrawal date in the spring semester, that could complete graduation requirements will be allowed to participate in the graduation exercises. Enrollment in summer courses does not satisfy this requirement.

Section II - Credit, Courses and Curricula

1. **Award of Credit**
   a. Credit hours and grade points shall be awarded only for those University courses for which a student is properly registered.
   b. Credit hours, not grade points, for approved courses taken by a Norwich student at other accredited institutions may be transferred, subject to the residence requirement and provided grades earned are "C" or above, for credit toward a bachelor's degree.
   c. Credit hours for extra institutional learning may be awarded in accordance with the provisions of paragraph 3, following.

2. **Credits for Graduation**
   a. Graduation requirements are measured in courses and credits. Courses and credits required for graduation are specified in the catalog for each curriculum. Students should consult the catalog to be sure they are meeting the graduation requirements in their major.
   b. A student will receive the equivalent of one three-credit course to fulfill published credit or course requirements as a free elective in a major or minor when three one-credit courses in the same discipline are combined. A student is limited to one such course. One-credit ROTC courses and courses numbered below 100 may not be used.

3. **Requests for Course Equivalency or Exemption**

a. To waive a prerequisite course requirement a student must present the advisor's affirmative recommendation to the course's department chair for approval. The basis for such a waiver will be the student's demonstrated knowledge in the area concerned.

b. To waive a degree course requirement on the basis of an exemption examination or other documented extrainstitutional learning, a student must present the affirmative recommendations of major and course department chairs and academic advisor on the form. The credits for the waived course must be replaced by free electives.

c. To obtain credits and grade points for a course on the basis of an equivalency examination administered under the provisions of 3d (1), a student must present the affirmative recommendations of the major and course department chair and the academic advisor on the form. Second semester seniors are not eligible for an equivalency examination unless a petition is approved not later than one week after mid-semester grades are due. Please Note: The repeat grade policy does not apply to credits earned by way of an equivalency examination.

d. Types of examinations to accomplish 3b or 3c above are either course equivalency or exemption. Course equivalency by examination is treated as transfer credit and is subject to the limits described in Section IX.

   i Examinations for course equivalency or exemption given at Norwich University will be given only if a nationally validated examination covering the same subject matter is not available. Examinations for EN 101 and EN 102 are an exception and may be administered at the beginning of the fall and spring semesters to newly admitted students.

   ii Before administering an exemption or an equivalency examination, Department Chairs and/or School Deans should determine whether the student wishes to waive the course requirement under paragraph 3b, above, or wishes to obtain credits and grade points for the course under 3c, above. An examination for waiver should be designed to test the student's general knowledge and competency in the tested area. An examination for credits and grade points should be typical of a final examination that covers the entire course content. Where appropriate, term papers, projects, etc. may also be required. An exemption or equivalency examination for laboratory courses may require demonstrated laboratory proficiency.

   iii If the examination is for credits and grade points under 3c, above, a grade will be assigned and appropriate grade points awarded unless the Pass/Fail option is selected prior to the administering of the examination.

   iv An extra tuition charge may be assessed by the Bursar's office for examinations under 3c above.

   v Credits, not grade points, are to be awarded when evidence that the minimum required grade has been achieved on a nationally validated examination, such as, Advanced Placement program, DANTES, CLEP, and International Baccalaureate higher level examinations.

4. **Extra Institutional Learning**

Extra Institutional Learning is learning that is attained outside the sponsorship of legally authorized and accredited post secondary educational institutions. The term applies to learning acquired from work and life experiences, independent reading and study, the mass media, and participation in formal courses sponsored by associations, business, government, industry, unions and the military. Credit from extra institutional learning is treated as transfer credit and is subject to the limits described in Section IX.

a. Basic ROTC courses may be waived on the basis of at least 6 months of active duty in the Armed Forces or as approved by the appropriate Professor of Military Science.

b. Credits, not grade points, may be awarded in accordance with the Guide to the Evaluation of Educational Experiences in the Armed Forces, published by the American Council on Education, provided courses are equivalent to a Norwich University courses.

c. Credits, not grade points, for other extra institutional learning as recommended in nationally recognized guides and publications may be awarded upon the positive recommendation of the appropriate course department head and dean. Such credits shall be awarded in compliance with the evaluations provided by the American Council on Education, (ACE).

d. Credits, not grade points, may be awarded for upper level International Baccalaureate courses based on evaluation by corresponding academic program departments.

5. **Internships**

Students who intend to engage in an internship must register for the internship during the designated registration period for a fall or spring semester internship and by 1 May for a summer internship. Departmental or school permission is required for an internship at registration.

Enrollment and registration for the internship will occur on the designated enrollment and registration day for the semester or session of the internship. Enrollment and registration for the internship will not occur unless the faculty member has received written confirmation from the field supervisor that internship arrangements are complete.

Internships will be scheduled to coincide with opening and closing dates of the semester of internship enrollment. Summer internships will coincide with the beginning and ending dates of the appropriate summer session.

6. **Independent Study**

To support a course registration for an independent study, the affirmative recommendation of the student's academic advisor and the course Department Chair and School Dean must be present on an academic form. This form must accompany a registration form at the time the student registers.

7. **Use of Courses to Satisfy Curricular Requirements**
   A detailed statement of the ROTC requirement is published as Appendix VI of these Regulations. Up to six degree credits as free electives toward the baccalaureate degree may be granted for the following courses: AS 311, AS 312, AS 411, AS 412, MS 311, MS 312, MS 411, MS 412, NS 321, NS 322, NS 331, NS332, NS 342, NS 421, NS 422, NS 431.

8. **Extra Credit**
   a. Approval for Extra Credits
      Course loads in excess of 16 credits for freshmen and 20 credits for upper class students, (including ROTC and one credit courses) except if specified differently in the major curriculum; require the approval of the student's advisor and major Department Chair or Program Director.
   b. Extra Credit Charges
      i Extra credit charges will be applied at the part-time rate for credits over 19, except as specified differently in the major curriculum. This excludes ROTC courses and MU 260.
      ii MU 200 Applied Music is subject to the extra credit charge.
      iii Students should be familiar with published Fees & Financial Policy booklet. Copies may be obtained in the Bursar's office.
      iv There will be no charge for extra courses if they are dropped before the Add/Drop deadline.

9. **Course Audit**
   a. A fee will be assessed for a course audit. The fee will not be charged to a full time matriculated student unless the audit is an overload.
   b. Students taking courses as auditors will receive the notation "AU" (Audit) on their permanent academic record in lieu of a grade and credits if the obligations of the auditor have been met to the satisfaction of the instructor. If the auditing student's performance is unsatisfactory, there will not be a course entry on the academic record.

      Auditing students are expected to participate in class discussion and laboratory activities. At the beginning of the course, the student and the instructor will agree on the extent to which the student is expected to attend classes and take examinations. Students may audit a course only if, in doing so, students desiring to take the course for credit are not excluded because of enrollment limitations.

10. **Prerequisites**
    Students shall not register for a course having prerequisites without having successfully completed those prerequisites or be allowed to remain scheduled for the successive course if the prerequisite course was not completed successfully. Prerequisites are identified in the current Norwich University Catalog. For information regarding the waiver of a prerequisite, see Section 2, Item 3a.

11. **Co-requisites**
    Students shall not register for courses having co-requisites without registering for the co-requisite course. Co-requisites are identified in the current Norwich University Catalog.

12. **Minimum Grade Standards**
    Minimum grade standards are established for various curricula. These minimum standards are shown in the Catalog.

13. **Repeat Courses/Repeat Grade Policy**
    a. A student shall not receive credit twice for any course except those courses whose catalog description permits repetition for credit.
    b. If a previously graded course is repeated, and a grade other than "W" is earned, only the last grade earned in the course will be calculated in the grade
    c. point average (GPA). All grades previously earned in the course will be removed from the GPA calculations even in the event that a lower grade is earned upon repetition of the course. If a failing grade is earned upon repetition of a course, any previous credit earned will be lost. Credit by examination does not constitute a repetition under this provision.

14. **Conflicts**

Students shall not schedule courses which require conflicting hours of attendance unless the responsibility for resolution of the conflict is accepted in writing on the course registration form by all of the faculty members and their School Deans.

Section III – Majors, Minors, and Concentrations

1. **Definitions**
   a. Major – A major is the field of academic specialization within the baccalaureate degree. It is defined as the departmental requirements set forth in the catalog, having a minimum of 10 courses totaling at least 30 credit hours, of which a minimum of two must be at the 300-400 level. Interdisciplinary majors may include courses from more than one related academic discipline.
   b. Minor – A minor consists of six courses of three or more credit hours as specified in the catalog. Minors may include courses from more than one related discipline. The six courses for the minor must be completed with a grade of "C" or higher. A student may not earn both a minor and a major in the same field of specialization.
   c. Concentration – A concentration consists of six courses of three or more credit hours in a "specialized area" within a major, as specified by an academic department. It may consist of a selection of courses or an established minor in a specialized area within the major approved by the department. Concentrations may include courses from more than one related academic discipline. The six courses for the concentration must be completed with a grade of "C" or higher. Concentrations are available only to students enrolled in the major under which the concentration is listed.

2. **Choice of Major**
   a. Students, who enter Norwich as an undeclared BA or BS student, must select a major by the time of registration for the 5th semester.
   b. Students who enter Norwich as Sports Medicine majors must select their concentration by the time they registrar for their 2nd semester.
   c. Students must meet minimal major course and grade requirements to be accepted by the desired major.

3. **Change of Major**
   A change of major requires the approval of the School Director or Department Chair and must include the assignment of the new advisor and the catalog year that the student will follow. A form for this is available in the Registrar's Office or on the web. Students must obtain the recommendation of the advisor for the major they are leaving.

4. **Second Major**
   A student may apply for a second major. The current advisor, and the School Director or Department Chair of the second major must all approve the application and a second advisor assigned by the Department Chair or School Director of the second major prior to when the application is brought to the Registrar's Office. The student will follow the catalog year of the primary major.

5. **Minor**
   Academic minors and their requirements are to be found in the academic major section of the catalog. To request a minor, a student is to file an application form with the Registrar's Office. The form is to carry the approval of the student's advisor and of the Department Head or School Director of the academic department that offers the minor. Minor requirements will follow the catalog year of the student's primary major. Minors will not be added after the Bachelor's Degree is awarded.

6. **Dismissal From a Major or Minor**
   School Directors and Department Chairs have the authority to dismiss a student from a major or minor for academic deficiency or unsatisfactory performance in a clinical program or an internship, practicum or program. Copies of dismissal letters must be sent to the Registrar's Office.

7. **Concentrations**
   Academic concentrations and their requirements are to be found in the academic major section of the catalog. Each concentration represents an area specialization within a major and consists of six courses. To declare a concentration, a student is to file a request with the Registrar's Office. The request is to carry the approval of the student's advisor and of the Department Chair. Concentration requirements will follow the catalog year of the student's primary major. Concentrations will not be awarded after the primary Bachelor's Degree is awarded.

Section IV - Grades, Averages and Marking Periods

1. **Grades**
   These grades and grade points shall be awarded:

Grade	Grade Points
A	4.0 Grade points per credit hour
A-	3.7 Grade points per credit hour
B+	3.3 Grade points per credit hour
B	3.0 Grade points per credit hour
B-	2.7 Grade points per credit hour
C+	2.3 Grade points per credit hour
C	2.0 Grade points per credit hour
C-	1.7 Grade points per credit hour
D+	1.3 Grade points per credit hour
D	1.0 Grade points per credit hour
D-	0.7 Grade points per credit hour
F	0.0 Grade points per credit hour
P Pass/Fail option exercised	None
AU (Audit)	None
I (Incomplete)	None (Not used at mid semester)
NG (No Grade)	None (Not used for final grade)
S (Satisfactory)	None
U (Unsatisfactory)	None
W (Withdrawal from course)	None
NS (Not Submitted)	None

2. **Grade Point Average**
    a. The grade point average is computed by dividing grade points earned by credit hours attempted after applying the repeat grade policy.
    b. Only grade points earned and semester credit hours attempted in courses at Norwich will be included in computing the student's grade point average. (See the repeat course policy for the effect on the grade point average of course repetition).
    c. Grades for courses taken after conferral of a degree will not be used to recalculate the grade. Grade point averages for these courses will be calculated separately.

3. **Pass/Fail Option**
    a. Students in good academic standing may choose one course per semester in the sophomore, junior, pre-senior and senior years in which to exercise a Pass/Fail option.
    b. Courses chosen under this option must be free electives. Courses that satisfy University requirements, or are specifically listed courses in the student's major, or require a minimum grade of "C", or are restricted electives other than free electives may not be taken pass/fail.
    c. To receive "Pass" credit under this option, the student's work in the designated course must receive a semester grade of at least "D-". An earned grade of "F" will be entered as such on the student's academic record and will be included in all grade point computations. A "Pass" grade will earn credits but will not be included in grade point computations.
    d. Students seeking to take a course under the Pass/Fail option shall complete and submit the required form to the Registrar's Office prior to the course withdrawal deadline. Forms are available on the Registrar's Office web page.

4. **Incomplete Grades (I)**
    a. A student who fails to complete required work in any course due to authorized absence caused by illness or emergency may receive the grade of incomplete (I).
    b. The grade "I" may not be assigned for simple failure to submit required work. It may not be awarded as the result of class cuts, regular leave, or detached service.
    c. A grade of "I" may only be assigned at the end of the semester and not at mid-semester.
    d. Faculty, when assigning a grade of "I", shall complete the I Grade Form and email it to the student and Registrar's office. The form requires:
        i The reason the "I" grade was assigned;
        ii What work is still required;

iii The deadline for submission of the work (the instructor determines the deadline, but the deadline shall be no later than 30 days from the last day of finals); and

iv What the grade will be if no additional work is received from the student.

e. The faculty member has 48 hours to submit a new grade to the Registrar's Office. If no new grade is received the grade that the faculty member stated would be the grade if no additional work was received will be entered as the course grade.

f. A course carrying the grade of "I" will be excluded from the computation of total semester credit hours and grade point averages.

g. A student with a grade of "I" is ineligible for consideration for the Dean's List. Dean's List eligibility will be determined when a final grade is awarded.

5. **Course Drop/Add and Course Withdrawal**

a. A student may drop or add a course within one week after classes start. The deadline for dropping or adding a course is listed on the academic calendar. The permanent academic record will not reflect courses DROPPED during this period.

b. During the time from the end of the DROP/ADD period and extending to two weeks following the date on which mid-semester grades are due, a grade of W will be entered on the Permanent Academic Record for any course withdrawal by a student, or the administration, who remains enrolled at the University. The student is responsible for filing a complete DROP/ADD/WITHDRAWAL form, with the Registrar's Office prior to the withdrawal deadline. A student must meet with the faculty member prior to withdrawal and obtain their signature on the withdrawal form. After the deadline, a grade of "F" will be entered on the Permanent Academic Record for any course withdrawal unless the Committee on Academic Standing and Degrees approves the assignment of a grade of W.

c. Withdrawals from the University
A student who separates from the University, for any reason, prior to the end of the semester will receive a grade of "W" in each class.

6. **Course Schedule Administrative Adjustment**

a. Within the first 20 school days of a semester, a college dean may approve course adjustments for students who have been enrolled in an inappropriate level of a course, such as MA 005 rather than MA 101 or vice versa. This adjustment is made using an Administrative Course Adjustment form containing all required signatures, and turned into the Registrar's Office

b. Within the first 20 school days of a semester, a college dean may approve course adjustments for students who are not on track to complete their degree by their expected date of graduation. To be eligible for this adjustment, the adjustment must allow the student to complete the degree within two semesters. This adjustment is made using an Administrative Course Adjustment form containing all required signatures, and turned in to the Registrar's Office.

7. **Grading Practices Notification For Students**

At the beginning of a course, on the course syllabus, a student must be made aware of the method of grading in the course and of the weight that is attached to all course requirements.

8. **Grade Reporting By the Faculty**

a. The faculty reports grades for all campus base programs twice during the semester.

i Mid-semester grades are reported to the Registrar's Office on or before the Friday of the seventh week of each semester, in accordance with the Academic Calendar. In the rare case where sufficient course evaluation is not available for the reporting of a grade at mid-semester, the grade of "NG" (no grade) is reported.

ii Final grades are reported to the Registrar's Office at the conclusion of the semester. These grades are posted on the permanent academic record.

b. Final grades will be submitted to the Registrar's Office within seventy-two hours after the final examination has been administered. Seniors, in their spring semester will need to have their grades reported to the Registrar's Office in less than seventy-two hours. The time for submittal of these grades will be as directed by the Registrar's Office. For courses in which no final examination is given, final grades will be submitted to the Registrar's Office seventy-two hours after reading day.

c. Faculty will maintain course grade records for a minimum of one year. Faculty leaving the employment of the University will turn these grade records over to the department.

9. **Grade Notification**

a. Mid-semester grades will appear on the individual student Banner Web Self-Service account. A copy of the mid-semester report for first semester freshman will be sent to the eligible parent or guardian.

b. After grades have been reported to the Registrar's Office, students may view their grades on their "Degree Evaluation" form. After a period of about one week the students will be able to review their grades and current GPA on their "Academic Transcript" form. Both of these forms are on the web.
c. Parents wanting to see the grades of their son or daughter must have them open one of the forms that show the grades. The University does not mail grades or give them to anyone over the phone to comply with FERPA.

10. **Academic Warning at Mid-Semester**
    a. Students who are failing two or more courses at mid-semester will be issued an academic warning.
    b. Students receiving Academic Warnings must report to their academic advisor within 5 days.
    c. The Registrar's Office will notify the eligible parents or guardians of all first semester freshmen receiving Academic Warnings.

11. **Official Grades**
    Official grades are final grades that are entered upon a student's permanent academic record. Mid-semester grades are not official grades, are not entered on the permanent record, and are reported for the sole purpose of assisting students in assessing their academic status at mid-semester.

12. **Changes In Final Grades**
    Assignment of final grades in each course is the responsibility of the faculty member of record. Students are urged to meet promptly with the faculty member if they have questions about the assigned grade.

    The faculty member assigns a final grade only after a careful and thorough evaluation of the student's performance in the course and in accordance with the grading plan given to the student at the start of the course.

    Unless as a result of a formal grievance process, a final grade will be changed only for cause and only at the request of the faculty member and with the approval of the Senior Vice President of Academic Affairs. The Senior Vice President of Academic Affairs will require the recommendations of the Department Chair or School Director and the College Dean.

    The Senior Vice President of Academic Affairs will normally not consider a grade change request if it is received by the Registrar's Office more than 120 days after the grade to be changed was issued.

Section V - Academic Standing Criteria for Academic Progress

1. **Good Standing**
   A student in good standing is allowed to enroll without qualification. To maintain good standing, a degree candidate must have a minimum cumulative grade point average as listed in the Criteria for Academic Progress. The minimum grade point average required for good standing is based on a scale that is determined by the sum of credits a student has attempted at Norwich, including Summer School, whether passed or failed, plus credits accepted in transfer, according to the transfer credit policy.

(1) Total of Credits (attempted plus transferred)	(2) Minimum Accumulative Grade Point Average Required for Enrollment in Good Standing
0-17	1.60
18-34	1.80
35+	2.00

   To be eligible to enroll in good standing, the student in the credit range in the first column must have a grade point average of not less than that in the second column.

   **Courses numbered below 100 will only meet pre-requisite requirements, but they will be included in the GPA and Academic Standings calculations and the Class Year Assignment.*

   CAUTION:
   Students and others are cautioned that the university's standards for academic progress are not the same as the standards for satisfactory academic progress that are use to determine eligibility for federal financial aid. It is possible to be eligible to enroll in the university, and no longer be eligible to receive federal financial aid. More information about the standards for federal financial aid can be found at the following link:
   http://www.norwich.edu/admissions/financialaid/federalpolicies.html

2. **Placement on Academic Probation**

Students who fail to earn the cumulative grade point average required for good standing at the end of a semester are enrolled for the following semester on academic probation. Being placed on probation warns students that academic progress is in jeopardy and places restrictions and conditions on their enrollment. The conditions are as follows:

- Must have a signed contract with the Academic Achievement Center as a condition of enrollment. The student must sign this contract by the end of the add/drop period. Failure to sign this academic probation contract by end of the add/drop period may lead to dismissal.
- May not carry more than 14 credits plus one ROTC course.
- Whenever possible, courses in which the student received a C- or below should be repeated to increase the GPA.
- May not participate in extracurricular activities.
- Shall hold no rank in the Corps of Cadets and shall have no additional Corps responsibilities.

A student on academic probation is eligible to participate in academic field trips and other appropriate academic activities scheduled as part of course requirements.

Students who fail to adhere to the conditions of enrollment on probation may be dismissed prior to the conclusion of the semester.

Class Year Assignment

Class Year	First Semester Credits	Second Semester Credits
Freshman	0 - 12	13 - 26
Sophomore	27 - 41	42 - 56
Junior	57 - 72	73 - 88
Senior	89 - 103	104+

Students will be assigned a class year at the time of their admission or readmission. Updating of class year will occur as credits are posted. Classification will be based on the above chart. The student who fails, at the beginning of each semester, to have earned the required number of credits to remain with his or her class, but who is eligible to enroll, will be reclassified to the next highest class year which is supported by total credits earned.

3. **Dismissal for Academic Deficiency**

A student who fails to achieve good standing will be dismissed after one semester on probation unless the student earns a semester GPA of 2.0 or above while on probation. Summer school sessions do not count as semesters on probation. Summer school credits are included in attempted credits. Students who attain good standing after being on probation will restart the procedure above if they return to probationary status.

Students who have been readmitted after dismissal for academic deficiency with the special condition of signing a mentoring contract with the Academic Achievement Center will be dismissed at the end of that semester, if they do not return to good standing, unless they obtain a semester GPA of 2.0 or above. Students earning a semester GPA of 2.0 or above will remain enrolled with the original conditions in place until they obtain good standing as long as they continue to earn semester GPA's of 2.0 or above, provided they comply with the conditions of their enrollment. Dismissal may affect a student's eligibility for federal financial aid.

4. **Application For Readmission by a Dismissed Student**
   a. Individuals dismissed for an unsatisfactory academic or disciplinary record may apply for readmission after a six-month period of separation has been completed. Individuals who have been dismissed for academic reasons and have returned themselves to good academic standing may, provided there are no financial or disciplinary barriers, return to the university by informing the Registrar of their desire to return in writing. These individuals will be designated as returning students, and will be exempt from the provisions of paragraphs B and C below, but their School Director or Department Chair will assign the student an advisor and an appropriate catalog year on his/her return.
   b. **For academic dismissals,** an application for readmission form requesting re-admission is submitted to the Registrar's Office at least one week before the start of the semester. The readmission decision of the Committee on Academic Standing and Degrees (CASD) will be based on the provided evidence, that the student can academically succeed. Appeals of the CASD's decisions may be made to the Senior Vice President for Academic Affairs (SVPAA) whose decision is final. Students who are readmitted after having been dismissed for academic reasons may have limited eligibility for federal financial aid.

      For disciplinary dismissals, requests for readmission go to the Vice President for Student Affairs.

   c. Individuals who are dismissed for academic deficiency may be conditionally readmitted to the University. Failure to adhere to the mandatory conditions of readmission may result in dismissal from the university prior to the conclusion of the semester.
   d. A School Director or Department Chairs must assign an advisor and catalog year to the student at the time of readmission. The catalog year establishes the academic regulations and degree criteria that the student must follow to graduate.

Section VI - Academic Honors

Academic honors for full-time undergraduate students are announced at the Fall Convocation. Academic honors presented at Convocation recognize University Scholars and students on the Dean's List.

1. **University Scholars**
   Recognition as a University Scholar for the current academic year is given at the Fall Convocation to those full-time undergraduate students who for both the Fall and Spring Semester of the previous academic year have earned not only placement on the Dean's List, but also a current cumulative grade point average of no less than 3.50. University Scholars are announced and recognized individually during the ceremonies of Fall Convocation.
2. **Dean's List**
   The Dean's List, which is established for each semester, shall consist of the names of those undergraduate degree candidates who during either the previous Fall or Spring semester, had no failures, carried at least twelve credit hours, and attained a semester academic grade-point average of at least 3.0.
3. **Graduation Honors**
   All degree candidates whose final cumulative grade point average when the degree is conferred is 3.60 or higher, are graduated " Summa Cum Laude;" those with an average from 3.30 to 3.59, " Magna Cum Laude;" and those with an average from 3.00 to 3.29, " Cum Laude.

Valedictorian

An award given at the May graduation ceremony to a senior in a bachelor's degree program, who has the highest Grade Point Average. Selection of a student for this award will be made at the beginning of the Spring Semester from full-time students who have completed at least 90 credits at Norwich and who are enrolled in courses that will complete all degree requirements.

Section VII - Classroom Procedures

1. **Time**
   Classes will meet as scheduled by the Registrar's Office.

2. **Discipline**
   A member of the faculty is in charge of any classroom and shall have jurisdiction over the classroom and take measures to maintain discipline in conformity with the regulations of the University.

3. **Cancellation of Class Meeting**
   If the faculty member is not present ten minutes after the scheduled beginning of a class, the class is canceled. The class will select one class member to report the cancellation to the chair of the academic department of the course being taught, or School Dean of the course being taught, or the Registrar's Office.

4. **Class Attendance**
   a. Students are expected to be on time for all scheduled classes and laboratory sections and are responsible for handing in all required work on time.
   b. Faculty will begin taking attendance on the first class meeting of each semester.
   c. Students not attending the first class meeting of a course for which they are registered may be dropped from the class roster upon report of such absence to the Registrar's Office. Exceptions may be granted to students who are unavoidably absent as defined by the excused absence policy. In this instance, excused absences must be approved by the Vice President of Academic Affairs Office prior to the first day of class.
   d. Faculty will, in conjunction with students, schedule a make-up exam or a make-up lab, or other appropriate work in lieu thereof, for students with excused absences.
      i Excused Absences - The following will be considered excused absences according to the guidelines issues by the Office of the Vice President of Academic Affairs, which is the authority on academic policy.
         1. Documented debilitating illness,
         2. Emergency leave, as approved by the Commandant or Dean of Students,
         3. Single-day course field trips, military obligations for students contracted for commissions in the US military and other military obligations beyond the student's control, varsity athletic contests, and regimental band appearances. For these types of excused absences, an official of the University must submit a request, at least 72 hours in advance to the Registrar's Office for detached service. The student is required to notify his or her instructors at least 48 hours in advance. Faculty may deny an excused

absence for these events for a student currently achieving a D+ or lower in their course if the faculty member believes that additional absences are a serious detriment to the student. Faculty members must promptly notify the coach or appropriate official of their denial.

4. Other absences as approved by the faculty member.

ii Unexcused Absences - All absences not included in paragraph D.1. above.

e. Faculty members may assign a grade of "F" to students whose total absences, excused or un-excused, equals or exceeds 15% of the class meetings, if this policy is stated on the syllabus. Faculty may allow students with passing grades to exceed the 15% limit.

f. Faculty members are responsible for clearly stating the course attendance policy on the syllabus at the beginning of the course. Unless stated otherwise, the maximum number of permitted absences is the number of times the course meets per week. When the student has reached the maximum number of permitted absences, the faculty member will warn the student of impending dismissal from class with a grade of "F." This warning letter will include the course number and section and dates(s) of absence(s). The letter will state that any future unexcused absences may result in recommendation to the Vice President of Academic Affairs through the course School Dean that the student be dismissed from the class with a grade of "F." A copy of the warning letter will go to the student's academic advisor and to the Commandant and Vice President of Student Affairs.

Receipt of two grades of "F" for excessive absence during any one semester is cause for immediate separation from the University.

Section VIII - Conduct of Examinations and Final Examinations

The term examination is understood to include tests, quizzes, graded exercises or laboratory work, hour examinations, and final examinations. Faculty members are expected to be present at examinations to answer questions and maintain order. Examinations, except for quizzes, must be announced at least one week in advance.

A student absent without proper authority (*See Section VII*) from a scheduled examination should be given a zero and is not entitled to a make-up.

Academic departments may make available to students files of previous examinations for use in preparation.

1. **Final Examinations**
   a. A final examination will be administered in every course unless its omission has been approved by the VPAA and Dean of the Faculty.

   b. In-class final examinations are normally expected to be no more than 2.5 hours in length.

   c. If a substitute procedure as approved in I. A is used for the final examination, it will apply to all students in that course section.

   d. All final exams will be completed during the regular final exam period as scheduled by the Registrar.

   e. Requirements for implementing final examinations will be determined on a course by course basis. Departments and schools will report their needs to College Deans who will inform the Registrar.

   f. In a course that requires a final examination, the examination will count no more than fifty percent of the course grade. At the beginning of a course, an instructor will inform students of the weight of the final examination and the method of grading in the course on the course syllabus.

   g. Intercollegiate, extracurricular, and intramural activities will not be scheduled during a final examination period nor during the Reading Period which precedes it.

   h. Re-examination will be conducted only after an academic petition has been submitted and approved by the Committee on Academic Standing and Degrees and the VPAA and Dean of the Faculty.

2. ***One-hour Examinations in Multi-Section Courses***
   a. The use of examinations which are equivalent both quantitatively and qualitatively, but different, is encouraged.

b. The same examination may be given to multiple sections, when approved by the department head or school director, if identical tests are administered at two consecutive periods in the same day. A student should not be permitted to leave the classroom before the end of the first period.

3. ***Common-hour Examinations***
   a. Concurrent identical testing of several sections of a multi-section course (Common-Hour Examination) is permitted only upon approval of the VPAA and Dean of the Faculty at least two weeks in advance of the test date.

   b. Common-hour examinations will normally be held during the evening.

   c. A student unable to take a common-hour examination because of an excused absence must be given an opportunity to make-up the examination at a time to be determined by both the course instructor and the student.

4. **Attendance**
   Attendance at scheduled examinations is mandatory.

5. **Special Final Examination For Seniors**
   a. Seniors who, at the end of the second semester, receive a final grade of “F’ in a course as the result of exceptional circumstances surrounding the final examination may petition the Committee on Academic Standing and Degrees for a reexamination.

   b. A record of marginal or failing performance in the course prior to the final examination may cause a petition for reexamination to be denied.

6. **Three Final Examinations In One Day**
   Students who have three final examinations scheduled on the same day may complete an exception form to have one of the three rescheduled to another date. The form is to be submitted to the Registrar’s Office prior to the last week of the semester.

   The selection of the examination to be rescheduled and the time of its administration will be the result of coordination by the Registrar’s Office in conjunction with the student and professor(s) concerned.

7. **Rescheduling Final Exams**
   Students may request that a final be rescheduled by submitting an exception form to the College Dean with an explanation of the reason for rescheduling and supporting documentation including the recommendation of the course instructor and course department chair or school director.

Section IX - Transfer of Academic Credit from Other Institutions of Higher Learning

1. **Transferees to Norwich**
   Students transferring from other institutions of higher learning are governed by the following transfer credit policy:
   a. The course departments shall determine the acceptance of specific courses.

   b. Courses in which a grade of less than C or its equivalent has been earned are not transferable.

   c. Grade points will not be transferred.

   d. Credit will transfer only from institutions of higher learning accredited by the appropriate regional accrediting association or, in accordance with the regulations pertaining to other extra-institutional learning as described in Section II (p. 46), Paragraph 3, item d-5 (b).

   e. Limits on the amount of Transfer Credits apply -- see item 3., below.

2. **Norwich Students**

a. A Norwich student wishing to attend another regionally accredited collegiate institution for the purpose of obtaining semester credit hours acceptable to Norwich University should obtain prior approval of both the institution to be attended and the specific course or courses to be taken by filing a completed Application for Transfer Credit (RF8) with the Registrar's Office. No transfer of semester credit hours can be assured for courses for which prior approval has not been obtained.

b. The course departments will determine the acceptance of specific courses.

c. Provided the grades earned are "C" or better, semester credit hours for approved courses taken at other institutions may be transferred for credit toward the bachelor's degree. Grade points will not be transferred.

3. **Norwich University's Residence Requirement (Limits the amount of degree credit which may be transferred to Norwich University.)**
   a. At least 60 degree credits of those required for the degree must be earned at Norwich, including not less than 45 of the last 60 degree credits earned. Transfer credit from Norwich approved programs of foreign or other off-campus study will be considered as Norwich credit for purposes of determining if 45 of the last 60 credits applied to an undergraduate program are Norwich University credit. [Grades will not transfer for such courses, regular transfer course rules apply for determining if transfer credit is awarded.]

   b. Limits to transfer credit in major, minor, and concentration.
      i Major: No more than 40% of credits required in courses specified in the discipline of the major.

      ii Minor and Concentration: No more than two of the six required courses specified in the discipline of the minor or concentration.

   c. Military members currently serving on active duty, including those in the National Guard, Reserves and U.S. Coast Guard, who are enrolled in an online degree completion program, may transfer into the degree program up to 70% of the required credits.

   d. Military members currently serving on active duty, including those in the National Guard, Reserves and U.S. Coast Guard, who are enrolled in a campus base degree program, may transfer into the degree program up to 75% of the required credits.

4. **Statute of Limitations**
   Students must satisfy the catalog degree requirements of a catalog year that is within ten years of the graduation year.

5. **Transcript Evaluation and Posting of Transfer Credit to the Norwich Academic Record**
   Academic work accomplished at other regionally accredited institutions and in accordance with regulations pertaining to other extra institutional learning as described in Section II paragraph 3, item d-5 (b), will be reviewed for Norwich course equivalency. The posting of transfer credit for approved courses will be undertaken by the Registrar's Office upon the receipt of an official transcript. An official transcript is one that corresponds with the credit granting institution's definition of "official" and is received directly from that institution by the Admissions or Registrar's office.

Section X - Transcripts of Academic Records, Official Transcripts

The Registrar's Office provides official transcripts of student academic records. Official transcripts will be withheld until all financial accounts are settled. Unofficial transcripts are available to students on Banner Web. Any courses taken after conferral of a degree will be shown as a separate record.

Section XI - Study Abroad and Study Away

1. **Study Abroad/Study Away**
   In order to participate in a study abroad program or domestic study away program for credit toward the Norwich undergraduate degree, students must
   - Have a cumulative grade point average of 2.50 or higher at the time of application
   - demonstrate astisfactory academic progress as determined by the registrar and student financial planning
   - have no financial, disciplinary, or academic holds on their account
   - receive acceptance from a recognized study abroad program/foreign university or domestic study away program.

In addition, participants must be approved for their chosen study abroad/study away program by their Academic Advisors and the Norwich University International Center.

2. **Procedures**

a. Visit the International Center or attend one of the regularly scheduled Study Abroad Information Sessions given by the International Center for the most current application procedures.
b. ROTC Scholarship students will have to make specific arrangements with their ROTC Unit to complete their ROTC requirements in order to continue their scholarship status.
c. All outstanding financial obligations to the University must be paid in full.

A student who receives approval for Study Abroad/Study Away will be considered as an enrolled Norwich student by all agencies of the university.

Section XII - General

1. **Right of Petition and Appeal**
   a. Students may present to the Committee on Academic Standing and Degrees petitions requesting exceptions to these regulations. Submission of a petition does not guarantee approval. Students should obtain confirmation of the result of the petition from the Registrar's Office.

   b. Decisions of the Committee on Academic Standing and Degrees may be appealed within ten business days of receipt of CASD action to the Vice President of Academic Affairs (VPAA) of the University. The VPAA's decision is final.

   c. All petitions and appeals are to be presented in writing together with the necessary supporting documentation. Refer to the Guide to Academic Petitioning (Appendix 5) for further information, including the names of those University officials whose recommendation must appear on the Academic Petition.

   d. Decisions rendered by university officials in response to the submission of any of the various academic forms mentioned elsewhere in these regulations shall be subject to appeal to the Vice President for Academic Affairs. Appeals made under this provision shall conform to the timelines, criteria and limitations in paragraphs B and C above.

2. **Grievance Procedure**
   Students who are dissatisfied with some aspect of the conduct of a course are encouraged to seek a resolution of the problem. The first step toward that resolution should be a discussion of the problem with the course instructor. If no mutually agreeable solution is reached, the student should next take the matter to the faculty member's Department Chair or School Director. If the department chair or school director is unable to resolve the problem, the student should present a written request for relief to the instructor's Dean. The statement should include a full description of the problem and a request for specific remedial action. The Dean will discuss the matter with both the student and the faculty member and will attempt to find a satisfactory resolution of the problem. If the issue is not resolved to the student's satisfaction, the student may request that the Dean forward the student's written request and the Dean's written determination to the Senior Vice President for Academic Affairs for a final review. The Senior Vice President for Academic Affairs will analyze the material, arrange additional discussion as necessary, and resolve the issue.

   University Leave
   Norwich has two types of "Leave of Absence" (LOA). There is a general LOA and a military LOA.

3. a. General Leave of Absence. The general LOA is designed to allow a student to voluntarily withdraw from the University and to return to the University at a semester of the students' choice following the academic regulations in place at the time of the leave. A student taking a general LOA must be in good academic standing, request no more than three years, will be classified as an inactive student, and complete the LOA form found on the Registrar's Office home page.

   b. Military Leave of Absence. Active reservists and guardsmen who are called up for active duty, are eligible for a military LOA. A student taking a military LOA must complete the form found on the Registrar's Office home page. The leave is for a maximum of three years, the student will be classified as an inactive student, and the student will be returned to the same academic status that they held at the time of their leave.

Appendix

Appendix I - Academic Dishonesty

1. Academic Dishonesty is any behavior intended to promote or enhance a student's academic standing within the University by dishonest means. Acts of academic dishonesty include, but are not limited to, the following:
   a. Submitting work done by another as your own.

b. Submitting your own academic work for credit more than once, whether in whole or in part, in the same course or different courses without the approval of the instructor who is responsible for assigning credit to the work.

c. Giving or receiving unauthorized aid on any assignment or examination.

d. Altering any University form, record, or document, or forging the signature of any University instructor or official.

e. Interfering with, or attempting to interfere with, the access of others to the University computer system, or any part thereof, copying computer files, diskettes, programs, software, or manuals without proper authority, or tampering in any way with the integrity of the University computer system. Interfering with, or attempting to interfere with, the fair and equal access of others to the use of the University libraries or other academic resources.

2. Acts of academic dishonesty are offenses against established standards of the academic community and the University's honor code. All suspected acts of academic dishonesty are initially subject to review by the Academic Integrity Committee as provided in paragraph 5 below.

3. Plagiarism is the use of words, ideas, concepts, or work of another, without proper acknowledgment. The direct quotation of the words of another must be set off in quotation marks and acknowledged in a footnote or other acceptable form of citation. The use of paraphrased material, or the ideas, concepts, or work of another must also be acknowledged in a footnote or other acceptable form of citation. Acknowledging sources used in the preparation of an assignment solely in a bibliography does not constitute an acceptable acknowledgment of the words, ideas, concepts, or work of another used in the assignment. In any case where a student is found to have used plagiarized material, an academic penalty will be assessed.

4. It is assumed that all students will abide by the Honor Code. Instructors may require students to write and sign either of the following statements, or such other words as shall convey the same or similar meaning, as part of any assignment submitted for academic credit:
   a. "I have neither given nor received unauthorized aid on this assignment." Signed/
   b. "I certify that this is my own original work, prepared for this assignment only, without any form of unauthorized aid." Signed/

   Failure to write and/or sign any pledge will not excuse any student from a violation of these regulations.

5. The Academic Integrity Committee is comprised of members of the faculty and four students who are chosen by their respective honor committees and chaired by the Vice President of Academic Affairs designee. This committee is responsible to the Senate for the implementation of University regulations involving violations of academic integrity. All suspected acts of academic dishonesty, including intentional plagiarism, must be referred promptly to the Academic Integrity Committee. In cases where there is sufficient evidence to support an allegation of academic misconduct, the Committee will review all available facts and authorize an appropriate academic penalty if its review confirms that an act of academic dishonesty or intentional plagiarism occurred. The Committee will forward a record of its findings to the appropriate student honor committee in all cases in which an academic penalty is imposed for an act of academic dishonesty. Decisions of the Academic Integrity Committee may be appealed to the Vice President of Academic Affairs of the University. The Procedures of the Academic Integrity Committee describing the procedures of hearings are provided to all students charged with academic dishonesty.

Appendix II - Definitions

The following terms and definitions are currently in use at Norwich University relative to student status:

Full-Time - A student who is registered for twelve or more semester credit hours as either a matriculant or non-matriculant during the fall or spring semester.

Part-Time - A student who is registered for fewer than twelve but more than 0 semester credit hours as either a matriculant or non-matriculant during the fall or spring semester.

Matriculant - A student who is a formal candidate for a Norwich degree.

Non-Matriculant - A student who is not a candidate for a Norwich University degree. All non-matriculants are non-resident students.

Resident and Commuter Students - These terms differentiate between matriculant students who live on campus (resident) and those who reside off campus (commuter).

Enrolled - Students who have received academic, financial, and disciplinary clearance to attend the University during a specified period and are registered for a schedule of courses. At the beginning of each semester, students shall follow the instructions issued to them concerning enrollment.

Registered - Students who have a schedule of courses for a semester.

Appendix III - Norwich University, Family Educational Rights and Privacy Act

Notification of Rights under FERPA

The Family Educational Rights and Privacy Act (FERPA) affords eligible students certain rights with respect to their education records. (An "eligible student" under FERPA is a student who is 18 years of age or older or who attends a post secondary institution.) These rights include:

1. The right to inspect and review the student's education records within 45 days after the day Norwich University receives a request for access. A student should submit to the registrar, dean, head of the academic department, or other appropriate official, a written request that identifies the record(s) the student wishes to inspect. The school 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 school 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 the amendment of the student's educataion records that the student believes is inaccurate, misleading, or otherwise in violation of the student's privacy rights under FERPA.

A student who wishes to ask the school to amend a record should write the school official responsible for the record, clearly identify the part of the record the student wants changed, and specify why it should be changed.

If the school decides not to amend the record as requested, the school will notify the student in writing of the decision and the student's right to a hearing regarding the request for amendment. Additional information regarding the hearing procedures will be provided to the student when notified of the right to a hearing.

3. The right to provide written consent before the university discloses personally identifiable information (PII) from the student's education records, except to the extent that FERPA authorizes disclosure without consent. The circumstances and university personnel that may access personally identifiable information (PII) without student consent are defined and described in paragraph 5 and 6.

If students wish to share their academic information with parents, family members, NU ROTC staff, or other agencies a student must complete a FERPA release form each semester. The form provides permission for academic information to be released to the designated party until the end of the semester following the date the release is signed.

4. The right to file a complaint with the U.S. Department of Education concerning alleged failures by Norwich University to comply with the requirements of FERPA. The name and address of the Office that administers FERPA is:

   Family Policy Compliance Office
   U.S. Department of Education
   400 Maryland Avenue, SW
   Washington, DC 20202

5. Directory Information:
   Section §99.37 of the regulations allow the release of "Directory (Public) Information" without the student's consent. Directory Information Includes:

- Student's name
- Student's local address & telephone number
- Student's e-mail address
- Dates of enrollment
- Date of disenrollment, but not the reason if prior to graduation
- Status of enrollment (i.e. whether the student is, or is not, currently enrolled)
- Full or part-time enrollment
- Major field of study
- Advisor
- Anticipated date of graduation, if currently enrolled
- Date of Birth

- Photos
- Participation in officially recognized activities and sports
- Residency - (Corps of Cadets, Civilian, Commuter)
- Weight and height of members of athletic team
- Degrees earned, if any, and date conferred
- Awards and honors received (including promotions in the Corps of Cadets)

Students have the right to withhold the release of “Directory Information.” To do so, a student must make a written request for withholding of this information to the Registrar’s Office. It should be noted that if a student asks for “Directory Information” to be withheld, it will be withheld from a variety of sources, including: friends, relatives, prospective employers, honor societies and the news media. Student directories are published on the University’s web site, my.norwich.edu, at the end of the "add/drop" period. If the student has not made a request for their information to be blocked by that time, his or her name will appear in those directories. Students should be aware that directory blocks are permanent while in attendance and will not be removed without a written request, until they have completed their studies at Norwich.

6. "School Officials" with a "legitimate educational interest"
   The school discloses education records without a student’s prior written consent under the FERPA exception for disclosure to "school officials" with "legitimate educational interests." A school official is a person employed by Norwich University in an administrative, supervisory, academic, research, or support staff position (including law enforcement personnel and health staff); a person serving on the board of trustees; or a student serving on an official committee, such as a disciplinary or grievance committee.

   A school official also may include a volunteer or contractor outside of Norwich University who performs an institutional service or function for which the school would otherwise use its own employees and who is under the direct control of the school with respect to the use and maintenance of PII from education records, such as attorney, auditor, or collection agent or a student volunteering to assist 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 responsibilities for Norwich University.

   FERPA permits the disclosure of PII from students’ education records, without consent of the student, if the disclosure meets certain conditions found in §99.31 of the FERPA regulations. Except for disclosures to school officials, disclosures related to some judicial orders or lawfully issued subpoenas, disclosures of directory information, and disclosures to the student, §99.32 of FERPA regulations requires the institution to record the disclosure. Eligible students have a right to inspect and review the record of disclosures. A postsecondary institution may disclose PII from the education records without obtaining prior written consent of the student -

- To other school officials, including professors, within Norwich University whom the school has determined to have ligitimate educational interests. This includes contractors, consultants, volunteers, or other parties to whom the school has outsourced institutional services or functions, provided that the conditions listed in §99.31(a)(1)(i)(B)(1) - (a)(1)(i)(B)(2) are met. (§99.31(a)(1))

- To officials of another school where the student seeks or intends to enroll, or where the student is already enrolled if the disclosure is for purposes related to the student’s enrollment or transfer, subject to the requirements of §99.34. (§99.31(a)(2))

- To authorized representatives of the U.S. Comptroller General, the U.S. Attorney General, the U.S. Secretary of Education, or State and local educational authorities, such as a State postsecondary authority that is responsible for supervising the university’s State-supported education programs. Disclosures under this provision may be made, subject to the requirements of §99.35, in connection with an audit or evaluation of Federal- or State-supported education programs, or for the enforcement of or compliance with Federal legal requirements that relate to those programs. These entities may make further disclosures of PII to outside entities that are designated by them as their authorized representatives to conduct any audit, evaluation, or enforcement or compliance activity on their behalf. (§99.31(a)(3) and 99.35)

- In connection with financial aid for which the student has applied or which the student has received, if the information is necessary to determine eligibility for the aid, determine the amount of the aid, determine the conditional of the aid, or enforce the terms and conditions of the aid. (§99.31(a)(4))

- To organizations conducting studies for, or on behalf of, the school, in order to: (a) develop, validate, or administer predictive tests; (b) administer student aid programs; or (c) improve instruction. (§99.31(a)(6))

- To accrediting organizations to carry out their accrediting functions. (§99.31(a)(7))

- To parents of an eligible student if the student is a dependent for IRS tax purposes. (§99.31(a)(8))
- To comply with a judicial order or lawfully issued subpoena. (§99.31(a)(9))
- To appropriate officials in connection with a health or safety emergency, subject to §99.36. (§99.31(a)(10))
- Information the school has designated as "directory information" under §99.37. (§99.31(a)(11))
- To a victim of an alleged perpetrator of a crime of violence or a non-forcible sex offense, subject to the requirements of §99.39. The disclosure may only include the final results of the disciplinary proceeding with respect to that alleged crime or offense, regardless of the finding. (§99.31(a)(13))
- To the general public, the final results of a disciplinary proceeding, subject to the requirements of §99.39, if the school determines the student is an alleged perpetrator of a crime of violence or non-forcible sex offense and the student has committed a violation of the school's rules or policies with respect to the allegation made against him or her. (§99.31(a)(14))
- To parents of a student regarding the student's violation of any Federal, State, or local law, or of any rule or policy of the school, governing the use or possession of alcohol or a controlled substance if the school determines the student committed a disciplinary violation and the student is under the age of 21. (§99.31(a)(15))

Appendix IV - Rehabilitation Act

Appendix IV - University Policy - Section 504 of the Rehabilitation Act of 1973/ADA

1. **Section 504 of the Rehabilitation Act of 1973 and/or the Americans with Disabilities Act provides:**
   a. That no student may be excluded from any program or any course solely on the basis of disability;
   b. That modifications in degree or course requirements may be necessary to meet the requirements of some disabled students;
   c. That auxiliary aides, such as tape recorders, must be permitted in the classroom when they are required to ensure the full participation of disabled students;
   d. That alternate testing and evaluation methods for measuring student achievement will be necessary for students with impaired sensory, manual, or speaking skills (except where those are skills being measured);
   e. That classes may have to be relocated to permit access for students with mobility impairments;
   f. That special teaching equipment or devices used in the classroom (and in some cases teaching techniques that rely upon the sight, hearing, or mobility of students) may require adaptation in individual cases; and
   g. That it is discriminatory to counsel disabled students toward more restrictive careers than non-disabled students unless such counsel is based on strict licensing or certification requirements in a profession.

2. **Admission & Transition:**
   Norwich University will not discriminate against any applicant, who is otherwise qualified, solely on the basis of disability. No inquiry will be made regarding any possible disabling condition until after the admission decision has been made and the applicant informed of acceptance or rejection.

3. **Physical Standard:**
   Because of the physical training component of the Corps of Cadets program, a physical examination is required for all students admitted to that program. A physical examination is also required of any student participating in intercollegiate sports. Students must meet certain standards of physical ability to participate in these programs. In addition, all students admitted to Norwich University will receive a standard form requesting information about diagnosed disabilities which may have an impact on functioning in the college setting.

   Note: Disability disclosure on the University form is purely voluntary; the form must be returned to the University, regardless.

4. **Documentation Procedure:**
   Any student who has identified him/herself as having a disability shall submit the following as written documentation in order for accommodations to be made. As appropriate to the type and severity of the disability, written documentation must include: A comprehensive neurological, medical, psychological or educational report by an appropriate licensed medical or educational specialist. This report must contain:
   a. Date of evaluation and/or date of original diagnosis and diagnostic statement identifying the disability with a medical or DSM-IV code (learning disability reports may be no more than five years old; AD/HD reports, no more than three).

   b. Explanation of diagnostic criteria and/or evaluation measures used with all test scores included;

   c. Explanation of current/future functional impact of the condition;

   d. Services, accommodations, treatment, medication, and/or assistive devices currently in use or prescribed;

   e. Credentials of diagnosing professional(s) (all reports must be on standard-size letterhead, signed by the evaluator(s)).

5. **Requests for Accommodation:**
   When information is received relating to a disability which may directly affect the academic, psychological or environmental lifestyle of the student, the appropriate university departments or individuals (e.g. Counseling, Commandant's office, Dean of Students, Infirmary, faculty) can be contacted to coordinate the necessary accommodation only after the student's permission is secured. The following will be the procedure.
   a. Information will go to the Director of the Academic Achievement Center for review. If documentation is not sufficient, the student will be referred for further evaluation/verification.

   b. The Director will determine student eligibility. If the student chooses, an educational profile may be developed listing suggestions for classroom accommodations. (NOTE: The student must formally register with the AAC before accommodations can be arranged.)

   c. The Director at the signed request of the student will send the academic advisor and course professors a copy of the educational profile. The student must then meet with these individuals to assist with developing a plan for the execution of accommodations pertinent to each distinct course; this should be done within the first two weeks of classes with or without direct consultation with the AAC Director. A written contract can be agreed upon, signed by both parties and sent to the Academic Achievement Center Director for placement in the student's file.

   d. Decisions about specific adjustments to the Educational Profile can be made only in consultation with the student and further diagnostic information; the AAC Director may then revise the list of legal accommodations included in the student's profile. NOTE: All accommodations must be based on comprehensive, written diagnostic information from a qualified professional. They cannot be based on school programming reports (IEPs), notes or short letters, conversations or informal observations.

   e. Degree requirements will not be waived for students with disabilities, but course substitutions may be petitioned for in extreme circumstances where accommodations alone have been demonstrated as insufficient to serve the needs of an otherwise qualified disabled student.

6. **Confidentiality:**
   The material provided by the student or by professionals who have been involved in the student's diagnosis or treatment will be treated as confidential information. Access will be granted only to those involved in the process described above, and only to the extent that it contributes to developing an individual educational plan for the student. Information will be shared with others only with the written permission of the student.

7. **Appeal:**
   Any student dissatisfied with the adjustments made to accommodate a disability will have the right to appeal. The appeal process will be as follows:

   A written statement will be sent by the student to the Director of Human Resources, the University 504 Coordinator: This statement should include all the relevant information and should request clear remedial action. Based on this statement, the Coordinator will either reactivate the individual planning process, or determine that the plan as developed is appropriate. If the appeal is rejected, it may be resubmitted to the Committee on Academic Standing and Degrees. That Committee will conduct an informal hearing on the issue, and either change the individual plan or sustain the original decision.

   The final level of appeal will be the Vice President of Academic Affairs of the University or a designee. This decision will be final.

Appendix IVa - Accommodations for Students for whom English is a Second Language

1. **Students eligible for accommodation for functional difficulty with English language are:**
   a. Students enrolled at Norwich having come directly from a non English speaking foreign country.

   b. Students who are U.S. citizens with background of a multilingual environment.

2. **Determination of Eligibility:**
   a. TOEFL, SAT, A C T, Freshmen Placement Testing scores and transcripts of English courses at the high school or college level will be reviewed by English department personnel to determine placement in ESL or develop-mental English courses. Such students, as an adjunct to course placement, will be automatically eligible for academic accommodations in all university courses, except in situations where the actual English skill is being assessed.

   b. Eligibility will customarily expire at the end of the first semester, but may be continued for an additional semester on the basis of English performance, additional diagnostic testing and faculty referral on a case by case basis.

   c. All eligibility determination will be reviewed by the English department for final approval.

3. **Allowed Accommodation:**
   a. Reduction of credit penalty for misspellings, words, usage, errors, and sentence structure and punctuation, errors characteristic of EFL/ESL students, except in coursework where those skills are being directly assessed.

   b. Alternative assignments to gain credit for class participation where spoken language productivity is a problem.

   c. Allowance of short extensions of time on assignments if appropriate tutorial assistance is in process.

   d. Allowance of a reasonable amount of additional time for examinations, with or without a reader, that is administered by the professor or Academic Achievement Center.

4. **Student Responsibilities:**
   Students with functional language difficulties should seek every opportunity available in the University environment to practice English language in academic and social situations. Members of the Corps of Cadets during their time as rooks should work in an ongoing fashion with their company chain of command to take advantage of such opportunities in ways compatible with both academic and Corps standards.

Appendix V - Guide to Academic Petitioning

All academic petitions are to be filed with the Registrar's Office for action by the Committee on Academic Standing & Degrees (CASD). At a minimum the petition must carry a clear statement by the student of the request, the student's signature and the recommendations of the individuals who are identified by role, below. In addition, if the petition is for an exception to Academic Regulations, the student must specify the grounds to be considered by the CASD in determining whether an exception to regulations should be granted. Any petition for an exception that lacks justification will not be considered.

Additional recommendations required -- if reference is made in the petition by the student to any Norwich University official, (because of an alleged action or statement by that official which is germane to the petition) that official (faculty member or administrator) must provide a recommendation.

Recommendations Required

Petition or Action by Academic Petition	Student's Advisor	Student's Major Dept. chair	Course Department Chair or School Director	Student's Major Dean	Instructor	Other Required Recommendations
General Education and B.A. Course Substitution/Waiver for degree require:	X	X	X	X		A brief explanation by advisor is required

To be readmitted after Separation [1]	X	X			X		New Major Bursar, Commandant (Corps) or Dean of Students (Civilian)
To overload	X	X					Specify courses (beyond probation limit to be dropped if overload is disapproved)[1]
To extend a Calendar Deadline for course drop, add, withdrawal[1]	X	X	X				Instructor for Add or withdrawal
To extend an Incomplete Beyond the Enrollment Day for the Next Semester[1]	X					X	
To participate In an extra-Curricular Activity on Probation[1]	X						Activiity advisor

[1] ***These petitions must include a statement of grounds for consideration by the Committee on Academic Standing and Degrees.***

Appendix VI - ROTC Requirement

1. To be enrolled in Norwich University's ROTC program or courses, a student must be a member of the Corps of Cadets. An exception to this regulation is allowed for
   a. BSN students; and

   b. Students who have honorably and faithfully served our nation as a member of the Armed Forces of the United States, as evidenced by either the award of an honorable discharge certificate (DD214) or the completion of three years of honorable service in the active component, the reserve component (drilling member) or a combination of both as evidenced by a letter from the individuals commanding officer, and has achieved the age of at least 22 years as of 1 September of the year of matriculation, may apply for enrollment in the Norwich University ROTC program of their choice. The applicable ROTC Department Professor (Colonel), the Dean of National Services, and the Commandant will review the applicants file for eligibility to enroll in ROTC and pursue a commission in the service of their choice.

2. **Cadets contracted for Commission**
   The Norwich University Board of Trustees has directed that all members of the Corps of Cadets who are contracted for commission be required to take four years of ROTC courses, one course per semester. The ROTC courses must include each of the two courses offered at each of the four levels (100, 200, 300, 400). Branch of service transfers will be allowed (prerequisites permitting) during the first two years of the requirement.

3. **Non-contracted Cadets**
   Non-contracted cadets are required to complete six semesters of ROTC courses. Students remain responsible for all established degree requirements. The ROTC courses must include each of the two courses offered at each of the three levels (100, 200, 300). Branch transfer for non-contracted, third and fourth year Cadets must be coordinated between the ROTC departments and approved by the Dean of the School of National Services School.

4. Students transferring into the Corps are required to pass as many ROTC courses as they have semesters remaining at Norwich University.

5. Veterans with an honorable discharge certificate (DD214) or the completion of three years of service in the active component, the reserve component (drilling member) or a combination of both, may apply for enrollment in the Norwich University ROTC program of their choice. The applicable ROTC Department Professor (Colonel), and the Commandant will review the applicants.

College of Liberal Arts

Dean: Andrea Talentino

The College of Liberal Arts is composed of the Department of English and Communications, the Department of Modern Languages, Departments of History and Political Science; School of Justice Studies and Sociology; Department of Psychology and Teacher Education. In addition, the school is the administrative home of courses in philosophy and music.

Co-Curricular Activities

Through its academic programs, the College of Liberal Arts sponsors publishing, broadcasting, and performance activities open to all students of the university. These include the student newspaper, *The Norwich Guidon*; the student-produced video news magazine, *Our American Journey*; the campus literary magazine, *Chameleon*; the student radio station, WNUB-FM; the campus theatrical troop, The Pegasus Players; and such musical organizations as the Regimental Band, the Grenadiers (a rhythm and blues group), and the Campus Choraleers. These activities are described more fully in the General Information section of the university's catalog, under the headings Musical Activities, Publications, Radio Station, and Television Program.

Education Major

Program Director: Associate Professor D. Byrne.

BS Education

The BS in Education will result in either elementary licensure for grades k-6 or secondary education for grades 7-12. The BS in Education requires all students to have an additional major. Those choosing elementary education may major in the majority of content areas that are offered at Norwich University. Those who choose secondary education must major in English, History, Mathematics, Geology, Physics, Chemistry, or Biology.

Successful completion of this major demands a high degree of commitment on the student's part. In some instances, this may require an extra semester. However, if the double major is started in a student's freshman year, requirements for both degrees can be completed in four years. All education majors are required to have an overall 3.0 average in both majors before being placed in Student Teaching and before graduation. In addition all education majors are required to take PRAXIS I & PRAXIS II state examinations for licensure. All students are required to take PRAXIS I at the end of their sophomore year or 60 credits. All students are required to take PRAXIS II at the end of their junior year or 90 credits. Both PRAXIS tests are to be passed with results received by the Director of Education Teacher Licensure prior to placement in Student Teaching. Other licensure requirements, such as, the licensure portfolio, are articulated in the Education Teacher Licensure Student Handbook. Education Teacher Licensure has a reciprocity agreement with 47 states of the United States. This allows you to teach in other states with your Vermont Teacher License up to two years. More information on our reciprocity agreement can be found in the Education Teacher Licensure Student Handbook.

The BS in Education Teacher Licensure requires 120 credits for elementary and secondary tracks.

B.S. in Education/Elementary Teacher Licensure Curriculum Map

First Year

Fall	Credits	Spring	Credits
ED 101 Foundations of Education I	1	ED 201 Foundations of Education III	1
ED 102 Foundations of Education II	1	ED 202 Foundations of Education IV	1
PY 211 Introduction to Psychology	3	PY 220 Developmental Psychology	3
EN 101 Composition and Literature I	3	EN 102 Composition and Literature II	3
HI Elective (excludes HI 209)	3	MA Elective[1]	3-4
Elective	3	Elective	3
	14		**14-15**

Second Year

Fall	Credits	Spring	Credits
ED 234 Learning and Teaching Strategies	4	Literature Course[2]	3
MA Elective[1]	3-4	Arts & Humanities Course[2]	3
PY 315 Exceptional Child I	3	Lab Science	4
Lab Science	4	Elective	3
Elective	3	Elective	3
	17-18		**16**

Third Year

Fall	Credits	Spring	Credits
MA 360 Teaching Mathematics at the Elementary - Middle School Level (or Elective)[1]	3	ED 360 Language Arts and Teaching Reading in the Elementary School	4
PY 352 Learning and Memory	4	Ethics Course[2]	3
ED 351 Methods of Teaching Science to Elementary Students	3	Elective	3
Elective	3	Elective	3
Elective	3	Elective	3
	16		**16**

Fourth Year

Fall	Credits	Spring	Credits
ED 232 Curriculum and Methods of the Elementary School Subjects	4	ED 425 Student Teaching	12
Four Electives	12		
	16		**12**

Total Credits: 121-123

1 MA 360 is offered every other fall in even numbered years. MA 107 or equivalent as determined by departmental testing is a prerequisite for MA 360.

2 Required for all degrees. See *Specific Courses which fulfill Degree Requirements* in Catalog.

The B.S. in Education - Secondary requires students to also have another major. For Teacher Licensure Secondary Track the student may major in English, History/Political Science, Mathematics, Geology, Physics, Chemistry, or Biology.

B.S. in Education/Secondary Teacher Licensure Curriculum Map

First Year

Fall	Credits	Spring	Credits
ED 101 Foundations of Education I	1	ED 201 Foundations of Education III	1
ED 102 Foundations of Education II	1	ED 202 Foundations of Education IV	1
PY 211 Introduction to Psychology	3	PY 220 Developmental Psychology	3
EN 101 Composition and Literature I	3	EN 102 Composition and Literature II	3
HI Elective (excludes HI 209)	3	MA Elective	3-4
Elective	3	Elective	3
	14		**14-15**

Second Year

Fall	Credits	Spring	Credits
ED 234 Learning and Teaching Strategies	4	EN 202 World Literature II	3
EN 201 World Literature I	3	Arts & Humanities[1]	3
PY 315 Exceptional Child I	3	Lab Science	4
Lab Science	4	PY 324 Adolescent Psychology	3-4
Elective	3	Elective	3
	17		**16-17**

Third Year

Fall	Credits	Spring	Credits
PY 352 Learning and Memory	4	ED 363 Reading and Writing in the Content Area	4
Elective	3	Ethics[1]	3
Elective	3	Elective	3
Elective	3	Elective	3
Elective	3	Elective	3
	16		**16**

Fourth Year

Fall	Credits	Spring	Credits
Four Electives	12	ED 425 Student Teaching	12
ED 368 Curriculum & Methods in Secondary Subjects	4		
	16		**12**

Total Credits: 121-123

[1] Required for all degrees. See *Specific Courses which fulfill Degree Requirements* in Catalog.

The “Fifth-Year” Program

For those with degrees in appropriate fields, an opportunity to become a candidate for licensure is provided through a “fifth-year” program. These students are non-matriculating students. Each candidate’s course work and experience are evaluated and a program of study is recommended. Typically, for candidates without education or psychology courses, the program takes 1-1/2 – 2 years to complete. Because of course sequencing, a candidate with some of the required courses must commit to a minimum of one year. Candidates must meet the same requirements for licensure as those students enrolled in the Education Teacher Licensure Major.

The Portfolio

All licensure candidates are required to complete a portfolio. Development of the portfolio begins in during your sophomore year and is reviewed during subsequent courses. Substantial progress toward completion must be demonstrated before the student is admitted to student teaching. This means that Entries 1-4 need to be completed and assessed prior to Student Teaching Placement. After student teaching has been completed with a “B” or better, the portfolio is submitted to a full-time education faculty member and a second reader for review. If approved, the portfolio is presented to the Norwich University Licensure Committee and upon approval, by the committee, the candidate is recommended for licensure for the appropriate subject and/or level. This process is completed during the student teaching semester and before graduation.

Praxis Tests

In order to be recommended for licensure, candidates must achieve a passing score on the Praxis I and II tests. Both Praxis I and II are pre-professional skills tests that Education Teacher Licensure majors are required to take. Students are required to take Praxis I by the end of 60 credits. Students are required to take Praxis II by the end of 90 credits.

All candidates seeking initial Vermont licensure must meet the composite Praxis I test score of 526 (e.g., Reading – 177, Writing – 174, and Mathematics – 175).

Alternative to Praxis: The Vermont State Board of Education adopted the following assessments as alternatives to Praxis I. The results of these assessments will be accepted in lieu of Praxis I if teacher education licensure candidates meet the total and minimum scores presented below. These scores are equivalent to meeting Vermont’s passing scores on the Praxis I Test:

Total Score Verbal/English Math/Quantitative
Graduate Record
Exam (GRE) 1100 500 500
Scholastic Aptitude
Test (SAT) 1100 500 500
American College Test (ACT) 22 22
Description of Courses
Education (ED)

All students are required to pass PRAXIS I & II with test results received by the Director of Education Teacher Licensure prior to placement in Student Teaching.

Minor in Elementary Education

The student will complete the following courses:

ED 234	Learning and Teaching Strategies	4
PY 220	Developmental Psychology	3

PY 315	Exceptional Child I	3
And three of the following four courses:		9-11
ED 232	Curriculum and Methods of the Elementary School Subjects	4
ED 351	Methods of Teaching Science to Elementary Students	3
ED 360	Language Arts and Teaching Reading in the Elementary School	4
MA 360	Teaching Mathematics at the Elementary - Middle School Level	3
Total Credits		19-21

Minor in Secondary Education

ED 234	Learning and Teaching Strategies	4
PY 220	Developmental Psychology	3
PY 315	Exceptional Child I	3
ED 363	Reading and Writing in the Content Area	4
ED 368	Curriculum & Methods in Secondary Subjects	4
PY 324	Adolescent Psychology	3,4
Total Credits		21-22

English and Communications

Professors Batra, Bush, Caudill, Estill, Fields, Karch, Knauf, Liberman, and Walters; Associate Professors Cox, Ferreira (Chair), Lane, and Williams; Assistant Professors Martin, McDonald, and Ulmer (Visiting); Professors Emeriti Facos, Gould, Kloeckner, Morris, Richards, Shelley, Stuart, Turner; Adjunct Faculty Beckwith, Donley, Kelsey, Logan, Murray, Osgood, Paige, Parker, Piasecki, Richards, Schultz, D. Smith, Stewart, and Youngwood.

Communications

Because the communications professional must develop creative as well as technical skills, Communications offers a career-oriented curriculum that also emphasizes the liberal arts and sciences. Along with fundamental courses in writing, speech, literature, psychology, mathematics, the natural and social sciences, and fine arts, the Communications curriculum provides advanced writing, editing, and production experience in print and electronic media, using the student newspaper (*The Norwich Guidon*), the student radio station (WNUB-FM), and the student video magazine (*Our American Journey*) as practical workshops. The senior year, with its Communications Seminar and off-campus internships, guides the student into the world of the communications professional.

English

Courses are offered in literature, theater, and film, which provide a broad humanistic background, and in writing and speech, which provide practical skills. The composition and literature sequence emphasizes writing, reading, and critical thinking skills; students also receive instruction in the forms of discourse and literary genres. The world literature sequence, required of all Bachelor of Arts students, examines English in a global context and the ways literature written in English represents and examines a variety of cultures. A broad range of elective offerings, open to students of all academic disciplines, provides examination of traditional periods and authors as well as emerging literary forms, including graphic texts, gaming narratives, and cyber texts. Specialty courses also include literature of the third world, of leadership, of American culture and ethnicity, and of the military. A variety of writing courses, both technical and creative, introduces and strengthens rhetorical skill.

Because the English major demands that its students write and speak clearly and precisely about historical and contemporary ideas, it provides an excellent preparation for many professions and occupations, including law, medicine, teaching, communications, business and government, graduate study, and military service. In addition, many students find that the English major represents excellent preparation for post-graduate study in a variety of fields.

B.S. in Communications - Curriculum Map

To graduate with a major in Communications, the student must earn the grade of “C” or better in EN 101, EN 102, , and all required CM courses.

First Year

Fall	Credits	Spring	Credits
EN 101 Composition and Literature I	3	EN 102 Composition and Literature II	3
EN 112 Public Speaking	3	CM 271 Television Production	4
MA (excluding MA 005 or MA 103)	3-4	MA (excluding MA 005 or MA 103)	3-4
CM 109 Introduction to Mass Media	3	PY Elective	3
		CM 261 Interpersonal Communications	3
	12-13		**16-17**

Second Year

Fall	Credits	Spring	Credits
CM 207 Journalism I: News Gathering	3	CM 208 Journalism II: Advanced News Gathering and Design	3
CM 211 Broadcasting Techniques	3	CM 351 Radio Production or 491 Media Composer Techniques	3
EN 201 World Literature I	3	EN 202 World Literature II	3
HI Elective	3	HI/PO/SO Elective	3
IS Elective (excluding IS 120)	3	MG 101 Introduction to Business, AC 205 Principles of Accounting-Financial, or EC 201 Principles of Economics (Macro)	3
	15		**15**

Third Year

Fall	Credits	Spring	Credits
CM 209 Broadcast Writing	3	CM 303 Advertising	3
MU/FA/PH/ML Elective[1]	3	PY Elective	3
Laboratory Science Elective	4	Laboratory Science Elective	4
Elective	3	Film, theater, or TV criticism elective[2]	3
Elective	3	Elective	3
	16		**16**

Fourth Year

Fall	Credits	Spring	Credits
CM 436 Communications Law and Ethics	3	CM 408 Communications Internship	3
SA 107 Introduction to Photography (or CM 270, 391, 392, 393, 491, 492, 494, 495)	3	CM 407 Senior Communications Seminar	3
Literature Elective	3	Literature Elective	3
Elective	3	Elective	3
Elective	3	Elective	3
	15		**15**

Total Credits: 120-122

1 SA 107 does not fulfill this requirement.

2 CM 335; EN 239, EN 240, EN 241, EN 307, EN 308, EN 310, EN 333, EN 334.

ROTC Courses as required are in addition to the above.

English

Students must complete: [1]

EN 101	Composition and Literature I	3
or EN 106	English as a Foreign Language II	
EN 102	Composition and Literature II	3
or EN 107	Composition and Literature for Foreign Nationals I	
EN 201	World Literature I	3
or EN 205	World Literature for Foreign Nationals I	
EN 202	World Literature II	3
or EN 206	World Literature for Foreign Nationals II	
Minimum of thirteen English courses above EN 202/EN 206 [1]		39
Required courses above EN 202/EN 206:		
EN 225	Survey of British Literature I	3
EN 226	Survey of British Literature II	3
EN 227	Survey of American Literature I	3
EN 228	Survey of American Literature II	3
EN 203	Advanced Composition	3
or EN 204	Professional and Technical Writing	
or EN 306	Creative Writing	
EN 333	The Plays of Shakespeare	3
or EN 334	The Plays of Shakespeare	
One course in American Literature from the group numbered EN 391 through EN 399		3
One course in British Literature from the group numbered EN 370 through EN 379		3
EN 450	Senior Seminar	3
Four additional English courses numbered above EN 202/EN 206		12

[1] The student must earn a grade of "C" or higher in all of these courses, except EN 101/EN 106 or EN 102/EN 107, in one of which a grade of "D" may be earned.

EN 101 (https://nextcatalog.norwich.edu/residentialprogramscatalog/collegeofliberalarts/englishandcommunications) *and EN 102 are prerequisites for all English courses numbered above EN 200.* Although EN 101 (https://nextcatalog.norwich.edu/residentialprogramscatalog/collegeofliberalarts/englishandcommunications) and EN 102 (https://nextcatalog.norwich.edu/residentialprogramscatalog/collegeofliberalarts/englishandcommunications) are normally taken during the first year, those with satisfactory scores on the Advanced Placement Examination of the College Entrance Examination Board may petition to receive credit in, or permission to substitute other courses for, EN 101/EN 106 and/or EN 102/EN 107. Students requiring instruction in English preliminary to that received in the freshman sequence must enroll in EN 005 (https://nextcatalog.norwich.edu/residentialprogramscatalog/collegeofliberalarts/englishandcommunications) during their first semester at Norwich.

Teacher Licensure

English majors may elect to seek licensure by completing education courses and a semester of student teaching as described in the Teacher Education section. Students should begin planning in their freshman year to fit education requirements into their major.

B.A. in English - Curriculum Map

First Year

Fall	Credits	Spring	Credits
EN 101 Composition and Literature I or 106 English as a Foreign Language II	3	EN 102 Composition and Literature II or 107 Composition and Literature for Foreign Nationals I	3
CN/FR/GR/SP Modern Foreign Language[1]	6	CN/FR/GR/SP Modern Foreign Language[1]	6
HI Elective (excluding HI 209)	3	EC/PY/HI/SO or PO Elective[2]	3
Elective	3	Elective	3
	15		**15**

Second Year

Fall	Credits	Spring	Credits
EN 201 World Literature I or 205 World Literature for Foreign Nationals I	3	EN 202 World Literature II or 206 World Literature for Foreign Nationals II	3
EN 225 Survey of British Literature I	3	EN 226 Survey of British Literature II	3
EN 282 Literary Methods	3	MA Elective (excluding MA 005, MA 103)	3-4
PH/FA/ML Elective	3	Elective	3
MA Elective (excluding MA 005, MA 103)	3-4	Elective	3
	15-16		**15-16**

Third Year

Fall	Credits	Spring	Credits
EN 333 The Plays of Shakespeare or 334 The Plays of Shakespeare	3	EN 37X (British Lit. of a Period)	3
EN 227 Survey of American Literature I	3	EN 228 Survey of American Literature II	3
Lab Science Elective	4	EN 350 History of the English Language	3
Elective	3	Lab Science Elective	4
Elective	3	Elective	3
	16		**16**

Fourth Year

Fall	Credits	Spring	Credits
EN Elective (above EN 202)	3	EN Elective (above 202)	3
EN Elective (above EN 202)	3	EN Elective (above 202)	3
EN 203 Advanced Composition, 204 Professional and Technical Writing, or 306 Creative Writing	3	HI/SO or PO Elective[2]	3
EC/PY/HI/SO or PO Elective[2]	3	Elective	3
Elective	3	EN 450 Senior Seminar	3
	15		**15**

Total Credits: 122-124

1 Modern language credit is determined in accordance with department placement.

2 At least one of the EC/PY/HI/SO/PO electives must be in a disipline other than History (HI).

ROTC Courses as required are in addition to the above requirements.

- Please note that EN 450 is usually taught only in the spring semester.
- A student must either pass or receive **department authorized** waiver for both EN 101 or EN 107 and EN 102 or EN 108, before registering for any **English class above EN 112.**

Minors & Concentrations

One minor and one concentration exist within the curricula in Communications.

Minor in Communications

Consists of six courses completed with a grade of "C" or higher.

CM 109	Introduction to Mass Media	3
CM 207	Journalism I: News Gathering	3
four additional courses numbered CM 208 or higher		12
Total Credits		18

Concentration in Digital Media Technology

Six of the following courses:		18
CM 271	Television Production	3
CM 391	Advanced Television Production	3
CM 392	Documentary Television Production	3
CM 393	Non-linear Digital Television	3
CM 491	Media Composer Techniques	3
CM 492	Advanced Media Composer Techniques	3
CM 493	Media Composer Graphics and Effects	3
CM 494	Advanced Media Composer Effects and Graphics	3
CM 495	Systems Configuration and Media Data Management	3
Total Credits		18

English Minor

Many students who major in disciplines other than English but who share a love and respect for language and literature pursue the academic minor in English. This versatile and popular program encourages students to draw from the department's range of resources in writing, literature, film, and theater, tailoring a program to their special interests. For example, students primarily interested in developing their potential to write well might choose a minor consisting of Advanced Composition, Professional and Technical Writing, Creative Writing, and a course emphasizing the critical analysis of literature. Students who enjoy literature, film, or theater can find ample opportunities among the department's regular offerings to develop competencies in these areas. For the English minor, the student must complete, with a grade of "C" or better, six courses:

EN 201	World Literature I	3
or EN 205	World Literature for Foreign Nationals I	
EN 202	World Literature II	3
or EN 206	World Literature for Foreign Nationals II	
EN 282	Literary Methods	3
Three additional English courses numbered above EN 202/EN 206.		9
Total Credits		18

History and Political Science

Department Chair: Rowland Brucken.

It is the mission of the History Department to instill and foster, in the spirit of free inquiry and intellectual exchange: 1) An understanding of the influence of political, economic, social and cultural forces on past and contemporary events; institutions and peoples; 2) The critical skills necessary to research and create substantive papers and oral presentations; 3) The ability to comprehend, compare, and evaluate competing explanations of past and present subjects, using reason and evidence to guide such inquiry; 4) The opportunity to experience learning outside of the classroom through internships, independent study, study abroad programs and participation in academic clubs and honor societies; and 5) The values, ethics and reasoned judgment necessary to be active, compassionate and useful citizens of the local community, nation and the world.

Honors Program in History or Political Science

Students with a grade point average of 3.0 or better, and who meet all university and departmental curricular requirements, and have grades averaging 3.2 or better in courses in their major will be, at the end of their junior year, eligible to become candidates for the history or political science major with honors. Students who have not met these standards may be invited to candidacy by the department. Six hours of credit will be assigned, normally three hours each semester. A successful defense of an honors paper must be conducted and a minimum grade of 3.5 must be earned for the student's registration in an Honors Course to appear on the transcript. For further guidance, see the History and Political Science Department's Honors Thesis Guidelines.

Pre-Law Training

The Association of American Law Schools identifies the following as the major objectives to be sought in an undergraduate pre-law curriculum:

1. comprehension and expression in words;

2. critical understanding of the human institutions and values with which the law deals;
3. creative power in thinking.

These goals can best be approached by an undergraduate curriculum in which the social sciences and English play the leading part. One of the leading American law schools advises college students preparing to study law: “The importance of history in a pre-legal program cannot be over emphasized”; and of political science: “This subject also is one with which the lawyer must be well-acquainted and it, too, is a natural college major for pre-law students.” Accounting (for which mathematics is a prerequisite) is also strongly recommended by law schools.

History

Program Coordinator: TBA

Charles A. Dana Professor Lord; Professors Brucken, McCann, Pennington, and Taylor; Associate Professors Gray, Hayes, and Sodergren; Adjunct Faculty Walsh and Zirblis.

Requirements for History Major

History majors must complete at least 36 credits in History (HI) and PO 202 and PO 105 with a grade of “C”, or higher. All history majors are required to complete 12 History courses including the distribution requirements and HI 121 or HI 122; HI 209, HI 3XX Colloquium in History, Capstone Seminar, HI 430, , HI 432, or HI 433 with a grade of “C” or higher.(HI 430 HI 431, HI 432, and may count in the distribution requirements.) History majors may not count more than five 100 and 200 level courses, including HI 209 – Historical Methods – towards their major. Additionally, majors are required to pass EC 201 or EC 202.

Distribution area requirements

Courses taken to meet the distribution area requirements must be numbered 300 or higher.

United States - 1 course
Modern European – 1 course
Pre-Modern (prior to 1600 C.E.) - 1 course
Non-Western – 1 course

B.A. in History – Curriculum Map

First Year

Fall	Credits	Spring	Credits
EN 101 Composition and Literature I	3	EN 102 Composition and Literature II	3
HI 1XX or Higher	3	HI 121 American History Survey I or 122 American History Survey II	3
Modern Language	6	Modern Language	6
PO 105 American Politics	3	Elective	3
	15		**15**

Second Year

Fall	Credits	Spring	Credits
EN 201 World Literature I	3	EN 202 World Literature II	3
Math Elective (except MA 103)	3	Math Elective (except MA 103)	3
HI 209 Historical Methods	3	HI 2XX or higher	3
HI 2XX or higher	3	PO 202 Introduction to Comparative Politics	3
Arts or Humanities Elective	3	Arts or Humanities Elective	3
	15		**15**

Third Year

Fall	Credits	Spring	Credits
EC 201 Principles of Economics (Macro) or 202 Principles of Economics (Micro)	3	HI 3XX History Elective	3
HI 3XX History Colloquium	3	HI 3XX History Elective	3
HI 3XX History Elective	3	Elective	3
PH Ethics Elective	3	Arts or Humanities Elective	3
Lab Science Elective	4	Lab Science Elective	4
	16		**16**

Fourth Year

Fall	Credits	Spring	Credits
HI 43X Capstone Seminar	3	HI 3XX	3
HI 3XX	3	Elective	3
Elective	3	Elective	3
Elective	3	Elective	3
Elective	3	Elective	3
	15		**15**

Total Credits: 122

[1] HI 107 and HI 108 are open only to first year students. If not taken in the first year, students must substitute upper level History (HI) courses.

Course Prerequisites

100 level open to Freshmen only, except by permission of department chair.
200 level not open to Freshmen without instructor's permission.
300 level for Juniors and Seniors, need to have taken a 200-level course with a grade of "C" or higher, otherwise by written permission of instructor.
400 level open only by permission.

Political Science

Program Coordinator: J. Jagemann

Professors Kearsley, and Talentino; Associate Professors Andrew and Jagemann; Assistant Professors Ku and Remmel; Visiting Associate Professor Thalman; Adjunct Faculty A. Gray and K. Ryan.

Mission Statement

The mission of the Political Science program is to emphasize the objectives of the liberal arts, which are to help the student cultivate powers of analysis and exposition in reading, writing, and communication; to expand the student's intellectual horizons; and to increase the student's knowledge and curiosity. The program explores the realm of politics; its vocabulary, its principal concepts and strategies, its ethics, and its expediencies. To do so, the program encourages students to appreciate and understand theories about government and politics, as well as the methods of the discipline.

Distribution Requirements for Political Science Majors

Required Courses		
PO 105	American Politics	3
PO 106	Introduction to Public Policy and Administration	3
PO 202	Introduction to Comparative Politics	3
PO 215	International Relations	3
PO 220	Research Methods	3
PO 410	Capstone Seminar in Political Science	3
Group 1 Political Philosophy [1]		3
PO 303	Political Philosophy	3
PO 330	American Citizenship	3
Group 2 American Politics [1]		3
PO 312	The Presidency	3
PO 313	Political Parties and Interest Groups	3
PO 314	The Legislative Process	3
PO 315	Public Opinion and Political Behavior	3
PO 321	U.S. Constitutional Law	3
PO 331	State and Local Politics	3
Group 3 Comparative Politics [1]		3
PO 310	European Politics	3
PO 320	Topics in Area Studies	3
PO 333	American Foreign Policy	3
PO 340	Revolution and Forces of Change	3
PO 348	Asian Politics	3
Group 4 International Relations [1]		3
PO 301	Special Topics in International Relations	3
PO 305	Geopolitics	3
PO 405	International Organizations	3
PO 415	International Law	3
PO 412	War and Peace	3
Group 5 Free PO Electives		
Upper-Division PO Elective-Must be 300 Level or Higher		
Upper-Division PO Elective-Must be 300 Level or Higher		
Group 6 Area Requirements		
HI 121	American History Survey I [2]	3
HI 122	American History Survey II [2]	3
HI Elective (non-western) [2]		
EC 201	Principles of Economics (Macro)	3
or EC 202	Principles of Economics (Micro)	
EN 112	Public Speaking	3

MA 232	Elementary Statistics	3
PH Elective (all PH courses except PH 230)		
Group 7 Literature Elective [1]		3
EN 205	World Literature for Foreign Nationals I	3
EN 206	World Literature for Foreign Nationals II	3
EN 210	Modern Short Story	3
EN 220	Children's Literature	3
EN 225	Survey of British Literature I	3
EN 226	Survey of British Literature II	3
EN 227	Survey of American Literature I	3
EN 228	Survey of American Literature II	3
EN 244	The Literature of Leadership	3
EN 250	Crime in Literature	3
EN 251	Literature of the Sea	3
EN 270	Military Literature	3
EN 333	The Plays of Shakespeare	3
EN 334	The Plays of Shakespeare	3
EN 372	English Romantic Literature	3
EN 375	Victorian Literature	3
EN 376	Modern British Literature	3
EN 377	Recent British Literature	3
EN 391	Major Writers of the American Renaissance	3
EN 393	Major American Social Realists	3
EN 394	American Short Story Writers	3
EN 395	Major19th Century American Poets	3
EN 396	American Novelists, 1920-1940	3
EN 397	Writers of Contemporary American Fiction	3
EN 398	American Dramatists from 1918 to the Present	3
EN 399	Topics in English Studies	3
EN 406	Major Figure Seminar	3
EN 420	Thematic Seminar-Literature	3
EN 450	Senior Seminar	3
FR 321	A Survey of French Literature I	3
FR 322	A Survey of French Literature II	3
FR 327	French Literature of the Twentieth Century I	3
FR 328	French Literature of the Twentieth Century II	3
FR 415	Seminar: Topics in French Literature	3
FR 421	Reading and Research on a Topic in French Literature and Civilization	3
GR 322	Survey of German Lit I: From the Beginnings to 1848	3
GR 324	Survey of German Literature II: 1848 to 1945	3
GR 326	Survey of German Literature III: 1945 to the Present	3
GR 415	Seminar on a Topic in German Literature and Culture	3
GR 421	Reading and Research in German Literature or Civilization	3
SP 321	Introduction to the Literature of Spain I	3
SP 322	Introduction to the Literature of Spain II	3
SP 327	Hispano-American Literature I	3
SP 328	Hispano-American Literature II	3
SP 415	Seminar: Topics in Spanish or Latin-American Literature and Culture	3

SP 421	Reading and Research in Spanish or Latin-American Literature and Culture	3
EN 420 and EN 425 may be designated as literature courses when specified.		

1 Select one course from the group.

2 Must be passed with a grade of "C" or better.

All PO courses taken to satisfy the political science major requirements must be passed with a "C" or better.

B.A. in Political Science - Curriculum Map

First Year

Fall	Credits	Spring	Credits
EN 101 Composition and Literature I	3	EN 102 Composition and Literature II	3
Modern Language	6	Modern Language	6
PO 105 American Politics	3	PO 106 Introduction to Public Policy and Administration	3
Elective	3	Elective	3
	15		**15**

Second Year

Fall	Credits	Spring	Credits
EN 201 World Literature I	3	EN 202 World Literature II	3
HI 121 American History Survey I	3	HI 122 American History Survey II	3
MA Elective	3	MA 232 Elementary Statistics	3
PO 215 International Relations	3	EC 201 Principles of Economics (Macro) or 202 Principles of Economics (Micro)	3
PO 220 Research Methods	3	PO 202 Introduction to Comparative Politics	3
	15		**15**

Third Year

Fall	Credits	Spring	Credits
EN 112 Public Speaking	3	HI (non-western) Elective	3
Lab Science	4	Lab Science	4
Philosophy Ethics Elective	3	Humanities Elective	3
Political Philosophy Elective	3	American Politics Elective (PO)	3
Elective	3	International Relations Elective (PO)	3
	16		**16**

Fourth Year

Fall	Credits	Spring	Credits
Humanities Elective	3	EN Literature Elective	3
Elective	3	PO Upper Division Elective	3
Elective	3	PO Upper Division Elective	3
Elective	3	Elective	3
PO Comparitive Politics Elective	3	PO 410 Capstone Seminar in Political Science	3
	15		**15**

Total Credits: 122

Course Prerequisites

100 level open to Freshmen only, except by permission of department chair or unless a major requirement for another program or major.
200 level not open to Freshmen without instructor's permission.
300 level typically for upper classmen, otherwise by permission of the instructor.
400 level typically for upper classmen, otherwise by permission of the instructor.

Topics courses may be repeated for credit as long as a new topic is offered.

History

For a minor in history, the student must complete six history courses (HI), at least two of which must be 300 level courses, one of the 300 level courses must be a colloquium. All courses must have a grade of "C" or better.

Political Science

For a minor in Political Science, the student must complete six courses of 3 or more credit hours as specified below with a grade of "C" or better.

PO 105	American Politics	3
PO 106	Introduction to Public Policy and Administration	3
PO 202	Introduction to Comparative Politics	3
PO 215	International Relations	3
PO 220	Research Methods	3
PO Elective (must be upper-division)		3
Total Credits		18

International Studies

Program Coordinator: Yangmo Ku

This multidisciplinary program is for students desiring a flexible curriculum with an international focus. Students take courses in International Studies, Political Science, History, Economics, and Modern Languages. This program provides a solid basis for graduate studies or careers in government service, international agencies, multinational corporations, non-profit organizations, law, or the military.

Program Requirements

In addition to the Bachelor of Arts and General Education requirements, all International Studies (IS) majors are required to complete:

IN 101	Introduction to International Studies	3
IN 410	Seminar in International Studies	3
PO 105	American Politics	3

PO 202	Introduction to Comparative Politics	3
PO 215	International Relations	3
HI 108	The History of Civilization II	3
EC 201	Principles of Economics (Macro)	3
EC 202	Principles of Economics (Micro)	3
Two history electives		6
EC 419	International Economics	3

IS majors must select also four Area Studies courses, two in political science and two in history. The political science options are: PO 310, PO 320, PO 340, and PO 348. The history options include any history course in this catalogue designated as European or Non-Western, as well as HI 338 and HI 339 (U.S. Diplomatic History).

International Studies [IS] students must spend at least one semester in a study abroad program (normally in the junior or senior year), and take all courses abroad in a foreign language studied at Norwich, with the exception of Chinese where content courses can be taken in English. Study abroad can also include a pre-approved credit-bearing internship.

At least one of their 300 level modern language courses will be taken abroad and transferred to Norwich.

IS students must have a minimum cumulative 2.50 GPA at the end of their Sophomore year, and maintain that average or higher through the time of their application for study abroad.

The study abroad requirement must be fulfilled prior to taking IN 410, the International Studies Senior Seminar capstone course.

Student will be required to leave the IS program if they fail to have the minimum cumulative 2.50 GPA at the end of their sophomore year. A decision to require a student to leave the IS program shall be made by a majority vote of the IS Faculty Advisory Board with the concurrence of the History and Political Science Department Chair. The student must then find another major if he/she wishes to remain at Norwich University.

Exceptions to any of these provisions may be petitioned to and approved by a majority vote of the IS Faculty Advisory Board. The decision of the Board may be appealed to the Dean of the College of Liberal Arts and the Committee on Academic Standing and Degrees. The final decision shall be communicated to the Office of the Registrar.

International students in the IS program have the option to pursue a program of study specifically designed for them; this option can include an off-campus experience within the U.S. (e.g. Washington, DC Semester program).

For an IS major to graduate, the following courses must be completed with a grade of “C” or better: IN 101, IN 410, PO 105, PO 202, PO 215, Modern Language 205 and 206, EC 201, EC 202.

B.A. in International Studies – Curriculum Map

First Year

Fall	Credits	Spring	Credits
EN 101 Composition and Literature I	3	EN 102 Composition and Literature II	3
HI 108 The History of Civilization II	3	PO 105 American Politics	3
IN 101 Introduction to International Studies	3	Modern Language 112[1]	6
Modern Language 111[1]	6	Math Elective	3
	15		**15**

Second Year

Fall	Credits	Spring	Credits
EN 201 World Literature I	3	EN 202 World Literature II	3
EC 201 Principles of Economics (Macro)	3	EC 202 Principles of Economics (Micro)	3
Modern Language 205[1]	3	Modern Language 206[1]	3
Math Elective	3	PH Elective[2]	3
PO 215 International Relations	3	PO 202 Introduction to Comparative Politics	3
	15		**15**

Third Year

Fall	Credits	Spring	Credits
Study Abroad		Study Abroad	
Elective	3	Humanities Elective	3
Elective	3	COMP. PO./Hist. Elective[3]	3
Elective	3	Lab Science	4
Modern Language (300 level)[1]	3	Modern Language (300 level)[1]	3
Elective	3	Elective	3
	15		**16**

Fourth Year

Fall	Credits	Spring	Credits
Humanities Elective	3	Humanities Elective	3
EC 419 International Economics	3	Elective	3
Lab Science	4	History Elective	3
COMP. PO./Hist. Elective[3]	3	COMP. PO./Hist Elective[3]	3
COMP. PO./Hist. Elective[3]	3	IN 410 Seminar in International Studies	3
	16		**15**

Total Credits: 122

1 Languages other than Chinese, French, Spanish, or German may be used to satisfy the language requirement with the approval of the Modern Languages Department. To satisfy the study abroad requirement, students will study in a Chinese, French, Spanish, or German speaking country unless a substitute language has been approved by the Modern Languages Department.

2 Must satisfy the General Education ethics requirement.

3 Comparative Politics or History Elective chosen as follows: two courses from PO 310, PO 320, PO 340, or PO 348 and two History courses at the 200-level (HI 201, HI 202, HI 211, HI 212, HI 214, HI 218, HI 223, HI 224, HI 227, HI 235, or HI 236) and two History courses at the 300-level (HI 303, HI 304, HI 315, HI 317, HI 319, HI 321, HI 322, HI 326, HI 329, HI 338, HI 339, HI 371, HI 372, and HI 373).

Modern Languages

Professors Chevalier, Robertson (Chair), D. Ward; Associate Professor Stallings-Ward; Assistant Professor Song, Sherriff; Adjunct Faculty Dietz, Lin, Lutgen, Matheson, Miana, and Rioux.

In an age of ever-increasing internationalism in the arts and sciences, in government and business, and in human relations, the crucial importance of foreign language expertise and cultural sensitivity is more and more apparent. As an essential part of the liberal arts student's curriculum, the study of a foreign language provides an opportunity to learn about another culture and civilization and thus promotes a better understanding of one's own culture.

The department offers a variety of courses in Chinese, French, German, and Spanish, which are conducted primarily in the language of instruction. Offerings are designed to give students a thorough mastery of speaking, aural comprehension, reading, and writing skills, insight into cultural practices and perspectives, and an understanding of the nature of language and culture. An extensive language laboratory program offers students a variety of audio and video materials as well as international news broadcasts and other satellite programs in the target language. Electronic study guides are available to students in the computer lab.

Entering students who have had previous language experience and who plan to continue language study are required to take a language placement examination prior to the summer and before they are enrolled for classes.

Students interested in a career in the military, international business, diplomacy, international relations, research, teaching, or in any field in which they might encounter representatives or data from foreign countries are encouraged to consider earning a **minor in Chinese, French, German, or Spanish,** or a **major in Spanish**.

Achieving demonstrated proficiency in a foreign language enables graduates to communicate with individuals around the globe. For example, French is used in an official capacity in over forty countries, including our neighboring Canadian province to the North. German is spoken in several European countries. Both France and Germany are very active in high-tech industries and in international peacekeeping efforts. Spanish, of course, is spoken not only in Spain but also in many major cities throughout the United States as well as in Central and South America. Many important trade and law enforcement policies are established between the United States and our neighbors to the South. Additionally, the rapid rise of China with a population of 1.3 billion people has created an urgent need to prepare a new generation to understand Chinese culture, politics, the economy, and the military.

A major in Spanish is available to students who complete a minimum of eight courses (i.e. 24 credit hours) beyond the 206-level and receive a "C" or better in all the courses taken for the major. A minimum of four upper-level courses (i.e., 12 credits hours) must be taken at Norwich. All Spanish majors are strongly urged to combine their study at Norwich with a summer or semester of study in an approved overseas program where the target language is spoken, thus enabling them to experience language immersion and gain additional insights into the Hispanic cultures and peoples. Study abroad courses counting toward the major are approved in advance by the department chair and the faculty in the major.

The goal of the minor in Chinese, French, German and Spanish, and the major in Spanish is to encourage students to develop oral, written, and cultural proficiency in order to be able to use the language professionally upon graduation. The more language courses successfully completed, the more the graduate offers as a linguist, translator, interpreter, researcher, negotiator, etc.

In accordance with recommendations of the Modern Language Association of America, the department encourages students seeking an academic major or minor in a foreign language to supplement their Norwich coursework with either a summer or a semester of study abroad. See the Chair, Department of Modern Languages to discuss suitable programs of study.

Norwich maintains student-exchange program with the French military academy, **l'Ecole Speciale Militaire de Saint-Cyr**, and with the German military university, **die Universität der Bundeswehr**, located near Munich. Civilian or Corps students interested in participating in these programs must maintain a distinguished GPA, and demonstrate advanced proficiency in French or German. Students who hold military scholarships are especially encouraged to apply. For further information, please contact the Chair of Modern Languages. Inquiries concerning study abroad should be addressed to the department chair by the beginning of the fall semester of the student's sophomore year.

Please Note: ***Credit earned in the Department of Modern Languages is sequential. That is, except for those applying for transfer credit, CLEP credit, and AP credit, students enrolled in or having completed upper-division language courses may not receive credit for lower-level course work.***

B.A. in Chinese - Curriculum Map

First Year

Fall	Credits	Spring	Credits
EN 101 Composition and Literature I	3	EN 102 Composition and Literature II	3
CN 111 Beginning Chinese I	6	CN 112 Beginning Chinese II	6
Elective	3	EC/PY/HI/SO/CJ or PO Elective[1]	3
Math Elective (excluding MA 005, MA 103)	3	Math Elective (excluding MA 005, MA 103)	3
	15		**15**

Second Year

Fall	Credits	Spring	Credits
EN 201 World Literature I	3	EN 202 World Literature II	3
CN 205 Intermidiate Chinese I	3	CN 206 Intermediate Chinese II	3
PH Elective[2]	3	Lab Science Elective	4
Lab Science Elective	4	East Asian History Elective	3
Elective	3	Elective	3
	16		**16**

Third Year

Fall	Credits	Spring	Credits
CN 301 Advanced Chinese I	3	CN 302 Advanced Chinese II	3
CN 321 Chinese Literature, Culture and Society I 1911-1949	3	CN 322 Chinese Literature, Culture and Society II 1949-Present	3
East Asian History Elective	3	EC/PY/HI/SO/CJ or PO Elective[1]	3
Elective	3	Elective	3
Elective	3	Elective	3
	15		**15**

Fourth Year

Fall	Credits	Spring	Credits
CN 3XX Chinese Elective	3	CN 415 Capstone	
CN 3XX Chinese Elective	3	CN 3XX Chinese Elective	3
Elective	3	Elective	3
Elective	3	Elective	3
Elective	3	Elective	3
	15		**12**

Total Credits: 119

1 At least one of the EC/PY/HI/SO/CJ or PO electives must be in a discipline other than History (HI). Also, CJ 102 and CJ 301 are excluded.

2 Satisfies the General Education ethics requirement. Eligible courses include PH 303, PH 322, PH 323, PH 324, and PH 350.

- Students are required to participate in a study abroad program, normally during the fall semester of the junior or senior year, in China or Taiwan. Students are also encouraged to attend summer programs abroad in Chinese language and culture.
- ROTC as required are in addition to the above requirements. (Up to six credits of ROTC coursework - see designated ROTC course list in the university catalogue - may be counted toward degree completion.)

B.A. in Spanish - Curriculum Map

First Year

Fall	Credits	Spring	Credits
EN 101 Composition and Literature I	3	EN 102 Composition and Literature II	3
SP 111 Beginning Spanish I	6	SP 112 Beginning Spanish II	6
HI Elective (excluding HI 209)	3	EC/PY/HI/SO/CJ or PO Elective[1]	3
Math Elective (excluding MA 005, MA 103)	3	Math Elective (excluding MA 005, MA 103)	3
	15		**15**

Second Year

Fall	Credits	Spring	Credits
EN 201 World Literature I	3	EN 202 World Literature II	3
SP 205 Intermediate Spanish I	3	SP 206 Intermediate Spanish II	3
PH Elective[2]	3	Humanities Elective	3
Lab Science Elective	4	Lab Science Elective	4
Elective	3	Elective	3
	16		**16**

Third Year

Fall	Credits	Spring	Credits
SP 301 Advanced Spanish I	3	SP 302 Advanced Spanish II	3
SP Elective	3	SP Elective	3
EC/PY/HI/SO/CJ or PO[1]	3	EC/PY/HI/SO/CJ or PO Elective[1]	3
Elective	3	Elective	3
Humanities Elective	3	Humanities Elective	3
	15		**15**

Fourth Year

Fall	Credits	Spring	Credits
SP Elective	3	SP Elective	3
SP Elective	3	SP 415 Seminar: Topics in Spanish or Latin-American Literature and Culture	3
EC/PY/HI/SO/CJ or PO Elective[1]	3	Elective	3
Elective	3	Elective	3
Elective	3	Elective	3
	15		**15**

Total Credits: 122

1 At least one of the EC/PY/HI/SO/CJ or PO electives must be in a discipline other than History (HI). Also, CJ 102 and CJ 301 are excluded.

2 Satisfies the General Education ethics requirement. Eligible courses include PH 303, PH 322, PH 323, PH 324, and PH 350.

- ROTC as required are in addition to the above requirements. (Up to six credits of ROTC coursework - see designated ROTC course list in the university catalogue - may be counted toward degree completion.)

A student seeking an academic minor in one of the languages must complete, with a grade of “C” or higher, six courses (18 credit hours) beyond the 112 level in that language.

Suggestions for Completing the Minor in Chinese, French, German, or Spanish

Pathway 1

For the student entering at the beginning level:

First Year

CN/FR/GR/SP 111-112 (6 credits/semester).

The 100 level courses do not count towards the minor.

Second Year

CN/FR/GR/SP 205-206 (3 credits/semester).

Third Year

One 300-level course each semester (a second foreign-language course may be taken concurrently; check with your advisor for curriculum and scheduling requirements appropriate to your major).

Fourth Year

One 300 or 400-level course each semester.

Pathway 2

For the student entering at the intermediate or advanced level:

First Year	
CN/FR/GR/SP 205-206 or one 300-level course each semester.	
Second Year	
One 300 or 400-level course each semester.	
Third Year	
At least two courses numbered 300 or above.	
Fourth Year	
At least two courses numbered 300 or above.	

Other options include taking two language courses each semester.

Music

Professor Emeritus Bennett. Adjunct Faculty A. Cerutti, Edwards, and MacHarg.

Note. Students can earn no more than one, three credit free elective course, by combining three of the same one credit music courses.

Philosophy

Philip A. Gauss Professor McKay, Professor Maultsby.

The program in philosophy provides an encounter with the major concepts of Western thought in both historical and contemporary perspectives. Eastern ideas and attitudes are related at crucial points of intersection.

For a minor in philosophy, the student must complete PH 210 **and 15 additional credits in philosophy, all with a grade of "C" or better.**

Psychology

Charles A Dana Professor Miller; Professors Fleming and Stones; Associate Professors Bandy (Chair), and D. Byrne; Assistant Professor Peters; Lecturer P. Burmeister; Visiting Assistant Professor T. Thurber; Adjunct Faculty J. Meyer, and M. Meyer.

The psychology program at Norwich has been designed to give the student major a broad based foundation in the discipline. Psychology is a scientific enterprise that attempts to articulate principles of human and animal behavior. These principles are formulated within the context of biological, socio-cultural, and environmental factors. Psychology is both a field of scientific inquiry and a professional activity: it shares its subject matter and its methods with the biological and social sciences, while simultaneously sharing some of the same concerns of the arts; namely, human motivation, emotion, aesthetic appreciation and experience, creativity, and the individual's relations to the world and humankind. Students at Norwich may explore the discipline from the experimental, personality/social, the developmental, and/or clinical perspectives. Upper level practica, internships, or field placements that permit the student practical work experience in a special interest area are encouraged.

The course work is designed to offer all students the opportunity to master the basic principles of scientific research and to investigate a wide variety of psychological topics. The program offers the psychology major the widest choice in career opportunities. In the past few years many students at the bachelor's degree level have found stimulating and interesting career opportunities in numerous fields (e.g. Elementary School Teachers, research or lab assistant, personnel administrator, probation and parole officer, newspaper reporter, customs inspector, recreation worker, advertising copywriter, media buyer, vocational rehabilitation). In addition, the program offers the psychology major an excellent preparation for most professional schools (e.g. law, medicine, education, business) and for graduate work in psychology.

A major in psychology must fulfill the general education and bachelor of arts requirements set forth in this catalogue with the following additions and restrictions:

A. Each of the following courses:		
BI 101	Principles of Biology I	4
Laboratory Science		4
MA 232	Elementary Statistics	3
A history course		3
A non-psychology social science elective		3

A mathematics elective		3
Other courses in math/science are strongly recommended for students planning to pursue specific postgraduate pathways. [1]		
The following psychology courses with a grade of "C" or better:		
PY 211	Introduction to Psychology	3
PY 220	Developmental Psychology	3
PY 313	Experimental Psychology I	3
PY 314	Experimental Psychology II	3
PY 360	History and Systems of Psychology	3
PY 398	Thesis Preparation	3
PY 401	Senior Seminar	3
PY 402	Conference ("C" or "Satisfactory")	0
PY 403	Presentation ("C" or "Satisfactory")	0
PY 498	Senior Thesis [2]	3
C. 120 degree credit hours.		

1 Other courses in math/science such as: MA 107, MA 108, MA 121, CH 103, CH 104, PS 201, PS 202.

2 Individual research project required for graduation.

B.A. in Psychology - Curriculum Map

First Year

Fall	Credits	Spring	Credits
EN 101 Composition and Literature I	3	EN 102 Composition and Literature II	3
Modern Language	6	Modern Language	6
PY 211 Introduction to Psychology	3	PY 220 Developmental Psychology	3
Mathematics Elective (excluding MA 103)	3	MA 232 Elementary Statistics	3
	15		**15**

Second Year

Fall	Credits	Spring	Credits
EN 201 World Literature I	3	EN 202 World Literature II	3
PY 230 Biopsychology or 263 Perception	3	PY 240 Introduction to Social Psychology or 241 Introduction to Personality Theory	3
PY 313 Experimental Psychology I	3	PY 314 Experimental Psychology II	3
Humanities Elective	3	Humanities Elective	3
BI 101 Principles of Biology I	4	Laboratory Science	4
	16		**16**

Third Year

Fall	Credits	Spring	Credits
PY 212 Abnormal Psychology or 324 Adolescent Psychology	3	PY 344 Cognition	4
Literature/Humanities Elective	3	PY 398 Thesis Preparation	3
Psychology Elective	3	PY 402 Conference	0
Elective	3	History Elective	3
Elective	3	Elective	3
		Elective	3
	15		**16**

Fourth Year

Fall	Credits	Spring	Credits
PY 360 History and Systems of Psychology	3	PY 401 Senior Seminar	3
PY 498 Senior Thesis	3	PY 403 Presentation	0
Humanities Elective	3	Elective	3
Social Science Elective	3	Elective	3
Elective	3	Elective	3
	15		**12**

Total Credits: 120

Psychology majors must complete the General Education and Bachelor of Arts requirements listed in this catalogue.

Minor in Cross-Cultural Psychology

A. Prerequisite		3
PY 211	Introduction to Psychology	3
B. Required Courses		10
PY 236	Cross-Cultural Psychology	3
PY 240	Introduction to Social Psychology	3
PY 344	Cognition	4
C. One of the following:		3-4
PY 241	Introduction to Personality Theory	3
PY 263	Perception	3
PY 321	Organizational Psychology	3
PY 352	Learning and Memory	4
D. Both of the following:		6
SO 212	Cultural Anthropology	3
SO 214	Racial and Cultural Minorities	3
Total Credits		22-23

Minor in Engineering Psychology

A. Prerequisite		3
PY 211	Introduction to Psychology	3
B. Required Courses		10
PY 232	Engineering Psychology	3
PY 344	Cognition	4
PY 350	Environmental Psychology	3
C. One of the following:		3-4
PY 230	Biopsychology	3
PY 263	Perception	3
PY 352	Learning and Memory	4
D. One of the following:		3
PY 220	Developmental Psychology	3
PY 240	Introduction to Social Psychology	3
PY 241	Introduction to Personality Theory	3
PY 321	Organizational Psychology	3
Total Credits		19-20

Minor in Forensic Psychology

A. Prerequisite		3
PY 211	Introduction to Psychology	3
B. Required Courses		6
PY 234	Forensic Psychology	3
PY 355	Psychology and the Law	3
C. Two of the following:		6
PY 212	Abnormal Psychology	3
PY 220	Developmental Psychology	3
PY 240	Introduction to Social Psychology	3
PY 241	Introduction to Personality Theory	3
D. Two of the following:		6-8
PY 230	Biopsychology	3
PY 263	Perception	3
PY 344	Cognition	4
PY 352	Learning and Memory	4
Total Credits		21-23

Minor in Political Psychology

A. Prerequisite		3
PY 211	Introduction to Psychology	3
B. Required Courses		13
PY 238	Political Psychology	3
PY 240	Introduction to Social Psychology	3
PY 344	Cognition	4
PO 105	American Politics	3
C. One of the following:		3
PO 315	Public Opinion and Political Behavior	3
PO 333	American Foreign Policy	3
D. One of the following:		3
CM 304	Principles and Practices of Corporate Communications	3

PY 241	Introduction to Personality Theory	3
Total Credits		22

Minor in Psychology

A. Prerequisite		6
PY 211	Introduction to Psychology	3
PY 314	Experimental Psychology II	3
B. At least one and no more than three of the following:		3-11
PY 212	Abnormal Psychology	3
PY 230	Biopsychology	3
PY 240	Introduction to Social Psychology	3
PY 241	Introduction to Personality Theory	3
PY 263	Perception	3
PY 344	Cognition	4
PY 352	Learning and Memory	4
C. One course at the 300 or 400 level		3-4
D. One course at or above the 200 level		3
Total Credits		15-24

School of Justice Studies and Sociology

Director: Stanley Shernock

Mission

It is the mission of the School of Justice Studies and Sociology, in the spirit of the liberal arts, to guide and educate students:

1. to undertake an in-depth exploration of the social sciences as a major field of study;
2. to consider and analyze a variety of perspectives on domestic and global issues;
3. to appreciate the complexities of social, cultural, and political interactions, past and present; and
4. to become critical thinkers and active citizens in an ever-changing world.

The School of Justice Studies and Sociology is comprised of the Departments of Criminal Justice and Sociology; and Psychology with Teacher Education Licensure.

Charles A. Dana Profess Shernock (Director); Professor Clements; Associate Professors Ryan and Shtull; Assistant Professors Morris, and Vieira; Visiting Faculty: Orrick; Lecturere: Adler, Buttimer, Fuller, Gurian; Adjunct Faculty: Aumand, Chandler, Crowson, Garland, Hartman, Henkin, Logan, Schluester, Green, Kelly, McQuiston.

Criminal Justice

The baccalaureate program in Criminal Justice at Norwich University provides its students with a liberal arts based education that emphasizes critical thinking and knowledge about crime, criminal law, the criminal justice system, and the sociocultural environment in which human behavior occurs. The program emphasizes the interdependence between theoretical and research knowledge and practice. It also strives to cultivate a commitment to the principles of justice, ethics, and public service and to the development of leadership skills.

In order to provide career preparation for students expecting to work in the criminal justice field or related fields, the program offers internships, career counseling, and pre-law advising, and incorporates into the curriculum case analyses, police and court observations, field trips, simulations, and guest lectures by practitioners. Internships and work-study opportunities are also available at the Vermont Center for Justice Research (VCJR), which is currently administered by the Norwich criminal justice faculty. The VCJR, one of only seven state criminal justice statistical analysis centers affiliated with a university, is responsible for information dissemination, statistical analysis, and planning in criminal justice for the State of Vermont.

The department also offers a special minor in computer crime and forensics with scholarships available from the Information Assurance Scholarship Program.

Students accepted into the Criminal Justice Program in good standing upon entrance to Norwich University must have a minimum combined 1350 score on the new SAT and over a 2.50 average (on a 4.00 point scale) in high school academic work.

B.A. in Criminal Justice - Curriculum Map

First Year

Fall	Credits	Spring	Credits
CJ 101 Introduction to Criminal Justice[1]	3	CJ 102 Substantive Criminal Law[1]	3
EN 101 Composition and Literature I	3	EN 102 Composition and Literature II	3
Foreign Language (or Lab Science & Sociology)[2]	6-7	Foreign Language (or Lab Science & Psychology)[2]	6-7
		Math Elective (excludes MA103)	3
	12-13		**15-16**

Second Year

Fall	Credits	Spring	Credits
CJ 209 Methods of Social Science Research	4	CJ 201 Criminology	3
EN 201 World Literature I	3	EN 202 World Literature II	3
Lab Science & Sociology (or Foreign Language)[3]	6-7	Lab Science & Psychology (or Foreign Language)[3]	6-7
MA 232 Elementary Statistics	3	Political Science Elective	3
	16-17		**15-16**

Third Year

Fall	Credits	Spring	Credits
CJ 308 The Police[1]	3	CJ 310 The Courts[1]	3
CJ 301 Criminal Procedure[1]	3	CJ 312 Corrections[1]	3
History Elective (preferably HI222)	3	IS 399 Test course	3
PH 324 Criminal Justice Ethics	3	Humanities Elective	3
SO 214 Racial and Cultural Minorities	3	Free Elective	3
	15		**15**

Fourth Year

Fall	Credits	Spring	Credits
CJ Elective[1]	3	CJ 410 Senior Seminar[1]	3
PO 321 U.S. Constitutional Law (or free elective)	3	PO 324 Civil Liberties (or free elective)[4]	3
Humanities Elective (lit course)	3	CJ Elective[1]	3
Humanities Elective	3	Free Elective	3
Free Elective	3	Free Elective	3
	15		**15**

Total Credits: 118-122

1 Grade of "C" or higher required in these courses (CJ electives).

2 Preference for SO 201 Introduction to Sociology or SO 202 Problems of Modern SocietySociety; excludes SO 214 Racial and Cultural Minorities.

3 If not taken freshman year.

4 PO 324 Civil Liberties should be taken in spring only if PO 321 U.S. Constitutional Law was not taken in fall.

NOTE: In addition to the above, members of the Corps of Cadets are required to complete an ROTC course each semester through the third year.

Minor in Criminal Justice

For the minor in criminal justice, the student must complete six courses (18 degree credits) with a grade of "C" or better that must include:

CJ 101	Introduction to Criminal Justice	3
CJ 102	Substantive Criminal Law	3
CJ 201	Criminology	3
Select two of the following:		6
CJ 308	The Police	3
CJ 310	The Courts	3
CJ 312	Corrections	3
One CJ Elective [1]		3
Total Credits		18

1 Any CJ course other than CJ 209 Methods of Social Science Research.

For the minor in Cyber Crime and Computer Forensics see listing in Business and Management School.

Minor in Sociology

SO 201	Introduction to Sociology	3
SO/CJ 209	Methods of Social Science Research	4
or one of the following social science methodology courses:		
HI 209	Historical Methods	3
PO 220	Research Methods	3
PY 313	Experimental Psychology I	3
PY 314	Experimental Psychology II	3
SO 202	Problems of Modern Society	3

SO 212	Cultural Anthropology	3
or SO 214	Racial and Cultural Minorities	
Two elective courses (or 6 degree credits) from other offerings in sociology [1]		6
Total Credits		19

[1] Including the SO 300 Selected Topics, SO 212 or SO 214 not used in the above selection, other than SO 209/CJ 209 - sociology cross-listed courses (SO 320, SO 402) must be taken under the SO number to apply to the minor.

CJ majors pursuing a Sociology minor cannot count cross-listed courses other than CJ 209/SO 209 for both the major and minor.

War and Peace

Program Director: S. Sodergren

The purpose of a BA in Studies in War and Peace (SWAP) is to offer an opportunity to examine the origins and development of military institutions and the impact of those institutions upon the social order. Intellectually, the program is intended to promote critical analysis of phenomena relating to military and diplomatic affairs. Practically, the program is intended to prepare students for a career in government service or for entry into graduate or professional school. This academic program is equally suitable for civilian students or cadets, and aims at providing an interdisciplinary examination of the enduring and close interconnections among military, political, economic, and social institutions. The SWAP program is an extension of the Norwich University tradition of producing educated citizens who are prepared for either military or civilian pursuits, and who are knowledgeable about diplomatic and military affairs.

BA Program in Studies in War and Peace

University General Education and BA Requirements (14 courses)		
EN 101 & EN 102	Composition and Literature I and Composition and Literature II	6
EN 201 & EN 202	World Literature I and World Literature II	6
Laboratory Science (2 courses)		8
Mathematics (2 courses other than MA 005/MA 103)		6-8
Modern Language (2 intensive courses)		6-12
Humanities Electives are chosen from the list below. Four courses in two different disciplines are required.		
1.		
EN 270	Military Literature	3
or EN 251	Literature of the Sea	
or EN 244	The Literature of Leadership	
2.		
PH 340	Philosophy of Non-Violence	3
or PH 303	Survey of Ethics	
3. and 4. Any two of the following:		
CM 109	Introduction to Mass Media	3
CM 261	Interpersonal Communications	3
CM 335	Television Criticism	3
CM 436	Communications Law and Ethics	3
Any English course above EN 206 (except EN 240, EN 241, EN 242)		
FA 221	History of Visual Arts I: Prehistoric to 1350	3
FA 222	History of Visual Arts II: 1350 to the Modern Era	3
FA 240	History of American Art	3
FA 250	Topics in Art	3
MU 101	Music Appreciation	3
Any Philosophy course		

Any Modern Language above 112		
Any Studio Arts course		

Core Courses (15 courses, all of which must be completed with a grade of "C" or higher except for the External Elective)

Two of the following courses:		
HI 107	The History of Civilization I	3
HI 108	The History of Civilization II	3
HI 121	American History Survey I	3
HI 122	American History Survey II	3
PO 105	American Politics	3
HI 235 & HI 236	Military History I and Military History II	6
PO 202	Introduction to Comparative Politics	3
or PO 215	International Relations	
One of the following:		
EN 112	Public Speaking	3
EC 106	The Structure and Operation of the World Economy	3
EC 201	Principles of Economics (Macro)	3
EC 202	Principles of Economics (Micro)	3
SO 201	Introduction to Sociology	3
CM 261	Interpersonal Communications	3
Core electives (4 courses chosen from the following, at least 2 of which must be PO and at least 1 HI)		
HI 332	The American Revolution	3
HI 334	The Citizen-Soldier in American History	3
HI 338	U.S. Diplomatic History, 1776-1914	3
HI 339	U.S. Diplomatic History, 1914-present	3
HI 341	U.S. Civil War Era, 1848-1877	3
HI 355	Colloquium in Modern Military History	3
HI 371	Nation-Building	3
HI 372	Military History of the United States I, 1775-1902	3
HI 373	Military History of the United States II, 1902-Present	3
HI 3XX SWAP-designated Colloquium		
PO 305	Geopolitics	3
PO 310	European Politics	3
PO 330	American Citizenship	3
PO 333	American Foreign Policy	3
PO 340	Revolution and Forces of Change	3
PO 348	Asian Politics	3
PO 405	International Organizations	3
PO 415	International Law	3
SO 300	Topics in Criminal Sociology	3
Seminar (choose one of the following)		
HI 4XX SWAP-designated History Seminar		
PO 4XX SWAP-designated Political Science Seminar		
IN 410	Seminar in International Studies	3
PO 412	War and Peace	3
HI 490 & HI 491	Honors in History I and Honors in History II	6
PO 490 & PO 491	Honors in Political Science and Honors in Political Science	6

International Affairs	
Complete any THREE European, Non-Western, or Premodern History Courses, of which only one may be from the 200-level and at least one must be designated as Pre-Modern or Non-Western.	
SWAP-designated PO 320 Topics in Area Studies courses may also satisfy this requirement	
Free Electives	
9 courses required	

B.A. Studies in War and Peace - Curriculum Map

First Year

Fall	Credits	Spring	Credits
EN 101 Composition and Literature I	3	EN 102 Composition and Literature II	3
Modern Language	6	Modern Language	6
HI 107 The History of Civilization I or 121 American History Survey I	3	HI 108 The History of Civilization II or 122 American History Survey II	3
PO 105 American Politics	3	Humanities Course	3
	15		**15**

Second Year

Fall	Credits	Spring	Credits
EN 201 World Literature I	3	EN 202 World Literature II	3
Mathematics (except MA 103)	3	Mathematics (except MA 103)	3
PO 202 Introduction to Comparative Politics or 215 International Relations	3	External Elective	3
HI 235 Military History I	3	HI 236 Military History II	3
Humanities Course	3	Free Elective	3
	15		**15**

Third Year

Fall	Credits	Spring	Credits
Lab Science	4	Lab Science	4
Humanities Elective	3	Humanities Elective	3
Core Elective	3	Core Elective	3
International Affairs	3	Free Elective	3
Free Elective	3	Free Elective	3
	16		**16**

Fourth Year

Fall	Credits	Spring	Credits
Seminar	3	Free Elective	3
Core Elective	3	Core Elective	3
International Affairs	3	International Affairs	3
Free Elective	3	Free Elective	3
Free Elective	3	Free Elective	3
	15		**15**

Total Credits: 122

College of Professional Schools

Dean: Aron Temkin, AIA

The College of Professional Schools covers a unique breadth of fields including accounting, management, construction, computing, information assurance, nursing, engineering, and architecture. These programs are conducted by faculty in the School of Business and Management, the School of Nursing, the David Crawford School of Engineering and the School of Architecture and Art.

Across these disciplines students and faculty are engaged in teaching/learning processes that combine stron conceptual foundations with hands-on practice. Our engaged spirit of service combines with a willingness to collaborate that is necessary for tackling real-world challenges. When this is combined with the leadership focus of the university, we position our students to engage the problems of our era and build the industries, systems, processes, machines and structures that are required of the next century.

Mission

To provide our students with the means, motivation, confidence and empathy to engage the problems of our era and create the industries, systems, processes, machines and structures that are required of our evolving society.

Accreditation

The College includes several accredited programs. The School of Nursing offers a BSN degree accredited by the Commission on Collegiate Nursing Education (CCNE). The management and accounting degrees are accredited by the Accreditation Council for Business Schools and Programs (ACBSP). The three engineering degrees - Civil and Environmental Engineering, Mechanical Engineering, and Electrical and Computer Engineering - are accredited by the Engineering Accreditation Board of ABET. The Master of Architecture degree is accredited by the National Architecture Accreditation Board (NAAB).

School of Architecture and Art

Interim Director: Cara Armstrong

Associate Director: Daniel Sagan

Director of Graduate Architecture: Michael Hoffman

The School of Architecture and Art is comprised of faculty teaching in Architecture, Art History, and Studio Art.

Mission

To offer many opportunities for experiential learning and reflection. The School explores in many dimensions the **meaning of making** and the **making of meaning**. The School reinforces the student's ability to **think creatively and independently**, and reflects the University's ideals to develop citizens with **integrity, conviction, and self-respect**; **educated** and **motivated** to be **leaders** in service to the community. The School of Architecture and Art offers a Bachelor of Science in Architectural Studies, and a Master of Architecture (NAAB-accredited). **Minors** are also offered in Architecture and Art.

Architectural Studies

Charles A. Dana Professor Woolf; Professor Temkin; Associate Professors Cox, Hoffman, Sagan and Schaller; Assistant Professors D'Aponte, Lutz, Parker and Stonorov; Visiting Professors Armstrong and Burke; Adjunct Instructors Arnold, Gossens, Kane, Leytham and Wolfstein.

About fifty years ago, the Dutch architect Aldo van Eyck observed, "Whatever space and time mean, place and occasion mean more. For space in the image of man is place, and time in the image of man is occasion". Two important contextual factors have had continuing influences on the evolution of the Architecture Program's mission. The first of these is this place called Norwich.

Founded by Alden Partridge in the early nineteenth-century, the university pioneered the idea of an "American System of Education". This system recognizes the importance of experiential learning as part of the educational process. The second is this place called Vermont. Not only is it a state recognized internationally for maintaining the strong bond between people and the land, but also as a place where the craftsman's skill and creative expression are still esteemed. The program strives to understand this power of place to shape human ecology and to understand how humans in turn shape the place.

Norwich University offers a Master of Architecture professional degree. The Masters degree will be awarded upon the successful completion of a five and one-half years curriculum. The successful student will also receive a B.S. in Architectural Studies at the completion of their first four years. The combined curriculum is accredited by the National Architectural Accrediting Board (NAAB).

The faculty of the Architecture Program have conscientiously designed and detailed the curriculum to create a professional learning experience that will better prepare graduates for the practice of architecture in the new millennium. The curriculum reflects the University's ideals to develop citizens with integrity, conviction, and self-respect, educated and motivated to be leaders in service to the community. Within the program, experiential learning goes beyond merely developing skills. Reflection is the other half of this kind of learning process. We are concerned with all the dimensions of making and meaning.

The first four years of the curriculum lead to a Bachelor of Science in Architectural Studies and offer the students an opportunity to pursue a minor in another field. At the successful completion of the fourth year, all students meeting the degree requirements will be awarded a bachelor of Science in Architectural Studies Degree. Attaining this degree is a requirement for entering the Masters program. Admission into the Masters of Architecture is not automatic. In their fourth-year students must submit a portfolio of their studio work for review and approval by an architecture faculty committee. This threshold also requires a minimum university GPA of 2.50 and a GPA of 2.75 for all design studio courses. The Masters' program offers graduate-level professional electives as well as the opportunity to undertake a thesis, or another kind of capstone project, of one's own choosing. Perhaps the most exciting and innovative aspect of the Masters' curriculum is the requirement of an architectural internship in the summer between the fourth and fifth years. For this practicum, students will be required to locate and work in an architecture office (or in another design-related firm). The course work will be completed on-line using distance-learning techniques, which will not only permit students to work in locations of their choosing, but will also give each individual experience in digital communications and technologies which are major evolving aspects of architectural practice today.

The curriculum features the use of threshold points and portfolio reviews for each student in order to better identify individual career objectives as well as to assure the high academic caliber of every Norwich graduate.

Graduates from other colleges are not being accepted into the Master of Architect Program; transfers are accepted into the B.S. in Architectural Studies and are governed under existing university undergraduate academic regulations (including 60 percent of credit hours being earned at Norwich). The Masters of Architecture Program does not accept transfer credit at the 500 level. Students have an opportunity to spend a semester abroad on approved exchange programs, such as at Hochschule Wismar in Germany, the DIS Program in Copenhagen, Denmark, the Lexia Program in Berlin, Germany and biannual summer study abroad trips, organized by the School, typically earning six credits.

As the digital realm is becoming a prevalent tool in architecture, the School has a wireless network system that allows students to bring their own computer to the design studios. It is important to note that students will be required, in their second year of the Bachelor of Architectural Studies, to bring their own computer (preferably laptop) to the design studio. All work produced by students for class assignments is the property of the School of Architecture and Art and will be returned only at the discretion of the faculty. It is common practice to retain representative student work for exhibition and accreditation purposes. Students are required to maintain a portfolio of their studio work. Any student who receives a grade of 'D' for two sequential, numerical or chronological, design studio courses (including AP 111 and AP 118) must repeat both of these courses and receive a grade of 'C' or better in both to advance to the next design level.

Statement from the National Architectural Accrediting Board

In the United States, most state registration boards require a degree from an accredited professional degree program as a prerequisite for licensure. The National Architectural Accrediting Board (NAAB), which is the sole agency authorized to accredit U.S. professional degree programs in architecture, recognizes three types of degrees: the Bachelor of Architecture, the Master of Architecture, and the Doctor of Architecture. A program may be granted a 6-year, 3-year, or 2-year term of accreditation, depending on the extent of its conformance with established educational standards.

Doctor of Architecture and Master of Architecture degree programs may consist of a pre-professional undergraduate degree and a professional graduate degree that, when earned sequentially, constitute and accredited professional education. However, the pre-professional degree is not, by itself, recognized as an accredited degree.

Norwich University, School of Architecture and Art offers the following NAAB accredited degree:

M. Arch. (pre-professional degree with 141 credits + 34 graduated credits)

Next accreditation visit: 2017

B.S. in Architectural Studies – Curriculum Map

Mission

To understand the power of place to shape human ecology and to understand how humans shape the place in turn. The School emphasizes the development of leadership and skills in the making of place, and recognizes the need to balance creative, technological and social issues.

First Year

Fall	Credits	Spring	Credits
AP 111 Fundamentals of Architecture	4	AP 118 Fundamentals of Architecture II	4
MA 107 Precalculus Mathematics	4	MA 108 Applied Calculus or 121 Calculus I[1]	4
EN 101 Composition and Literature I	3	EN 102 Composition and Literature II	3
HI 107 The History of Civilization I	3	HI 108 The History of Civilization II	3
SA 103 Introduction to Drawing	3	SA 104 Introduction to Visual Design	3
	17		**17**

Second Year

Fall	Credits	Spring	Credits
AP 211 Architectural Design I	5	AP 212 Architectural Design II	5
FA 201 History/Theory of Architecture I	3	FA 202 History/Theory of Architecture II	3
AP 225 Introduction to Passive Environmental Systems	3	AP 325 Materials, Construction, and Design	3
PS 201 General Physics I	4	Lab Science	4
General Education Elective	3	General Education Elective	3
	18		**18**

Third Year

Fall	Credits	Spring	Credits
AP 311 Architectural Design III	5	AP 312 Architectural Design IV	5
AP 221 Site Development and Design	3	AP 222 Human Issues in Design	3
AP 327 Active Building Systems I	3	AP 328 Active Building Systems II	3
CE 351 Statics and Mechanics of Materials	4	CE 457 Wood, Steel, and Concrete Structures	4
FA 308 History/Theory of Artchitectural III	3	FA 309 History/Theory of Architectural IV	3
	18		**18**

Fourth Year

Fall	Credits	Spring	Credits
AP 411 Architectural Design V	5	AP 412 Architectural Design VI	5
Free Elective	3	AP 436 Project Delivery and Documentation	4
Architectural Elective[2]	3	Free Elective	3
Free Elective	3	Architectural Elective[2]	3
Free Elective	3	Free Elective	3
	17		**18**

Total Credits: 141

1 IN LIEU OF MA 108 OR MA 121, an approved geometry course may be substituted.

2 Students with a declared minor may substitute required courses in the minor for one or both of these AP electives in fourth year only.

General Education Electives (as defined by the university) must include at least one course in literature, one course in social sciences (sociology, psychology, economics, or political science courses). FA 201, FA 202, FA 308, and FA 309 count as General Education electives. All Studio Art (SA) courses count as General Education electives.

Free Electives are Non Architecture Electives which may not include any courses with AP prefixes.

In order to apply for the M.Arch., an overall GPA of 2.5 is required and a studio GPA of 2.75 is required.

Minor in Architectural Studies

A minor in Architectural Studies has the following course requirements:

AP 111	Fundamentals of Architecture	4
AP 118	Fundamentals of Architecture II	4
FA 201	History/Theory of Architecture I	3
FA 202	History/Theory of Architecture II	3
At least three additional courses with AP prefixes, totaling not less than 8 credit hours.		8
Total Credits		22

Minimum total credit hours for a minor in Architectural Studies is 18. All courses must be passed with a grade of 'C' or better. Enrollment into courses is subject to availability of space.

Art

Assistant Professor Galligan-Baldwin; Adjunct Instructors Arnold, Hoag, Kippen, Leytham, and Talbot-Kelly.

The art curriculum affords all students the opportunity to cultivate and extend their understanding and appreciation of art, and in the process, to assess the meaning and significance of the arts to their own lives. The fine arts offer a profound testimony to meaning and significance of the arts to their own and function in a variety of ways: they illuminate the ideas, values, beliefs, manners, and customs of an age; they inform us of how artists interpret and understand the visible world in which they live; they alert us to moral and ethical perspectives which condition the artist's choice and treatment of subject matter.

Courses in the Fine Arts (FA) explore the history of art, why and what the artist creates assess the changing nature and functions of art, probe the relationship of the artist to society, and examine the varied systems of beliefs and values which affect the shaping form. All Fine Arts (FA) courses may be used towards fulfilling humanities requirements.

Art History Minor

A minor in art history consists of successfully completing at least 18 credits with a grade of "C" or better. Of these, 15 credits must be in FA courses and three credits must be in a SA course.

Select one of the following:		3
FA 201	History/Theory of Architecture I	3
FA 221	History of Visual Arts I: Prehistoric to 1350	3
FA 222	History of Visual Arts II: 1350 to the Modern Era	3
FA 250	Topics in Art [1]	3
Three credits must be in a SA course [2]		3
Three credits must be in another FA course [3]		3
Total Credits		15

1 FA 250 may be taken more than once, however the title and subject matter of the seminars must be different.

2 Preferably SA 103 Introduction to Drawing or SA 104 Introduction to Visual Design.

3 FA 201 and FA 221 may not both be taken for credit as there is significant overlap in the material covered in the two courses).

Art Minor

For a minor in art, a student must complete 12 course credits in studio are with at least one course at the 200 or 300 level, and 6 course credits in Art History, one FA course must be FA 222 or FA 260, all with a grade of "C" or better.

Master of Architecture (NAAB-accredited)

Mission

To build on the experience of the Bachelor's curriculum, the Master's prepares the student for the profession of architecture. The School emphasizes practical experience(through a practicum) as well as autonomy and rigor (through an architectural thesis and graduate seminars).

Summer		6
AP 531	Architectural Internship	6
Fall		14
AP 525	Architectural Thesis Research	5
AP 5XX Architecture Elective		3
AP 5XX Architecture Elective		3
AP 558	Global Issues in Architecture	3
Spring		14
AP 526	Architectural Thesis	5
AP 533	Professional Practice	3
AP 5XX Architecture Elective		3
AP 5XX Architecture Elective		3
Total Credits		34

Students must maintain a 3.0 average GPA in the Masters program.

AP 501. Architectural Theory. 3 Credits.
A course that introduces the deeper, often implicit and hidden motivations that influence the making of architecture. Basic human values and beliefs leading to classic philosophies and aesthetics are explored. Major historic and contemporary propositions on architecture are surveyed. AP501 requires a graduate-level paper or project. Three hours of lecture/discussion per week. Prerequisite: FA202.

AP 504. Architectural Seminar in History and Theory. 3 Credits.
As both an art and a science, the profession of architecture is continually undergoing change and reassessment. This elective seminar focuses on one or more specific issues and topics regarding the historic and philosophical contexts that influence architecture today. Typically these topics range from the study of specific historic periods or schools of thought regarding design to the diverse trends in current architectural thinking. AP 504 shall require a graduate-level paper or project. This course may be repeated for credit. Three hours of lecture/discussion per week. Prerequisites: AP202 and AP308. Cross listed with AP403.

AP 511. Architectural Studio VII. 5 Credits.
Elective problem-oriented studio offered by various faculty members and/or visiting critics. Introspective problems are intended to broaden and deepen individual understanding of the processes, theories, and systems that influence the design of the built environment. Emphasis is on the thorough examination of all aspects of building. This course shall also include the identification, program preparation, and approval of the capstone project(s) to be undertaken in AP512 in the succeeding semester. One hour of lecture and three 4-hour studios per week. Only open to graduate students in Architecture.

AP 512. Architectural Studio VIII. 5 Credits.
Elective problem-oriented studio offered by various faculty members and/or visiting critics. Introspective problems are intended to broaden and deepen individual understanding of the processes, theories, and systems that influence the design of the built environment. Emphasis is on the thorough examination of all aspects of building. This studio shall consist of a single comprehensive design project that represents a capstone experience for the 5-year design sequence. As such, the individual program and design solution must be recorded in a bound format similar to that required for the thesis. 1 hour of lecture and 3 four-hour studios per week. Prerequisite: AP511.

AP 514. Archiectural Seminar in Design. 3 Credits.
This elective seminar investigates in a non-studio setting one or more specific concepts, issues, or topics related to architectural design and its associated disciplines, such as urban, landscape, interior, and visual design. AP514 shall require a graduate level paper or project. This course may be repeated for credit. Three hours of lecture/discussion per week. Prerequisite: approval of instructor. Cross listed with AP414.

AP 520. Architectural Seminar in Technology. 3 Credits.
As both an art and science, the profession of architecture is continually undergoing change and reassessment. This elective seminar focuses on one or more of the specific issues, topics, or skills related to technologies in architecture today. Typically, these specific semester topics range from advanced materials and construction systems to energy-conserving design; from environmental issues to hands-on building experiences. AP520 shall require a graduate-level paper or project. This course may be repeated for credit. Three hours of lecture/discussion per week. Prerequisites: AP114, AP325, or approval of instructor. Cross listed with AP424.

AP 525. Architectural Thesis Research. 5 Credits.
A singular design or design-related project selected by the individual student. The course consists of independent research done at a sufficient depth to display a mastery of the process of defining an architectural problem, including the investigation and discussion of the procedural, physical, and intellectual limits of this problem. The course culminates with the publication of an architectural program and a theoretical statement as well as the generation of all contextual information and design strategies necessary as the basis for AP526, Architectural Thesis. Three hours of class time and meetings with thesis advisors plus six hours of studio per week. Prerequisites: fifth-year standing and approval of Architecture program faculty.

AP 526. Architectural Thesis. 5 Credits.
Execution of a singular design or design-related project selected by the individual student. The project is based on independent research and preliminary design work produced in AP525 and is of sufficient depth and breadth to display a mastery of design skills and comprehensive understanding of the architectural issues related to form, process, judgment, representation, and communication. The work is done under the guidance of a thesis advisor chosen by the student. Two hours of meetings with thesis advisors plus twelve hours of studio per week. Prerequisite: AP525 with a grade of "C" or better.

AP 531. Architectural Internship. 6 Credits.
This course offers an opportunity for each student enrolled in Master of Architecture Program to develop a bridge between their academic experience and professional practice. As a "bridge" the learning experience is considered to move in both directions. The internship will allow individuals to apply knowledge learned in the classroom and will also allow the opportunity for individuals to bring practical experience to bear on their graduate studies. Each student enrolled in the course is responsible to secure a position with an architectural, or an architecturally-related/construction-related, firm for a period of no less than eight weeks. This position must be approved by the course instructor. The firm must also be willing to submit periodic and final evaluations of the student’s performance. Distance learning technologies shall be employed during the employment period for communication between the students and the instructor. Requirements for the course shall include maintaining a journal and writing a major term paper related to professional practice. Typically, this course shall be taken during the summer between the fourth and fifth years, or as otherwise approved by the division head. 8 weeks, summers. Prerequisites: Acceptance into the M. Arch. Program.

AP 533. Professional Practice. 3 Credits.
Investigation into the issues related to the professional practice of architecture in contemporary American society. Topics include project management, finance and economics; business and practice management; and laws and regulations governing the profession. Three hours of lecture per week.

AP 534. Architectural Seminar in Process. 3 Credits.
As both an art and science, the profession of architecture is continually undergoing change and reassessment. This elective seminar focuses on one or more specific topics regarding the current and future practice of architecture: what architects do, and how they do it. Typically, these topics range from design techniques to office management and from specialties within the practice, to the legal environmental and social forces that influence it. AP534 seminar shall require a graduate-level paper or project. This course may be repeated for credit. Three hours of lecture/discussion per week. Prerequisite: instructor's approval. Cross listed with AP434.

AP 555. Special Projects in Architecture. 1-3 Credit.
An execution of a singular project related to architectural design, history/theory, process or technology selected by the individual student. The course focuses on in-depth independent research, development, and a formal written and/or graphic presentation of an architecturally-related topic not otherwise covered in course offerings. The student must secure a faculty member who will agree to serve as advisor/evaluator for the project. Hours and credits to be arranged.

AP 558. Global Issues in Architecture. 3 Credits.
A seminar course for fifth-year architecture majors that offers opportunity for in-depth analysis, discussion, and research into contemporary issues that impact the profession of architecture and architectural design. The course will be flexible in the terms of content so that the nature of the material has a currency relevant to the complex, changing nature of the profession. The topical choices may address global concerns such as sustainability, cultural changes, conservation and preservation, information technology, and the emerging role of the architect as a professional in the 21st century. The course structure will be more constant, reflecting the values embodied in the profession, the architecture program, and the university. Specifically, there will be a strong bridge made between pedagogy and teaching methodology; course material will be synthesized and applied in a manner that demonstrates critical thinking, teamwork, creativity and community service. Three hours of seminar per week. Open only to Master's students in Architecture.

School of Business and Management

Director: Najiba Benabess
Associate Director: Stephen Pomeroy

Charles A. Dana Professor Puddicombe; Professors Kabay, Mohaghegh, and Vanecek; Associate Professors Benabess, Blythe, Jolley, Stephenson, and Yandow; Assistant Professors Chung, Hansen, and Patterson; Lecturers and Visiting Faculty: Almagambetov, Bovee, and Pomeroy.

Mission

The mission of the School of Business and Management is to provide a high quality education that emphasizes technical competence, critical thinking, ethical practices, communication and other interpersonal skills that qualify and equip our students to pursue a variety of life pursuits.

The School of Business and Management offers the following degrees: B.S. in Management, B.S. in Accounting, B.S. in Computer Science and B.S. in Computer Security and Information Assurance. The B.S. in Management degree requires that students choose one of the following concentrations: Leadership, Marketing, Financial Economics and Computer Information Systems. Masters degrees are offered in Management (MBA) and Computer Security and Information Assurance. Minors are offered in Accounting, Business Administration, Computer Information Systems, Computer Science, Economics, Finance, Marketing, Computer Crime & Forensics and Information Assurance.

Accreditation

Norwich University, through its School of Business and Management, is nationally accredited by the Association of Collegiate Business Schools and Programs (ACBSP) for the offering of the B.S. in Management and B.S. in Accounting. The mission of the ACBSP is to establish, promote, and recognize educational standards that contribute to the continuous improvement of business education and to recognize business schools that adhere to these standards.

School Requirements (undergraduate degree programs)

A 2.0 cumulative grade point average in major-related courses is required for graduation for all majors in the School of Business and Management. Students majoring in Management and Accounting must earn a grade of "C" or better in AC 205, AC 206, EC 201, and EC 202. Students majoring in Computer Science and Computer Security & Information Assurance need to pass IS 100 with a grade of "C-" or better. Additionally, the following courses need to be passed with a grade of "C-" or better: IS 131, IS 228 and IS 240. In addition to required course work, each student must pass a comprehensive examination during the senior year.

Graduate Programs

The School of Business and Management offers two Master degree programs; Master of Business Administration and Master of Science in Information Assurance through the College of Graduate and Continuing Studies. Descriptions of these programs and their requirements are written in a separate publication.

Minors in the School of Business and Management

Accounting

Students must complete all of the following courses with a grade of "C" or better.

AC 205	Principles of Accounting-Financial	4
AC 206	Principles of Accounting-Managerial	4
AC 335	Intermediate Accounting I	3
AC 336	Intermediate Accounting II	3
Any two of the following courses (but not both MG 341 and FN 311):		6-7
MG 341	Business Law I	3
AC 419	Taxation I	3
AC 428	Auditing	3
AC 441	Cost Accounting	3
AC 442	Advanced Accounting	4
FN 311	Corporate Finance	3
Total Credits		20-21

Business Administration (for non-Business and Management School majors)

Students must complete all of the following courses with a grade of "C" or better.

EC 201	Principles of Economics (Macro)	3
EC 202	Principles of Economics (Micro)	3
AC 205	Principles of Accounting-Financial	4
MG 314	Marketing Management	3
One of the following:		3-4
MG 101	Introduction to Business	3
EC 106	The Structure and Operation of the World Economy	3
AC 206	Principles of Accounting-Managerial	4
MG 351	Organizational Behavior	3
MG 408	Human Resources Management	3
MG 319	International Dimensions of Business	3
FN 311	Corporate Finance	3
IS 121	Introduction to Computer Programming	3
CE 460	Construction Management (or MG460)	3
Total Credits		16-17

Economics

Students must complete all of the following courses with a grade of "C" or better.

EC 201	Principles of Economics (Macro)	3
EC 202	Principles of Economics (Micro)	3
Two of the following:		6
EC 310	Money and Banking	3
EC 301	Intermediate Price Theory	3
EC 302	National Income Analysis	3
EC 406	Public Finance	3

Two additional courses numbered 300 or above in Economics (EC), Finance (FN) or Quantitative Methods (QM).	6
Total Credits	18

Engineering Management

Students must complete all of the following courses with a grade of "C" or better.

a. Two courses from the following list:		6-8
AP 225 & AP 325	Introduction to Passive Environmental Systems and Materials, Construction, and Design	6
CE 211 & CE 214	Surveying and Site Development and Engineering	7
Two 300 and/or 400 level Civil Engineering courses		6-8
Two 300 and/or 400 level Electrical Engineering courses		6-8
Two 300 and/or 400 level Mechanical Engineering courses		6-8
Two architectural design courses		6-10
Two 300 and/or 400 level Computer Science courses		6-8
Two 300 and/or 400 level Science Courses		6-8
Four courses from the following list:		12-13
AC 201	Introduction to Accounting and Financial World	3-4
or AC 205	Principles of Accounting-Financial	
CE 460	Construction Management	3
EM 301	Project Management	3
MG 310	Production/Operations Management	3
EM 302	Supply Chain Management	3
Total Credits		18-21

Finance

Students must complete all of the following courses with a grade of "C" or better.

FN 311	Corporate Finance	3
FN 407	Corporate Finance II	3
FN 412	Investments	3
EC 310	Money and Banking	3
Any two of the following:		6
AC 335	Intermediate Accounting I	3
AC 336	Intermediate Accounting II	3
AC 419	Taxation I	3
AC 442	Advanced Accounting	4
EC 406	Public Finance	3
EC 419	International Economics	3
MG 319	International Dimensions of Business	3
Total Credits		18

Computer Information Systems

(Not open to students with majors in Computer Science, Management, Computer Engineering, or Computer Security and Information Assurance)

Students must complete all of the following courses with a grade of "C" or better.

IS 130	Introduction to Computing	3
IS 131	Computer Programming	3
IS 221	G.U.I. Programming [1]	3
IS 228	Introduction to Data Structures	3
IS 240	Database Management	3
One of the following:		3
IS 301	Software Engineering I	3
IS 353	Business Programming Languages	3
IS 406	Special Topics in Computer Science	3
IS 460	Data Communications and Networks (changing to IS 260)	3
Total Credits		18

[1] IS 120 or IS 121 may be substituted for IS 221.

Computer Science

(Not open to students with majors in Computer Science, Computer Engineering, or Computer Security and Information Assurance)

Students must complete all of the following courses with a grade of "C" or better.

IS 130	Introduction to Computing	3
IS 131	Computer Programming	3
IS 228	Introduction to Data Structures	3
EE 215	Fundamentals of Digital Design	4
One of the following:		3
MA 306	Discrete Mathematics	3
IS 240	Database Management	3
Plus one IS or CP course at 300 or 400 level for which all prerequisites have been satisfies.		3
Total Credits		19

Computer Crime and Forensics

Minor Prerequisites

CJ 101	Introduction to Criminal Justice	3
CJ 102	Substantive Criminal Law	3
IS 130	Introduction to Computing	3

Minor Requirements

Students must complete all of the following courses with a grade of "C" or better.

CJ 301	Criminal Procedure	3
IS 131	Computer Programming	3
IS 228	Introduction to Data Structures	3
IS 340	Information Systems Security Assurance I	3
CJ 341	Cyber Law and Cyber Crime	3
CJ 442	Introduction to Computer Forensics	4
Total Credits		19

Information Assurance

Students must complete all of the following courses with a grade of "C" or better.

IS 340	Information Systems Security Assurance I	3
IS 342	Management of Information Assurance	3
IS 460	Data Communications and Networks (changing to IS 260)	3
CP 431	Network Security	3
CJ 442	Introduction to Computer Forensics	4
Total Credits		16

Marketing

Students must complete all of the following courses with a grade of "C" or better.

MG 314	Marketing Management	3
MG 416	Advanced Marketing	3
MG 425		3
PY 211	Introduction to Psychology	3
Any two of the following courses:		6
AC 441	Cost Accounting	3
MG 319	International Dimensions of Business	3
MG 448	Small Business Strategies	3
MG 450	Internship in Management	3
QM 317	Business and Economic Statistics II	3
Total Credits		18

Sports Management

Students must complete all of the following courses with a grade of "C" or better.

AC 201	Introduction to Accounting and Financial World	3
MG 305	Intro to Sports Management	3
MG 314	Marketing Management	3
MG 441S	Integrated Marketing Communications	3
PE 333	Management Sports Facilities	3
PE 426	Internship (Sports Management Placement)	6,12
Total Credits		21-27

Accounting

The accounting program focuses on the process of analyzing, recording, communicating, and interpreting financial information about economic entities for the purpose of external and internal reporting and decision making. Our students will integrate knowledge from other disciplines within the school: management, economics and computer information systems, to enter into organizations with both a functional and enterprise perspective.

Accountants seeking to become CPAs are employed in “public accounting” (CPA firms) as auditors, tax preparers and planners, and management consultants. Those seeking the CMA designation are employed in “private accounting” (industry) on the controller’s or treasurer’s staff as financial accountants, management accountants, cost accountants, tax accountants, budget analyst, etc. Those seeking the CIA (Certified Internal Auditor) are employed in industry as internal auditors or EDP auditors.

Careers in government accounting include employment by the Internal Revenue Service, Government Accountability Office (the audit arm of the federal government), FBI, CIA, Securities and Exchange Commission, and industry-specific regulatory agencies such as the FTC, ICC, FPC, and CAB. Of course, state and local government units also need accountants to record and report on their activities. Non-profit accounting includes accounting

positions in schools, hospitals, churches, and philanthropic, fraternal, and professional organizations as well as teaching accounting at the high school or college level.

B.S. Accounting - Curriculum Map

First Year

Fall	Credits	Spring	Credits
MG 101 Introduction to Business[1]	3	EC 106 The Structure and Operation of the World Economy[1]	3
IS 120 Business Applications & Problem Solving Techniques	3	EN 112 Public Speaking	3
EN 101 Composition and Literature I	3	EN 102 Composition and Literature II	3
MA 107 Precalculus Mathematics[2]	4	MA 108 Applied Calculus	4
		Lab Science Elective 1	4
	13		**17**

Second Year

Fall	Credits	Spring	Credits
EC 202 Principles of Economics (Micro)[3]	3	EC 201 Principles of Economics (Macro)[3]	3
Lab Science Elective 2	4	MG 309 Management of Organizations	3
AC 205 Principles of Accounting-Financial[3]	4	QM 213 Business and Economic Statistics I	3
History Elective	3	AC 206 Principles of Accounting-Managerial[3]	4
MA 212 Finite Mathematics	3	EN 204 Professional and Technical Writing	3
	17		**16**

Third Year

Fall	Credits	Spring	Credits
AC 335 Intermediate Accounting I	3	EC 310 Money and Banking	3
MG 310 Production/Operations Management	3	AC 336 Intermediate Accounting II	3
IS 300 Management Information Systems	3	AC 441 Cost Accounting	3
MG 314 Marketing Management	3	Humanities Elective	3
FN 311 Corporate Finance	3	PH 322 Business Ethics	3
	15		**15**

Fourth Year

Fall	Credits	Spring	Credits
AC 442 Advanced Accounting	4	AC 428 Auditing	3
MG 341 Business Law I	3	MG 346 Business Law II	3
Literature Elective	3	MG 449 Administrative Policy and Strategy	3
Elective	3	AC 419 Taxation I	3
MG 319 International Dimensions of Business	3	Elective	3
	16		**15**

Total Credits: 124

1 Must be taken first year. Upper level students without credit for these courses will substitute School electives. This must be done via a petition.

2 **MA 107 must be completed prior to the Fall of Sophomore Year.** Failure to do so will lead to a lengthening of the time to complete the program. If MA 103 is required by Placement Test results, a grade of "C" or better is required in MA 103 prior to taking MA 107. If required MA 103 will be counted as one of the "Free" Electives.

3 AC 205, AC 206, EC 201, EC 202 require a grade of "C" or better.

Computer Science

The program focuses on the design and development in computational environments, as well as the underlying theoretical foundations that make these environments operate efficiently, reliably, and securely. Our graduates integrate knowledge from other disciplines such as management, economics, mathematics, and engineering and enter into organizations with a broad functional and enterprise perspective.

The Bachelor of Science program in Computer Science provides students with a solid foundation for a wide range of career fields and for entry into graduate degree programs. This intense and challenging program provides extensive preparation in data structures, algorithms, and mathematics leading to advanced courses in computer architecture, operating systems, software engineering, computer networking, information security, and information management. The graduates of this program have the in-depth knowledge of hard ware, software, and applications required to perform complex tradeoff analyses at the hardware and software level. The technical studies in this program, combined with thoughtful selection of electives in the humanities and social sciences, prepare the graduate to be a future leader in our progressive, information-based society.

Each student has an individually assigned faculty advisor from their very first day on campus. The faculty advisor assists in the development of an individualized academic program designed to meet the student’s career goals. The student and the faculty advisor work together keeping the student’s individualized program on track through the four years at Norwich. Committed to strong ties between the classroom, the computer labs, and the real world, this program focuses extensively on the application of classroom work to solving real world computer design and application problems.

B.S. in Computer Science - Curriculum Map

First Year

Fall	Credits	Spring	Credits
EN 101 Composition and Literature I	3	EN 102 Composition and Literature II	3
MA 107 Precalculus Mathematics	4	MA 121 Calculus I	4
IS 100 Foundations of CSIA	3	IS 131 Computer Programming	3
IS 130 Introduction to Computing	3	History Elective	3
		Humanities/Arts Elective	3
	13		**16**

Second Year

Fall	Credits	Spring	Credits
EN 203 Advanced Composition	3	IS 240 Database Management	3
MA 122 Calculus II	4	EE 325 Computer Architecture and Operating Systems	3
IS 228 Introduction to Data Structures	3	QM 213 Business and Economic Statistics I	3
EE 215 Fundamentals of Digital Design	4	Lab Science Elective 2	4
Lab Science Elective 1	4	Economics Elective	3
	18		**16**

Third Year

Fall	Credits	Spring	Credits
EE 321 Embedded Systems	4	IS 460 Data Communications and Networks	3
IS 301 Software Engineering I	3	MA 380 Theory of Computation	3
MA 306 Discrete Mathematics	3	IS Elective	3
Business Elective	3	Engineering Elective	3
Free Elective	3	Free Elective	3
	16		**15**

Fourth Year

Fall	Credits	Spring	Credits
CS Capstone/Research/Internship	3	CS Capstone/Research/Internship	3
Ethics Elective	3	EE 411 Microprocessor-Based Systems	4
Literature Elective	3	Mathematics Elective	3
IS Elective	3	IS Elective	3
Free Elective	3	Free Elective	3
	15		**16**

Total Credits: 125

Economics Elective: choose one of the following:		
EC 201	Principles of Economics (Macro)	3
EC 202	Principles of Economics (Micro)	3
Business Elective: choose one of the following:		
MG 101	Introduction to Business	3
MG 309	Management of Organizations	3
MG 310	Production/Operations Management	3
MG 341	Business Law I	3
Engineering Elective: choose one of the following:		
EG 109	Introduction to Engineering i	3
EG 203	Materials Science	3
EG 206	Thermodynamics I	3
EE 204	Electrical Circuits I	3
EE 314	Elements of Electrical Engineering	4
IS Elective:		
Any IS course numbered 301 or above		3
Mathematics Elective: choose one of the following:		
MA 223	Calculus III	4
MA 224	Differential Equations	4
MA 240	Introduction to Number Theory and Cryptology	3
MA 241	Mathematical Computation and Modeling	3
MA 309	Algebraic Structures	3
MA 421	Number Theory	3
Ethics Elective: choose one of the following:		
PH 303	Survey of Ethics	3
PH 322	Business Ethics	3

Computer Security and Information Assurance

Center of Academic Excellence

Since 2001, Norwich University has been designated a Center of Academic Excellence in Information Assurance Education by the National Security Agency of the United States of America. This designation is in recognition of Norwich's significant contribution in meeting the national demand for information assurance education, developing a growing number of professionals with information assurance expertise and ultimately contributing to the protection of the national information infrastructure. Norwich University has met the criteria for measuring the depth and maturity of established programs in the field of information assurance.

This degree requires a base of study in the Liberal Arts, Mathematics, the sciences, Information Systems, and Computer Programming fundamentals. It also provides flexibility for specialized study in such fields as computer forensics, information warfare, and advanced information security.

The Information Assurance program focuses on enabling our graduates to analyze requirements for and implement measures to protect information confidentiality, control, integrity, authenticity, availability and utility and to maintain their technical and managerial competence in the face of ever-changing requirements and technology. Our students will integrate knowledge from other disciplines within the school: economics, management, computer information systems and computer science, to enter into organizations with both a functional and enterprise perspective.

Graduates will be prepared to participate with computer security professionals in industry, government, military and academic environments. They will have developed a thorough commitment to a multidisciplinary perspective, fully aware at all times that technology must be integrated with human factors for success in defending information resources. They will be ready for the next phase of their continuing and perpetual education in a constantly changing field.

The academic goal for a graduate is to address the evolving nature of the social fabric of this country as it becomes more technologically driven. The program will pay special attention to individual privacy rights and how privacy rights are affected by the increasingly interconnected banks of information about individuals. As global business continues to develop, graduates will be provided with differing perspectives on information security and with a set of ethical decision-making principles for deciding how best to implement computer security in various environments.

During the spring semester of their sophomore year, CSIA majors will be required to select a concentration. CSIA majors will have the option to choose from one of three concentrations:

1. Forensics;
2. Information Warfare;
3. or Advanced Information Security.

Graduates will have entry-level ability to participate in information systems security assurance planning, procedures and practices. At a minimum, graduates will be expected to meet the standards as established by the National Security Telecommunications and Information Systems Security Committee (NSTISSC) for Information Systems Security Professionals.

B.S. in Computer Security and Information Assurance - Curriculum Map

First Year

Fall	Credits	Spring	Credits
EN 101 Composition and Literature I	3	Arts & Humanities Elective	3
IS 100 Foundations of CSIA	3	EN 102 Composition and Literature II	3
IS 130 Introduction to Computing	3	History Elective	3
MA 107 Precalculus Mathematics	4	IS 131 Computer Programming	3
		Lab Science Elective 1	4
	13		**16**

Second Year

Fall	Credits	Spring	Credits
CJ 341 Cyber Law and Cyber Crime	3	IS 240 Database Management	3
IS 228 Introduction to Data Structures	3	IS 260 Data Communications and Network	3
MA 240 Introduction to Number Theory and Cryptology	3	MA 318 Cryptology	3
MG 341 Business Law I	3	MG 346 Business Law II	3
PY 211 Introduction to Psychology	3	QM 213 Business and Economic Statistics I	3
	15		**15**

Third Year

Fall	Credits	Spring	Credits
EN 112 Public Speaking	3	EN 204 Professional and Technical Writing	3
IS 301 Software Engineering I	3	IS 302 Software Engineering II	3
IS 340 Information Systems Security Assurance I	3	IS 342 Management of Information Assurance	3
MG 309 Management of Organizations	3	MG 351 Organizational Behavior	3
Concentration Elective	3	Concentration Elective	3
	15		**15**

Fourth Year

Fall	Credits	Spring	Credits
Free Elective	3	EC 201 Principles of Economics (Macro)	3
IS 455 Comtemporary Issues in Computer Science	3	IS456	3
Lab Science Elective 2	4	Literature Elective	3
Concentration Elective	3	Concentration Elective	3
Concentration Elective	3	Concentration Elective	3
	16		**15**

Total Credits: 120

CSIA Concentrations

Forensics

CJ 442	Introduction to Computer Forensics	4
IS 311	Network Forensics	3
IS312		3
IS 411	Cyber Investigation	3
Elective		3
Elective		3
Total Credits		19

Information Warfare

IS 370	Intro to Information Warfare	3
IS 380	Offensive Information Operations	3
IS 407	Politics of Cyberspace	3
Elective		3
Elective		3

Advanced INFOSEC

CJ 442	Introduction to Computer Forensics	4
CP 431	Network Security	3
EE 325	Computer Architecture and Operating Systems	3
IS 440	Software Engineering III	3
Elective		3
Elective		3

Engineering Management

Construction Concentration

In any given construction project the disciplines of architecture, engineering and management converge. Recognizing this fact is a student's first step towards becoming a real-world leader in the fields of project and construction management. The second step is taken by enrolling in Norwich University's Engineering Management degree program, where students learn the foundational skills necessary to take projects from the conceptual stage straight through to the grand opening ceremony.

Construction Management students are taught to assess, strategize and execute projects from an interdisciplinary approach in which facets of architecture, engineering and management are taken into account. Along with business, engineering and architecture courses, students are required to take Engineering Management courses specifically designed to prepare students for situations they may encounter while on the job site and in the office. Additionally, core studies include courses in the humanities, social sciences, mathematics and sciences. Upon completion of the program, students are awarded the Bachelor of Science in Engineering Management, and are qualified to sit for professional exams such as the Associate Constructor (AC), Construction Manager in Training (CMIT) and/or the Certified Associate in Project Management (CAPM). Students will have a foundational understanding of:

- building materials
- electrical, plumbing, heating, ventilating and air conditioning systems
- economics
- accounting
- law
- information technology
- supply chain integration

- stakeholder management
- emerging structures and issues
- risk management
- time and cost estimation
- materials management
- global sourcing

B.S. Engineering Management - Curriculum Map (Construction Concentration)

First Year

Fall	Credits	Spring	Credits
EG 109 Introduction to Engineering i	3	EM 101 Intro Construction Project Mgt	3
EN 101 Composition and Literature I	3	EC 202 Principles of Economics (Micro)	3
AP 111 Fundamentals of Architecture	4	EN 102 Composition and Literature II	3
MA 107 Precalculus Mathematics (or higher)	4	HI XXX History Elective	3
		MA 108 Applied Calculus or 121 Calculus I	4
	14		**16**

Second Year

Fall	Credits	Spring	Credits
AP 225 Introduction to Passive Environmental Systems	3	AP 325 Materials, Construction, and Design	3
CE 211 Surveying	3	CE 214 Site Development and Engineering	4
CE 464 Specifications and Estimating	1	EC 201 Principles of Economics (Macro)	3
CH 103 General Chemistry I	4	EM 302 Supply Chain Management	3
QM 213 Business and Economic Statistics I	3	PS 201 General Physics I	4
MG 341 Business Law I	3		
	17		**17**

Third Year

Fall	Credits	Spring	Credits
AP 327 Active Building Systems I	3	AP 328 Active Building Systems II	3
CE 351 Statics and Mechanics of Materials	4	EN 204 Professional and Technical Writing	3
CE 460 Construction Management	3	MG 351 Organizational Behavior	3
AC 201 Introduction to Accounting and Financial World	3	CE 457 Wood, Steel, and Concrete Structures	4
MG 310 Production/Operations Management	3	EM 320 Construction Productivity	3
	16		**16**

Fourth Year

Fall	Credits	Spring	Credits
CE 458 Structural Issues for Construction	3	Humanities Elective	3
EG 450 Professional Issues	3	CE 499 Applied Soils and Foundations	4
EM 401 Pre-Construction Mgt	3	EM 402 Construction Management Practices	3
MG 314 Marketing Management	3	IS 300 Management Information Systems	3
FN 311 Corporate Finance	3	Literature Elective	3
CE 321 Materials Laboratory	1		
	16		**16**

Total Credits: 128

Management

The Management program focuses on the management functions: planning, organization, leadership and control. Our students will integrate knowledge from other disciplines within the school (accounting, economics and computer information systems), to enter into organizations with both a functional and an enterprise perspective.

The Management program is directed toward instilling in each student the ability to identify opportunities, define objectives, organize information, utilize scarce resources, and evaluate results. The breadth of required courses and the opportunity to pursue a number of elective courses in such fields as organizational behavior, information systems, marketing, economics, human resources, and finance enables the student to match his or her interests with degree requirements.

This relatively flexible program is particularly suited to preparing students for leadership and management positions in for-profit and not-for-profit businesses, governmental organizations, and military organizations. It can be tailored to provide an excellent educational base for budding entrepreneurs planning to start their own businesses, for students who will take on managerial responsibilities in a family, for those aspiring to succeed in the corporate world, for young men and women seeking the combination of leadership and management skills necessary for a successful military career, as well as preparation for the management challenges inherent in the international arena and in the growing services industry.

This degree requires a base of study in the Liberal Arts, Mathematics, the Sciences, Information Systems, and Economics, and also provides flexibility for specialized study in such fields as Computer Information Systems, Leadership, Financial Economics, Marketing, and Sports Management.

Norwich management students benefit from a unique leadership laboratory and are offered the opportunity for summer internships in a wide variety of organizations.

During the spring semester of their sophomore year, management majors will be required to select a concentration. Management majors will have the option to choose from one of four concentrations: Computer Information Systems, Financial Economics, Leadership, Marketing, or Sports Management.

B.S. in Management - Curriculum Map

First Year

Fall	Credits	Spring	Credits
EN 101 Composition and Literature I	3	EN 102 Composition and Literature II	3
IS 120 Business Applications & Problem Solving Techniques	3	EC 106 The Structure and Operation of the World Economy[1]	3
MG 101 Introduction to Business[1]	3	Lab Science Elective 1	4
MA 107 Precalculus Mathematics[2]	4	MA 108 Applied Calculus	4
		History Elective	3
	13		**17**

Second Year

Fall	Credits	Spring	Credits
AC 205 Principles of Accounting-Financial[3]	4	AC 206 Principles of Accounting-Managerial[3]	4
EC 202 Principles of Economics (Micro)[3]	3	EC 201 Principles of Economics (Macro)[3]	3
MA 212 Finite Mathematics	3	EN 204 Professional and Technical Writing	3
EN 112 Public Speaking	3	MG 309 Management of Organizations	3
Lab Science Elective 2	4	QM 213 Business and Economic Statistics I	3
	17		**16**

Third Year

Fall	Credits	Spring	Credits
MG 310 Production/Operations Management	3	EC 310 Money and Banking	3
MG 314 Marketing Management	3	Concentration Elective	3
FN 311 Corporate Finance	3	Concentration Elective	3
PH 322 Business Ethics	3	Literature Elective	3
IS 300 Management Information Systems	3	Humanities Elective	3
	15		**15**

Fourth Year

Fall	Credits	Spring	Credits
MG 341 Business Law I	3	MG 449 Administrative Policy and Strategy	3
Concentration Elective	3	Concentration Elective	3
Concentration Elective	3	Concentration Elective	3
Elective	3	Elective	3
MG 319 International Dimensions of Business	3	Elective	3
	15		**15**

Total Credits: 123

1 Must be taken first year. Upper level students without credit for these courses will substitute division electives. This must be done via a petition.

2 If MA 103 is required by Placement Test results, a grade of "C" or better is required in MA 103 prior to taking MA 107.

3 AC 205, AC 206, EC 201, EC 202 require a grade of "C" or better.

Management majors must choose a concentration.

Upper-level National Service courses are included in Management Electives and Leadership Concentration Electives.

Computer Information Systems (CIS) Concentration

The concentration in Computer Information Systems (CIS) is designed to equip any major with the necessary skills to understand the complexity of today's corporate computing environment. Within the concentration, students will be able to understand the complexities of a computer programming language as well as the many issues surrounding computer security, information assurance, software engineering, and networked systems. The requirements for the concentration include one year of programming classes, a course in the management of information assurance, and one offering of software engineering. This broad look at information systems equips all students in the concentration with skills essential to understanding key concepts in computing environments. The goal of this concentration is to arm students with a rich appreciation and knowledge of the information systems world. It is also the aim of this concentration to augment the any major course of study, thus augmenting their major course of study with a solid mastery of computer system concepts, issues, and skills.

After completion of the concentration, students are able to:

- Understand programming language syntax and logic in order to create software solutions to business problems.

- Understand information assurance and computer security concepts and strategies that are necessary in securing data and networks in today's security-conscious world.
- Understand information systems in the context of their type of business or industry.

CIS Courses

IS 130	Introduction to Computing	3
IS 131	Computer Programming	3
IS 301	Software Engineering I	3
IS 342	Management of Information Assurance	3
Elective		3
Elective		3
Total Credits		18

Financial Economics Concentration

The offering of Bachelor of Science in Management with a concentration in Financial Economics at Norwich has stemmed from managers' increasing awareness that applied economic analysis can provide assistance in planning, decision making, and problem solving. The business cycle, globalization, fiscal, monetary and trade policies of government can have a major impact on the functioning of any organization. Financial economists are able to analyze these developments in terms of their probable impact on demand for commodities, prices, costs of production, competitive pressures, financial conditions and other important matters.

Economic analysis also influences decisions in diverse areas such as health-care services, the use of natural resources and other social and environmental issues. In fact, there may not be a policy decision that cannot be analyzed by using economic methodology. Students in this concentration should expect employment as analysts and managers in legal and financial services as well as government organizations.

Financial Economics Courses

FN 407	Corporate Finance II	3
FN 412	Investments	3
EC 419	International Economics	3
QM 370	Quantitative Methods for Marketing & Finance	3
Elective		3
Elective		3
Total Credits		18

Leadership Concentration

The Bachelor of Science in Management with a concentration in Leadership is a program that enacts the Guiding Values of Norwich University. "We are dedicated to learning, emphasizing teamwork, leadership, creativity, and critical thinking." The program, while centered in the Division of Business and Management, draws from humanities and psychology to produce graduates who meet societies pressing need for leaders. Graduates will understand not only the role of the leader but, also just as important, the role of those who are led. In today's increasingly complex world one can neither go it alone nor lead by fiat. Successful managers must understand the complex requirements of people and organizations. Regardless of whether the student is planning to enter the civilian or the military world, the concentration in leadership will give the students the tools to succeed.

Leadership courses

PY 210	Psychology of Leadership	3
MG 351	Organizational Behavior	3
MG 408	Human Resources Management	3
MG 409	Organizational Leadership	3
Leadership Elective		3
Leadership Elective		3
Total Credits		18

Marketing

The Norwich University's Division of Business and Management 15-credit concentration in Marketing prepares students for careers in the dynamic and exciting fields of brand management, advertising, marketing research, and new product development. Five critical courses make up the concentration:

Advanced Marketing Strategy, Consumer Behavior, Integrated Marketing Communications, Applied Marketing Research, and Advanced Quantitative Analysis for Business Decisions.

Students successfully completing this degree will be qualified to develop strategic marketing plans, articulate the financial and market impacts associated with implementing the plan, and apply statistical decision theory and market research data to support the plan.

Students will use marketing simulation, case studies, and real-world projects to create a challenging experiential learning environment using contemporary marketing concepts from the top marketing thought-leaders of today.

Marketing courses

MG 411	Consumer Behavior	3
MG 441	Integrated Marketing Communications	3
MG 416	Advanced Marketing	3
QM 370	Quantitative Methods for Marketing & Finance	3
Elective		3
Elective		3
Total Credits		18

Sports Management Concentration

This concentration is designed to add depth and breadth to the Management major offering students an opportunity to develop the knowledge, skill, and disposition needed to work as managers in several sport or recreation positions such as Athletic, Recreation, or Camp Directors; or directors of Sports Facilities or commercial and/or workplace Wellness Programs. Students will take additional coursework in sport leadership, business management, and sport facilities management.

Sports Management courses

MG 441S	Integrated Marketing Communications	3
MG 305	Intro to Sports Management	3
PE 107	Foundations of Physical Education	3
PE 333	Management Sports Facilities	3
PE 432	Organization and Administration in Physical Education	3
PE 426	Internship	6,12

Electives

Choose two from the following list:

AC		
MG		
IS		
EC		
FN		
QM		
CP		
MA 240	Introduction to Number Theory and Cryptology	3
MA 318	Cryptology	3
MA 370	Introduction to Operations Research	3
CJ 341	Cyber Law and Cyber Crime	3
CJ 442	Introduction to Computer Forensics	4
PY 210	Psychology of Leadership	3
AS 311	Air Force Leadership Studies	3
AS 312	AF Leadership & Management	3
AS 411	National Security Affairs/Preparation for Active Duty	3
AS 412	National Security Affairs/Preparation for Active Duty	3
NS 321	Naval Ship Systems I	3

NS 342	Small Unit Leadership Skills	2
NS 421	Naval Operations and Seamanship	3
NS 422	Leadership and Ethics	3
MS 311	Military Science III	3
MS 312	Military Science III	3
MS 411	Military Science IV	3
MS 412	Military Science IV	3
Modern Foreign Languages		

Leadership Electives

For the leadership concentration specifically, leadership electives are no more than two of the following:

EN 244	The Literature of Leadership	3
PH 303	Survey of Ethics	3
PH 305	Foundations of Western Thought II: The Middle Ages	3
PH 324	Criminal Justice Ethics	3
PH 350	Medical Ethics	3
AS 311	Air Force Leadership Studies	3
AS 312	AF Leadership & Management	3
AS 411	National Security Affairs/Preparation for Active Duty	3
AS 412	National Security Affairs/Preparation for Active Duty	3
NS 321	Naval Ship Systems I	3
NS 342	Small Unit Leadership Skills	2
NS 421	Naval Operations and Seamanship	3
NS 422	Leadership and Ethics	3
MS 311	Military Science III	3
MS 312	Military Science III	3
MS 411	Military Science IV	3
MS 412	Military Science IV	3
CM 436	Communications Law and Ethics	3
PO 303	Political Philosophy	3
EG 450	Professional Issues	3

The David Crawford School of Engineering

Interim Director Gregory Wight

The David Crawford School of Engineering is comprised of the Departments of Civil and Environmental Engineering, Electrical and Computer Engineering, and Mechanical Engineering.

Mission

The Mission of the David Crawford School of Engineering is to:

- Prepare students to excel as engineers.
- Provide a broad, fundamental, and practical engineering education.
- Foster creativity and critical thinking in problem solving.
- Enable students to be leaders in their profession, community, nation, and the world.

Degrees Offered

Bachelor of Science in Civil Engineering, Electrical and Computer Engineering, and Mechanical Engineering. The Master of Civil Engineering program is offered through the On-line Graduate Programs and is described in a separate publication.

An undergraduate student, who has completed all degree requirements except for attaining a 2.00 average, must take at least 50 percent of all subsequent course work in technical material (subject to approval by the School Director).

Minor in Engineering Science

For a minor in Engineering Science a student must complete six engineering courses at the 200 level or above, each with a grade of “C” or better, in a program approved by the Engineering School Director.

Each student’s program must include an applied engineering experience (laboratory or practicum session). Prerequisites will be handled on an individual basis. Students who are engineering majors may not elect a minor in another engineering discipline.

Civil and Environmental Engineering

Professors T. Descoteaux, E. Schmeckpeper (Chair) and G. Wight; Associate Professor M. Kelley; Assistant Professors T. Kulkarni, A. Sevi and M. Tefe.

Mission

The Mission of the Civil and Environmental Engineering Program:

- Prepare students to excel in civil engineering and related fields.
- Make clear to students that above all else, the Civil Engineering profession is committed to bettering the world.
- Provide fundamental, laboratory-oriented (BSCE level only), hands-on education in the civil engineering field.
- Foster creativity, critical thinking, and problem solving abilities and motivate students to consider the environmental consequences of their work.
- Enable students to be leaders in their profession, community, nation, and the world.

Civil engineering, the oldest branch of the engineering profession, utilizes knowledge of mathematics and science, while applying judgment, to design economic means for improving the well- being of humanity: by providing designs for community living, industry, and transportation; and by designing structures for the use of humankind. One of the rare historical records of civil engineering within academia is contained in the first catalogue of this university, dated August 1821. Among the description of offerings to students in 1820 was . . . "Civil Engineering, including the construction of roads, canals, locks and bridges." This institution was thus the first private school in the United States where students were taught engineering as a separate branch of education. Two of its earliest alumni, Alfred W. Craven and Moncure Robinson, were prominent in the formation of the American Society of Civil Engineers in 1852.

During the first two years, students learn the fundamental mathematical and scientific principles essential for engineering analysis and design. Principles of the design process are introduced in the first engineering courses and continually emphasized and practiced in the subsequent engineering courses. The last two years of the curriculum are devoted to providing a sound grounding in five major civil engineering sub-disciplines: water resources, structural, environmental, geotechnical, and construction. The design experience is culminated in the senior year with a major design project. Because laboratory experience is deemed essential to learning, participatory laboratories reinforce principles learned in lectures and permit students to learn through inquiry. To this end, laboratory sections are kept small and require student participation. Use of the computer for both analysis and design is an integral part of the curriculum and the department maintains a computer laboratory for the exclusive use of civil engineering students. Software required for all courses and additional software for student inquiry is available.

The Norwich Civil Engineering graduate from this program is able to manage varying job demands and requirements and will be capable of adapting to rapidly changing technology. The graduate is also well prepared for further formal study in graduate school where a student can specialize in a civil engineering sub-discipline. The Civil Engineering curriculum is accredited by:

The Engineering Accreditation Commission of ABET
111 Market Place
Suite 1050
Baltimore, MD 21202-4012
Telephone: (410) 347-7700

The curriculum is also strengthened by activities of the Norwich student chapters of the American Society of Civil Engineers, Chi Epsilon, Tau Beta Pi, and the Society of American Military Engineers.

B.S. in Civil Engineering - Curriculum Map

First Year

Fall	Credits	Spring	Credits
EG 109 Introduction to Engineering i	3	EG 110 Introduction to Engineering II	3
CH 103 General Chemistry I	4	CH 104 General Chemistry II	4
EN 101 Composition and Literature I	3	EN 102 Composition and Literature II	3
MA 121 Calculus I	4	MA 122 Calculus II	4
		General Education Elective[1]	3
	14		**17**

Second Year

Fall	Credits	Spring	Credits
CE 211 Surveying	3	CE 214 Site Development and Engineering	4
EG 201 Engineering Mechanics (Statics, Dynamics)	3	EG 202 Engineering Mechanics (Statics,Dynamics)	3
MA 223 Calculus III	4	MA 224 Differential Equations	4
PS 211 University Physics I	4	PS 212 University Physics II	4
General Education Elective[1]	3	EG 206 Thermodynamics I	3
	17		**18**

Third Year

Fall	Credits	Spring	Credits
AC 201 Introduction to Accounting and Financial World	3	CE 322 Fluid Mechanics Laboratory	1
CE 321 Materials Laboratory	1	CE 328 Soil Mechanics	4
EE 314 Elements of Electrical Engineering	4	CE 332 Engineering Hydrology	3
General Education Elective[1]	3	CE 348 Structural Analysis	4
EG 301 Mechanics of Materials	3	EN 204 Professional and Technical Writing	3
EG 303 Fluid Mechanics	3		
	17		**15**

Fourth Year

Fall	Credits	Spring	Credits
CE 419 Foundation Engineering	3	CE 422 Water and Wastewater Treatment	3
CE 421 Sanitary Engineering	4	CE 444 Reinforced Concrete Design	3
CE 442 Design of Metal Structures	3	CE 480 Senior Design	3
CE 460 Construction Management	3	Science Elective	4
CE 475 Senior Project Planning	1	General Education Elective[1]	3
EG 450 Professional Issues	3		
EG 044 Prep for FE Exam	0		
CE 464 Specifications and Estimating	1		
	18		**16**

Total Credits: 132

[1] University general education requirement dictates that the Engineering Humanities-Social Science Electives be distributed as follows: one history course, one literature course, on course in psychology, sociology, economics or political science, and one arts or humanities course beyond the literature course.

ROTC is required 6 semesters for members of the Corps of Cadets.

All Civil Engineering majors are required to take the Fundamentals of Engineering (F.E.) exam, administered by the State of Vermont or other state, to receive the BSCE degree.

Science Electives

BI 101	Principles of Biology I	4
BI 102	Principles of Biology II	4
BI 220	Introductory Microbiology	4
BI 260	Orinthology	4
BI 275	Environmental Biology	4
BI 405	Ecology	4
ES 270	Fundamentals of Environmental Science	4
GL 110	Introduction to Geology	4
GL 111	Oceanography	4
GL 156	Historical Geology	4
GL 253	Geomorphology	4
GL 257	Sedimentation	4
GL 262	Structural Geology	4
GL 265	Glacial Geology	4
ID 110	Ecology and Geology of the Connecticut River Valley	4

Electrical and Computer Engineering

Professor R. Lessard; Associate Professor S. Fitzhugh (Chair) and J. Beneat; Assistant Professor M. Prairie, Lecturer D. Feinauer.

Mission

The Mission of the Electrical and Computer Engineering Department:

To prepare students for the profession of Electrical and Computer Engineering – to enable them to solve problems of substance through the application of fundamental principles, disciplined practices and modern methods – to instill the humility of contribution to ventures larger than themselves, and the courage to lead others in the pursuit of such ventures – to inspire an ethic of service to all mankind in the context of a global community – and finally, to instill a lifelong thirst for the knowledge of their craft.

The graduates of the Electrical and Computer Engineering programs will:

- Contribute to the engineering profession through the application of the requisite knowledge of engineering fundamentals, mathematics, science, and modern tools to conceive and implement solutions for problems in the electrical and computer engineering field.
- Effectively communicate the results of their work.
- Work professionally in team environments to design electrical/computer systems.
- Maintain a positive outlook on professional life, and recognize the need for professionals and citizens in an evolving global society to pursue a course of life-long learning and continued professional development.
- Demonstrate initiative and perform leadership roles in an ethical manner.
- Perceive the impact on society of their professional decisions.

Students in the Electrical and Computer Engineering programs will demonstrate an ability to:

- Apply knowledge of advanced mathematics, chemistry, physics, and engineering.
- Identify, formulate, and solve electrical engineering problems.
- Design and conduct experiments, as well as to analyze and interpret data.
- Apply the techniques, skills, and modern engineering test equipment and software applications necessary for engineering practice.
- Communicate effectively through written and verbal means.
- Contribute to multidisciplinary / multicultural teams.
- Recognize the need to engage in life-long learning.
- Demonstrate the leadership competencies of self-awareness, self-management, social-awareness, and relationship management.
- Demonstrate an understanding of professional and ethical responsibility.
- Design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.
- Appreciate the impact of engineering solutions in a global, economic, environmental, and societal context.
- Demonstrate knowledge of contemporary issues.

The Electrical and Computer Engineering curriculum is accredited by:

The Engineering Accreditation Commission of ABET
111 Market Place, Suite 1050
Baltimore, MD 21202-4012
Telephone: (410) 347-7700

The Electrical and Computer Engineering programs are designed to allow graduates the option of beginning a career in either the military or civilian life immediately upon graduation, or furthering their education in graduate school. Studies are designed to give the broad background necessary to apply electrical and computer engineering principles and methods to solve problems in an ever increasing range of applications. During the first two years, students receive intensive instruction in mathematics and basic physical sciences as well as fundamental principles and techniques of engineering. Students are introduced to the basic tools and problem solving techniques they will use throughout their career. The final two years are spent in a laboratory intensive environment. In the third year, students begin to apply their knowledge solving discipline-specific engineering problems. Project based courses begin to develop the ability to apply knowledge in open-ended problems. In the fourth year, more focused courses cover a broad spectrum of electrical and computer engineering topics. A completely open-ended design experience, where students can exercise creativity solving current engineering problems, spans the senior year. Designing, building, testing, and evaluating projects in such application areas as instrumentation and data acquisition, computer network control, SCADA systems security, robotics, wireless communication, and machinery controls is typical of this experience. Constraints such as economics, safety, reliability, aesthetics, ethics, and social impact are considered. This experience builds upon the fundamental concepts of mathematics, basic sciences, the humanities and social sciences, engineering topics, and communication skills developed

earlier in the undergraduate experience. The design team experience allows close coordination with an individual faculty member. The scope of the project is designed to match the requirements of practice within the electrical and computer engineering discipline.

B.S. in Electrical and Computer Engineering - Curriculum Map

First Year

Fall	Credits	Spring	Credits
EG 109 Introduction to Engineering i	3	EG 110 Introduction to Engineering II	3
CH 103 General Chemistry I	4	EE 200 Engineering Programming	3
EN 101 Composition and Literature I	3	EN 102 Composition and Literature II	3
MA 121 Calculus I	4	MA 122 Calculus II	4
		General Education Elective[1]	3
	14		**16**

Second Year

Fall	Credits	Spring	Credits
EE 215 Fundamentals of Digital Design	4	EE 356 Electrical Circuits II	3
EE 204 Electrical Circuits I	3	EG 206 Thermodynamics I	3
MA 223 Calculus III	4	MA 224 Differential Equations	4
PS 211 University Physics I	4	PS 212 University Physics II	4
General Education Elective[1]	3		
	18		**14**

Third Year

Fall	Credits	Spring	Credits
EE 321 Embedded Systems	4	EE 325 Computer Architecture and Operating Systems	3
EE 350 Linear Systems	3	EE 303 Electromagnetic Field Theory I	3
EE 357 Electronics I	3	EE 366 Electronics II	4
MA 306 Discrete Mathematics	3	EE 373 Electrical Energy Conversion	4
EE 359 Electrical Engineering Laboratory	1	EN 204 Professional and Technical Writing	3
General Education Elective[1]	3		
	17		**17**

Fourth Year

Fall	Credits	Spring	Credits
EE 491 Electrical System Design I	3	EE 494 Electrical System Design II	3
EE 478 Control Systems	3	EE 411 Microprocessor-Based Systems	4
MA 311 Statistical Methodology	3	EE 486 Digital Signal Processing	3
EE 463 Communication Systems	4	EE 487 Digital Signal Processing Lab	1
EG 450 Professional Issues	3	EE 459 Power Systems Analysis	3
		General Education Elective[1]	3
	16		**17**

Total Credits: 129

1 University general education requirement dictates that the Humanities-Social Science Electives be distributed as follows: one history course, one literature course, one course in psychology, sociology, economics or political science, and one arts or humanities course beyond the literature course.

ROTC is required 6 semesters for members of the Corps of Cadets.

Mechanical Engineering

Professors P. Tartaglia and D. Wallace; Associate Professor R. Friend and J. Mountain (Chair); Assistant Professor K. Supan.

Mission

The Mission of the Mechanical Engineering Department is to:

- Prepare students to excel in mechanical engineering and related fields.
- Provide modern, fundamental, practice-oriented education in the mechanical engineering field.
- Foster creativity and critical thinking in problem solving and motivate students to consider the societal consequences of their work.
- Enable students to be leaders in their profession, community, and the nation.

Graduates of the Mechanical Engineering program will:

- Have a strong foundation and ability to apply engineering fundamentals, modern tools, mathematics, science, and humanities to conceive, analyze and implement solutions to problems in the mechanical engineering field.
- Have a broad-based, laboratory-oriented, hands-on engineering education that will enable graduates to practice in a variety of mechanical engineering fields including energy conversion and transfer, materials and manufacturing, and mechanical systems design.
- Be able to work as professionals in industrial, military, government, and academic settings while maintaining a high awareness and responsibility regarding ethical, safety, environmental, social, economic, and global issues.
- Be able to work effectively as a team member and be able to lead a multidisciplinary team.
- Be able to design a component, system or process in the mechanical engineering field and communicate that design effectively through verbal and written means.
- Have a positive outlook on the engineering profession and maintain an ongoing intellectual curiosity while actively engaged in continuing education throughout life.

Mechanical engineering, the broadest of the engineering professions, provides an opportunity for a wide range and variety of services, work, and interests. The mechanical engineer deals with the conversion of energy, the design of machines, the instrumentation and control of processes, and the control of machines and the environment. Conventional fields of interest are transportation (automobiles, aircraft, urban and mass transit); machines and systems for electrical power production from coal, oil, and gas; heating and air conditioning of buildings; and the complex machinery and methods of making steel, plastics, paper products, etc. Today the mechanical engineer is directly involved in new and challenging fields such as computer-aided design and manufacturing (CAD/CAM); artificial body organs and devices (bioengineering); nuclear power generation; applications of electronics to

the control of machines and to laboratory instruments; aerospace (spacecraft and rockets); and the control of environmental pollution for automobiles and industry. The diversity of opportunities for the mechanical engineer and the extensive overlap of interests with the other engineering and scientific disciplines demand that the undergraduate education be broad rather than specialized and that it provide a thorough grounding in all of the engineering fundamentals. The curriculum is a carefully structured blend of theory and the practical aspects of engineering. Engineering applications are emphasized in the junior and senior years with three semesters of design. The diversity of the curriculum is also apparent in the senior projects courses where assignments range from the design, construction, and testing of a water quality measuring submarine to the investigation of robotics manufacturing techniques for the compact disc industry. Since three-fourths of the curriculum's technical content consists of a foundation of engineering theory, the graduate is uniquely prepared to attack the technical challenges of the future and solve the new engineering problems of society. The graduate is well prepared for direct employment in the engineering profession or for further formal education in graduate school.

The Mechanical Engineering curriculum is accredited by:

The Engineering Accreditation Commission of ABET
111 Market Place
Suite 1050
Baltimore, MD 21202-401
Telephone (410) 347-7700

B.S. in Mechanical Engineering - Curriculum Map

First Year

Fall	Credits	Spring	Credits
CH 103 General Chemistry I	4	CH 104 General Chemistry II	4
EG 109 Introduction to Engineering i	3	MA 122 Calculus II	4
EN 101 Composition and Literature I	3	EG 110 Introduction to Engineering II	3
MA 121 Calculus I	4	EN 102 Composition and Literature II	3
		General Education Elective[1]	3
	14		**17**

Second Year

Fall	Credits	Spring	Credits
EG 201 Engineering Mechanics (Statics, Dynamics)	3	EE 240 Electrical Concepts and Applications	3
EE 204 Electrical Circuits I	3	EG 206 Thermodynamics I	3
MA 223 Calculus III	4	MA 224 Differential Equations	4
PS 211 University Physics I	4	PS 212 University Physics II	4
ME 211 Mechanical Engineer Tools I	2	EG 202 Engineering Mechanics (Statics,Dynamics)	3
	16		**17**

Third Year

Fall	Credits	Spring	Credits
EG 203 Materials Science	3	ME 356 Manufacturing Processes	4
ME 311 Mechanical Engineering Tools II	2	EG 303 Fluid Mechanics	3
EG 301 Mechanics of Materials	3	ME 368 Design of Machine Elements	3
ME 307 Thermodynamics II	3	ME 370 Mechanical Systems Design	3
ME 363 Kinematic and Kinetic Sythesis	3	ME 382 Mechanical Engineering Laboratory II	1
ME 381 Mechanical Engineering Laborator I	2	General Education Elective[1]	3
	16		**17**

Fourth Year

Fall	Credits	Spring	Credits
EE 321 Embedded Systems	4	EG 043 Professional Issue	0
EG 044 Prep for FE Exam	0	Math/Science/Engineering Elective	3
ME Elective	3	ME 468 Mechanical Engineering Design II	3
ME 467 Mechanical Engineering Design I	3	General Education Elective[1]	3
ME 487 Mechanical Engineering Laboratory III	2	General Education Elective[1]	3
ME 435 Vibrations and Controls	3		
ME 465 Heat Transfer	3		
General Education Elective[1]	3		
	21		**12**

Total Credits: 130

[1] University general education requirement dictates that the Humanities-Social Science Electives be distributed as follows: one history course, one literature course, one course in psychology, sociology, economics or political science, and one arts or humanities course beyond the literature course.

ROTC is required 6 semesters for members of the Corps of Cadets.

All Mechanical Engineering majors are required to take the Fundamentals of Engineering (F.E.) Exam, administered by the State of Vermont or other state, to receive the BSME degree.

School of Nursing

Director: Dr. Sharon I. Richie

Associate Professor Crane; Assistant Professors Healy and Lapierre; Lecturers Kiernan, Marchewka Perrault, Pitcher and Woods.

Accreditation

The BSN Program is accredited by the Commission on Collegiate Nursing Education (CCNE) One Dupont Circle, NW, Suite 530, Washington, DC 20036, (202)-887-8476 and approved by the Vermont State Board of Nursing, Office of Professional Regulations, National Life Building, Floor 2, Montpelier, VT 05520-2482, (802) 828-2396.

Mission

The mission of Norwich University's Baccalaureate Nursing Program is to educate qualified nurses to serve individuals and communities throughout the life cycle in health promotion and disease management. Through educational excellence, this program challenges students to respond to the complex system of health care in order to ensure optimum quality and value inpatient care.

Philosophy

Nursing at Norwich University is grounded in core essentials of baccalaureate education and predicated on the profession's ideals to meet the needs of a complex, dynamic healthcare environment. Inherent in professional practice are the emerging trends in population health, patient care technology, and cultural diversity. The Faculty believes that through direct patient care and simulated clinical experience students will acquire the knowledge base to ensure optimum health outcomes for our patients, families and communities.

The Faculty further believes that teaching and learning evolves, through a seamless progression, in competency based nursing practice. Graduates become proficient in patient centered care with emphasis on quality improvement methods and patient safety. The responsibility of the professional nurse is complex, requiring expertise in leadership, communication and teamwork.

Program Objectives

1. Integrates knowledge derived from nursing science, health related sciences, and humanities when designing and providing patient-centered care.
2. Provides patient centered care in which the dignity, spirituality, and rights of the individual family and community are respected.
3. Promotes the profession's obligation to legal, ethical and moral standards.
4. Leads based on the values of commitment, collaboration, critical thinking and creativity.
5. Employs informatics to communicate, manage knowledge, mitigate error, and support decision-making.
6. Communicate effectively in a manner that fosters respectful and collaborative decision making, thus enhancing patient satisfaction and health outcomes.
7. Integrate political awareness, critical thinking, social justice and participation in the policy process with professional role behavior.
8. Use the best current evidence coupled with clinical reasoning to minimize risk and improve quality and safety of patient care.
9. Values the pursuit of practice excellence, lifelong learning, and professional engagement to foster professional growth and development.

Overview

The Nursing Department offers a four-year program leading to the Bachelor of Science in Nursing and eligibility to take the National Council Licensure Examination for Registered Nurses (NCLEX-RN). The first year of the BSN program is dedicated to courses in the Humanities, Sciences, Social Sciences and 2 foundation courses in Nursing. The clinical experience begins in the spring of the sophomore year and continues through the remainder of the program. By graduation students will have practiced in a variety of settings, including hospitals, community/home health agencies, schools and clinics. Well equipped, modern, simulation laboratories provide on-campus learning labs for skill acquisition and health assessment practice. Morning, evening, and weekend hours are utilized for the clinical experience. Students will take a pre-NCLEX exam in their senior year to determine readiness for NCLEX exams. Students are required to purchase student uniforms. Students are responsible for their own transportation to and from clinical agencies. Nursing majors must have current "American Heart Association Health Care Provider" certification in cardiopulmonary resuscitation (CPR) upon entering the sophomore year and through all subsequent nursing courses.

Admission standards

In addition to the university General Admission Requirements located elsewhere in this catalogue, nursing applicants must:

- Complete 4 years of HS math including Algebra, Geometry and Trig
- Complete 3 years of HS science including biology and Chemistry
- Transfer college level science courses current within 5 years
- On line science courses are not transferable
- College level GPA must be at a minimum of 3.0
- Transfer students from another nursing program must submit a letter of reference form the Chairperson/Dean of the transferring school prior to acceptance.

- Background screening is a requirement for admission and condition of both acceptance and progression in nursing
- Students must also submit to intermittent background screening as required by clinical agencies. A criminal record deemed to be of consequence or the habitual intemperate use or addiction to habit forming substances precludes enrollment in the Program.

Progression and Graduation

A minimum grade of “C+” is required in all nursing courses. “C” grades are required in BI 215, BI 216, BI 220, CH 111 and CH 112 to progress within the program. In order to progress, students must meet the criteria for academic progression as stated in the Norwich University 2012 Academic Regulations. Upon successful completion of the program, the graduate is awarded the Bachelor of Science Nursing degree.

Each state’s Board of Nursing has the sole authority to grant graduates the privilege of taking the NCLEX-RN examination; therefore, students are directed to refer to the state in which they plan to practice for specific legal requirements. An applicant may be required to submit additional documentation and could be denied the privilege of sitting for the NCLEX-RN examination subject to the particular state’s regulation.

B.S. in Nursing - Curriculum Map

First Year

Fall	Credits	Spring	Credits
EN 101 Composition and Literature I	3	EN 102 Composition and Literature II	3
BI 215 Human Anatomy and Physiology	4	CH 111 Chemistry and the Chemical World	4
PY 211 Introduction to Psychology	3	BI 216 Human Anatomy and Physiology	4
HI Elective	3	MA 232 Elementary Statistics	3
NR 104 Focus on Nursing	3	NR 105 Promoting Healthy Individuals	3
	16		**17**

Second Year

Fall	Credits	Spring	Credits
CH 112 Living Chemistry	4	BI 220 Introductory Microbiology	4
MA 235 Clinical Mathematical Methods	3	NR 215 Client, Psy/Mental Health Prob	3
NR 206 Health Assessment	3	NR 215L Client, Psy/Mental Health Prob[1]	2
NR 204 Nursing Informatics	1	NR 225 Evidenced - Based Practice	3
PY 220 Developmental Psychology	3	NR 219 Simulations Clinical Practice	2
SO 216 Soc of Health, Wellness & Med	3		
	17		**14**

Third Year

Fall	Credits	Spring	Credits
NR320	4	NR 351 Family Centered Nursing	1
NR 316 Care of the Adult 1	3	NR 321 Nursing Leadership	3
NR 316L Care of the Adult 1[1]	3	NR 331 Care of Women&Chldbearing Fmly	3
PH 350 Medical Ethics	3	NR 331L Care of Wmn-Childbrng Fam Prac[1]	1
SO 300 Topics in Criminal Sociology	3	NR 341 Care of Children&Child Rearing	3
NR 314 Tech Innovations Clinical Nsr	1	NR 341L Care of Children&Child Rearing[1]	2
		Literature Elective[2]	3
	17		**16**

Fourth Year

Fall	Credits	Spring	Credits
NR 416 Care of the Adult II	4	NR 421 Coordinator of Care	3
NR 416L Care of Adult II[1]	4	NR 421L Coordinator of Care Practicum[1]	4
NR 420 Care at End of Life	2	NR 431 Promoting Health in Communities	3
MG 360 Health Economics & Policy	3	NR 431L Promoting Health in Communities: Clinical Practicum[1]	2
Humanities/Arts Elective[3]	3	NR 441 Nursing Capstone	4
	16		**16**

Total Credits: 129

To progress in the Nursing Program:

A grade of "C+" or better is required in all Nursing courses.

A grade of “C” or better is required in all science and the management course.

A grade of S is required in all nursing practicum courses

Nursing and Science courses must be taken in the order presented in the curriculum map. Deviation requires departmental permission.

1 These courses link theory and clinical and require a grade of C+ or higher and also a grade of Satisfactory in clinical to progress in the program.

2 Literature elective: The following courses qualify as Literature Electives: EN 201, EN 202, EN 205, EN 206, EN 210, EN 220, EN 225, EN 226, EN 227, EN 228, EN 244, EN 250, EN 251, EN 270, EN 333, EN 334, EN 372, EN 375, EN 376, EN 377, EN 391, EN 393, EN 394, EN 395, EN 396, EN 397, EN 398, EN 399, EN 406, EN 420, EN 450; FR 321, FR 322, FR 327, FR 328, FR 415, FR 421; GR 322, GR 324, GR 326, GR 415, GR 421; SP 321, SP 322, SP 327, SP 328, SP 415, SP 421.

3 Humanities Electives: CM 109, CM 261, CM 335, CM 436, all Fine Arts (FA), all EN above EN 206 (except EN 240, EN 241, EN 242), all Chinese, all Modern Languages above 112, MU 101, all Philosophy.

College of Science and Mathematics

Dean and Professor of Chemistry Michael McGinnis

The College of Science and Mathematics is comprised of the Departments of Biology and Physical Education; Chemistry and Biochemistry; Geology and Environmental Science; Mathematics; Physics; and Sports Medicine. Each department has its own chair.

Mission

The mission of the College of Science and Mathematics is to provide high quality academic degree programs in mathematics and in the physical, biological and life sciences for our majors. We also provide support courses in these areas to meet the needs of the University. To this end we will provide the knowledge, experience and guidance in mathematics and the sciences in lecture, laboratory, and clinical settings that prepare our students to pursue advanced study, successful careers, and to become responsible citizens in a democratic society.

Teacher Licensure

Students seeking teacher licensure as secondary or elementary teachers should review the Teacher Education section under the offerings of the Psychology Department in the College of Liberal Arts and consult with the Director of Teacher Education during the first semester enrollment of the freshman year.

Athletic Training and Sports Medicine

Lecturer Neuharth (Chair); Associate Professor Hernandez; Lecturer Murdock; Lecturer and Clinical Coordinator Osterman.

The **Bachelor of Science in Athletic Training** uses a competency-based approach in both the classroom and clinical settings. Using a medical education model, athletic training students have experience in a variety of educational domains to prepare them to serve as allied health care providers for the physically active population. Certified Athletic Trainers have specialized education in the prevention, evaluation, diagnosis, and treatment of injuries and illness affecting physical active populations. Educational content is based on cognitive (knowledge), psychomotor (skills), and clinical proficiencies (professional, practice-oriented outcomes). The Athletic Training Education Program incorporates hands-on experience in various professional settings. An optional summer internship provides the opportunity for exciting field placements, including the Olympic training center, professional sports training camps, sports medicine clinics, or campus-based sports camps. The Athletic Training Education Program is accredited by the Commission on the Accreditation of Athletic Training Education (CAATE). Graduates are eligible to sit for the National Athletic Trainers Association Board of Certification examination. Students may also elect to continue their studies in graduate school (recent graduates have entered graduate programs in athletic training, physical therapy, exercise physiology, chiropractic medicine, and physician-assistant schools).

Entrance Requirements

All students must meet the University's General Admission Requirements located in the front of the catalogue. Students may decide to pursue the Athletic Training coursework track during the fall semester of their freshman year, but they must apply for entrance into the Athletic Training Education Program during the spring of their sophomore year. By that time they must have completed the following courses with a minimum grade of "C":

SM 136	Emergency Care, Injury/Illness	3
SM 138	Introduction to Sports Medicine	3
SM 220	Care and Prevention of Athletic Injuries	4
BI 215	Human Anatomy and Physiology	4
PE 161	Physical Fitness & Wellness Assessment	3

Students not meeting the minimum criteria will need to correct any deficiencies before they can be formally accepted in the Athletic Training Education Program.

Progression and Graduation

In order to progress in the Athletic Training Major, students must complete the following courses, each with a minimum grade of "C":

BI 216	Human Anatomy and Physiology	4
PE 260	Personal and Community Health	3
PE 365	Kinesiology	4
PE 371	Physiology of Exercise	4

All sports medicine (SM) courses

All athletic training (ST) courses

Students not meeting the minimum criteria will need to correct any deficiencies before continuing in the Athletic Training Education Program. Athletic Training students must adhere to Norwich University policies and procedures, including the policies and procedures of the Athletic Training Education Program and of clinical sites.

The **Health Science** concentration provides students with additional free electives to complete coursework necessary for graduate studies in physical therapy, exercise physiology, chiropractic medicine, health, fitness and wellness fields and physician-assistant programs.

B.S. in Athletic Training - Curriculum Map

First Year

Fall	Credits	Spring	Credits
PY 211 Introduction to Psychology	3	SM 220 Care and Prevention of Athletic Injuries	4
MA 232 Elementary Statistics	3	EN 102 Composition and Literature II	3
EN 101 Composition and Literature I	3	SM 129 Clinical Anatomy II	3
SM 138 Introduction to Sports Medicine	3	SM 136 Emergency Care, Injury/ Illness	3
SM 128 Clinical Anatomy I	3	SM 139 Health Science Research Methods	2
	15		**15**

Second Year

Fall	Credits	Spring	Credits
SM 212 Health Promotion	3	SM 232 Lower Extremity Injuries	3
MA 235 Clinical Mathematical Methods	3	SM 229 Clinical Physiology II	4
SM 228 Clinical Physiology I	4	SM 201 Clinical Education in Athletic Training II	2
SM 230 Fundamentals of Evidence-Based Practice	2	CH 111 Chemistry and the Chemical World	4
SM 231 Management of Spine and Pelvic Conditions	3	PE 260 Personal and Community Health	3
SM 200 Clinical Education in Athletic Training I	1		
	16		**16**

Third Year

Fall	Credits	Spring	Credits
SM 420 Therapeutic Modalities	4	PE 371 Physiology of Exercise	4
SM 233 Upper Extremity Injuries	3	SM 422 Therapeutic Exercise	4
SM 300 Clinical Education in Athletic Training III	4	BI 253 Foods and Nutrition	4
CH 112 Living Chemistry	4	SM 301 Clinical Education in Athletic Training IV	4
	15		**16**

Fourth Year

Fall	Credits	Spring	Credits
SM 439 Leadership & Management in Sports Medicine	3	SM 401 Clinical Education in Athletic Training VI	4
SM 400 Clinical Education in Athletic Training V	4	SM 451 Capstone Experience II	1
History Elective[1]	3	Humanities Elective[3]	3
Literature Elective[2]	3	Free Elective	3
Free Elective	3-4	SM 460 Emerging Practice Skills	3
SM 450 Capstone Expericence I	1		
	17-18		**14**

Total Credits: 124-125

1 History Elective = any History Department course (HI) except HI 209.

2 Literature Elective = must meet General Education literature requirement.

3 Humanities Elective = EN (above EN 206, excluding EN 240-EN 242); FA; SA; MU 101; CM 109, CM 261, CM 335, CM 436; Modern Language (above 112); or PH.

SM 426 Internship may be taken by qualified student in the summer between the junior and senior year in place of two or four free electives.

B.S. in Sports Medicine - Curriculum Map

Health Science Concentration

First Year

Fall	Credits	Spring	Credits
BI 101 Principles of Biology I	4	MA 232 Elementary Statistics	3
MA 107 Precalculus Mathematics	4	EN 102 Composition and Literature II	3
EN 101 Composition and Literature I	3	SM 138 Introduction to Sports Medicine	3
SM 136 Emergency Care, Injury/ Illness	3	PE 161 Physical Fitness & Wellness Assessment	3
		BI 215 Human Anatomy and Physiology	4
	14		**16**

Second Year

Fall	Credits	Spring	Credits
SM 220 Care and Prevention of Athletic Injuries	4	Literature Elective [1]	3
BI 216 Human Anatomy and Physiology	4	SM 210 Assessment of Injury and Illness	4
CH 103 General Chemistry I	4	SM 226 Clinical Education in Sports Medicine	2
PY 211 Introduction to Psychology	3	PE 260 Personal and Community Health	3
SM 227 Clinical Anatomy&Biomechanics	3	CH 104 General Chemistry II	4
		BI 102 Principles of Biology II	4
	18		**20**

Third Year

Fall	Credits	Spring	Credits
PE 365 Kinesiology	4	PE 371 Physiology of Exercise	4
SM 422 Therapeutic Exercise	4	SM 420 Therapeutic Modalities	4
CH 205 Survey of Organic Chemistry	4	BI 364 Pathophysiology in Sports Medicine (or BI Elective)	4
PS 201 General Physics I	4	Free Elective	3-4
		PS 202 General Physics II	4
	16		**19-20**

Fourth Year

Fall	Credits	Spring	Credits
CH 205 Survey of Organic Chemistry (or Free Elective)	3-4	BI 364 Pathophysiology in Sports Medicine (or BI Elective)	4
History Elective[2]	3	Humanities Elective[3]	3
Free Elective	3-4	Free Elective	3-4
Free Elective	3-4	Free Elective	3-4
SM 439 Leadership & Management in Sports Medicine	3	SM 440 Evidence-Based Sports Med	3
	15-18		**16-18**

Total Credits: 134-140

1 Literature Elective = must meet General Education literature requirement.

2 History Elective = any History Department course (HI) except HI 209.

3 Humanities Elective = EN (above EN 206, excluding EN 240-EN 242); FA; MU 101; CM 109, CM 261, CM 335, CM 436; CN; Modern Language (above 112); or PH.

SM 426 Internship may be taken by qualified students in the summer between the junior and senior year in place of two or four free electives.

Minor in Sports Medicine

A minor in sports medicine, designed to enhance student awareness in the sports injury and rehabilitation area without leading to certification, requires the following courses with a grade of "C" or higher:

SM 210	Assessment of Injury and Illness	4
PE 260	Personal and Community Health	3
SM 220	Care and Prevention of Athletic Injuries	4
BI 253	Foods and Nutrition	4
Plus two of the following courses:		6-8
PE 365	Kinesiology	4
PE 371	Physiology of Exercise	4
PE 373	Activities and Programs for the Disabled and Aging	3
SM 422	Therapeutic Exercise	4
SM 420	Therapeutic Modalities	4
PE 432	Organization and Administration in Physical Education	3
Total Credits		21-23

Completion of BI 215-BI 216 is necessary in order to satisify prerequisites for courses in the minor.

Biology and Physical Education

Professors Barnard and Howard; Associate Professor Page (Chair), Hinkle and Wuorinen; Assistant Professor Doczi; Lecturers Kunkel and Roberge.

Curricula

Biology and Physical Education curricula offer students the opportunity to study the structure and function of living systems, from the complexity of cellular components to whole organism dynamics to ecosystem design.

Bachelor of Science in Biology

The Bachelor of Science in Biology prepares students for admission into graduate, medical, optometry, dentistry, and veterinary medical schools, as well as for immediate employment in the areas of environmental science, biotechnology, and teaching. Recent graduates are engaged in all of these areas. A core curriculum of science, mathematics and English courses ensures development of appropriate analytical and communication skills. Rounding out the major, seven free biology electives and 10 totally free electives allow students to mold their programs to meet specific career goals and develop one or more minors and/or double majors. A special Pre-medical Committee oversees our Pre-medical/Pre-dental track and assists in the placement of our graduates. Anyone interested in teaching biology can build in an education minor, including student teaching, to meet all criteria necessary for licensure.

Bachelor of Science in Physical Education

The Bachelor of Science in Physical Education prepares students for immediate employment or graduate work in the areas of physical education, coaching, and/or working in health centers and recreation facilities. Future physical educators will develop knowledge, skills, disciplinary concepts and instructional strategies through reflection and practice. Partnerships have been established with Barre Town Elementary School for grades K-8 and Union 32 Jr-Sr High School for grades 7-12, so that students can be exposed to hands-on learning. Students become reflective practitioners by critically analyzing the actions of role models and the reactions of learners. Physical Education majors are provided with the opportunity to fulfill all instructional, assessment and organizational competencies for licensure in Vermont with an endorsement for teaching Physical Education for grades K-12. An additional licensure endorsement is available for Health Education as well. PRAXIS I and PRAXIS II examinations are required for all teacher licensure candidates. Vermont licensure is reciprocal in most other states, especially in the eastern United States. The physical education program includes the opportunity to a minor in biology as part of its science core.

Biology

Biology is the scientific discipline that investigates life in all of its forms. An appreciation of the complexity of structure and function requires the use of a variety of teaching tools, including the use of living and preserved organisms. Consequently, both living and preserved organisms will be ethically and humanely employed whenever appropriate to further student understanding and appreciation for life.

B. S. in Biology – Curriculum Map

First Year

Fall	Credits	Spring	Credits
BI 101 Principles of Biology I	4	BI 102 Principles of Biology II	4
CH 103 General Chemistry I	4	CH 104 General Chemistry II	4
MA 107 Precalculus Mathematics	4	MA 108 Applied Calculus	4
EN 101 Composition and Literature I	3	EN 102 Composition and Literature II	3
	15		**15**

Second Year

Fall	Credits	Spring	Credits
BI 202 Genetics	4	BI Elective	4
CH 225 Organic Chemistry I	4	CH 226 Organic Chemistry II	4
EN 201 World Literature I	3	EN 202 World Literature II	3
BI 203 Introduction to Scientific Method & Bioscientific Terminology	1	Free Elective	3
Free Elective	3		
	15		**14**

Third Year

Fall	Credits	Spring	Credits
BI Elective	4	BI Elective	4
PS 201 General Physics I	4	PS 202 General Physics II	4
History Elective[1]	3	Humanities Elective[2]	3
Free Elective	3	Ethics (BI 303, BI 323, BI 350)	3
Free Elective	3	Free Elective	3
	17		**17**

Fourth Year

Fall	Credits	Spring	Credits
BI Elective	4	BI Elective	4
BI Elective	4	BI Elective	4
BI 401 Senior Seminar	3	Social Science Elective[3]	3
Free Elective	3	Free Elective	3
	14		**14**

Total Credits: 121

1 History Elective = any History Department course (HI) except HI 209.

2 Humanities Elective = EN (above EN 206, excluding EN 240-EN 242); FA, MU 101; CM 109, CM 261, CM 335, CM 436; Modern Language (above 112); or PH.

3 Social Science Elective = any PY, SO, EC or PO course.

- Biology electives must include at least one course from the following areas: anatomy (A), physiology (P), systematics (S), and field biology (F). [A single course can satisfy only one requirement.]
- Every biology major must take at least one botany (B) and one zoology (Z) course.
- All biology courses to be used toward major degree requirements must be passed with a "C" or better.

Pre-medical/Pre-dental Track

The following courses are recommended as biology electives or free electives within the B.S. program for students interested in the Pre-medical/Pre-dental Track:

BI 201	Comparative Vertebrate Anatomy	4
BI 220	Introductory Microbiology	4
BI 301	Histology	4
or BI 302	Embryology	
BI 304	Physiology	4
BI 306	Cell Biology	4
BI 330	Immunology	4
BI 405	Ecology	4
CH 324	Biochemistry I	4
PY 211	Introduction to Psychology	3
PY 212	Abnormal Psychology	3

A Premedical Advisor is available within the department to help you in your decision making and guide you through the application process. Similar help is available for students wishing to pursue graduate studies in other areas of biology.

B.S. in Physical Education

Physical Education Teacher Education – Curriculum Map

First Year

Fall	Credits	Spring	Credits
EN 101 Composition and Literature I	3	EN 102 Composition and Literature II	3
Math Elective[1]	3	PY 220 Developmental Psychology or 324 Adolescent Psychology	3
BI 101 Principles of Biology I	4	PE 265 Lifelong Motor Development	3
PE 161 Physical Fitness & Wellness Assessment	3	BI/CH/GL/PS Elective	4
PY 211 Introduction to Psychology	3	PE 107 Foundations of Physical Education	3
	16		**16**

Second Year

Fall	Credits	Spring	Credits
PE 260 Personal and Community Health	3	BI 253 Foods and Nutrition	4
PE 304 Motor Development Activities I	4	PE 305 Motor Development Activities II	4
PE 341 Instructional Strategies for Physical Education in Elementary School	4	PE 342 Instructional Strategies for Physical Education in Middle-Secondary School	4
BI 215 Human Anatomy and Physiology	4	BI 216 Human Anatomy and Physiology	4
MA 232 Elementary Statistics	3		
	18		**16**

Third Year

Fall	Credits	Spring	Credits
PE 355 Coaching:Leadership in Sports	3	PE 371 Physiology of Exercise	4
PE 365 Kinesiology	4	PE 373 Activities and Programs for the Disabled and Aging	3
Literature Elective[2]	3	PE 432 Organization and Administration in Physical Education	3
PE 306 Outdoor Physical Education I	3	PE 307 Outdoor Physical Education II	3
History Elective[3]	3	Humanities Elective[4]	3
	16		**16**

Fourth Year

Fall	Credits	Spring	Credits
SM 136 Emergency Care, Injury/ Illness	3	ED 425 Student Teaching or PE 426 Internship[5]	6-12
PE 406 Readings in Physical Education	3	Free Elective	3-4
Biology Elective (BI 200+)	4		
Humanities Elective[4]	3		
Free Elective	3-6		
	16-19		**9-16**

Total Credits: 123-133

1 MA 005 and MA 103 do not count as requirements (free electives only), must use one free elective for an IS course.

2 Literature Elective = must meet General Education literature requirement.

3 History Elective = any History Department course (HI) except HI 209.

4 Humanities Elective = EN (above EN 206, excluding EN 240-EN 242); FA; MU 101; CM 109, CM 261, CM 335, CM 436; CN; Modern Language (above 112); or Philosophy (SO 214).

5 To be eligible for ED 425 PETE students must have a 3.0 GPA and have passed Praxis II.

Students seeking PETE should have passed Praxis I or SAT equivalent and GPA > 2.75 by the end of the second year.

- **All Physical Education courses must be passed with a grade of "C" or better.**
- BI 102 must be completed for the Biology minor.
- All sciences must be taken as lab sciences (4 credit courses).
- Either PE 365 or PE 371 can count for Biology minor.
- **Certification in First Aid & CPR is required for graduation.**
- ROTC coursework requires additional content each semester, senior year being optional.

Minor in Biology

All courses must be passed with a “C” or better.

BI 101	Principles of Biology I	4
BI 102	Principles of Biology II	4
4 additional BI 200+ courses (of three or four credits), three of which must be 4-credit laboratory courses [1]		12-16
Total Credits		20-24

[1] PE 365, PE 371, or CH 324 may be used as a substitute for one BI 200+ course toward the minor.

Minor in Neuroscience

[A concentration for Biology and Psychology majors.]

All courses must be passed with a “C” or better.

The minor is designed to give students the opportunity to explore this emerging field and prepare them for graduate programs and potential careers in the Neurosciences.

Required Courses:		15
BI 215	Human Anatomy and Physiology	4
BI 370	Introduction to Neuroscience	4
PY 230	Biopsychology	3
PY 344	Cognition	4
One additional biology course: [1]		4
BI 302	Embryology	4
or BI 304	Physiology	
One additional psychology course: [1]		3-4
PY 212	Abnormal Psychology	3
PY 220	Developmental Psychology	3
PY 263	Perception	3
PY 352	Learning and Memory	4
Total Credits		22-23

[1] Students may also choose the following two chemistry courses: CH 324, CH 325, in lieu of the additional biology/psychology courses, however this option requires these additional prerequisites: CH 103-CH 104, and either CH 205, CH 226 or concurrent enrollment in CH 226.

Minor in Physical Education: Coaching

Physical Education majors can declare a Concentration in Coaching.

The concentration or minor is designed to meet proposed national standards preparation in coaching for elementary through high school level. The primary goals are to teach coaching fundamentals, injury prevention, health awareness, motor skill development, adolescent behavior, and youth leadership skills. The following courses are required:

All courses must be passed with a grade of "C" or better.

PE 161	Physical Fitness & Wellness Assessment	3
PE 305	Motor Development Activities II	4
PE 355	Coaching:Leadership in Sports	3
PE 432	Organization and Administration in Physical Education	3
Two courses from the following list:		7-8
PE 304	Motor Development Activities I	4
PE 341	Instructional Strategies for Physical Education in Elementary School	4

PE 342	Instructional Strategies for Physical Education in Middle-Secondary School	4
PE 371	Physiology of Exercise	4
SM 220	Care and Prevention of Athletic Injuries	4
PY 324	Adolescent Psychology	3-4
Total Credits		20-21

Minor in Physical Education: Health

Physical Education majors can declare a Concentration in Health.

This concentration or minor is designed to add depth and breadth to a student's education in health and wellness, develop healthy lifelong patterns, and increase the marketability of graduates. Students must complete:

All courses must be passed with a grade of "C" or better.

PE 161	Physical Fitness & Wellness Assessment	3
PE 260	Personal and Community Health	3
BI 253	Foods and Nutrition	4
Select three of the following:		9-12
BI 220	Introductory Microbiology	4
BI 240	Environmental and Food Microbiology	4
BI 330	Immunology	4
BI 364	Pathophysiology in Sports Medicine	4
PE 261	Foundations in Health Education	4
PE 365	Kinesiology	4
PE 371	Physiology of Exercise	4
SM 220	Care and Prevention of Athletic Injuries	4
SO 320	Drugs and Society	3
PY 211	Introduction to Psychology	3
PY 220	Developmental Psychology	3
PY 324	Adolescent Psychology	3-4
Total Credits		19-22

Licensure in Health Education

Physical Education majors seeking **Licensure in Health Education** must take:

PE 161	Physical Fitness & Wellness Assessment	3
PE 260	Personal and Community Health	3
PE 261	Foundations in Health Education	4
BI 253	Foods and Nutrition	4
SO 320	Drugs and Society	3
Total Credits		17

All courses must be passed with a grade of "C" or better. At this time, health licensure can be achieved through the Vermont Department of Education upon licensure in Physical Education, 60 hours of practicum experience, and transcript review.

Chemistry and Biochemistry

Shinquin Programs of Chemistry and Biochemistry

Professors J. Byrne, Hoppe (Chair) and McGinnis; Associate Professors Rizzolo and N. Blank; Assistant Professors Guth and Frisbie; Lecturers Milius, Hoeltge, and Rutkowski.

The Bachelor of Science in Chemistry and the Bachelor of Science in Biochemistry offer thorough and hands on laboratory oriented curricula. Our graduates are highly desired by industry and government employers for their laboratory skills, as well as being well qualified for admission to graduate

and professional schools. The courses and labs required for these degrees assure that graduates are proficient in the fundamental principles of chemistry and prepared to apply these principles to specialized areas such as environmental, forensic, medicinal, and pharmaceutical chemistry.

Attainment of the Bachelor of Science in Chemistry requires at least 122 credits as does the Bachelor of Science in Biochemistry. Course work should conform to the following tables since many advanced chemistry courses have other courses as prerequisites. All courses listed in the tables are required, although the sequence varies somewhat for courses offered in alternate years. It is difficult for chemistry and biochemistry majors to schedule the required courses unless they follow the outline recommended here and pay special attention to the alternate year courses (designated with the symbol §).

The progress of all students majoring in chemistry and biochemistry will be evaluated by the department at the end of the first and second years. Students receiving an unsatisfactory evaluation will be requested to change majors.

In addition to offering a rigorous, quality curriculum in chemistry and biochemistry, the faculty is committed to providing quality instruction in our introductory courses. All of our 100 level courses are consistent with the General Education Goals of the university. These courses provide the student with an introduction to the scientific method, the correct and effective representation of data, and develop the students' critical thinking skills by allowing the analysis and interpretation of experimental data.

Chemistry courses taken for 3 credits, without a laboratory, will only satisfy free elective or chemistry minor requirements. Chemistry and biochemistry majors must enroll in the 4 credit option of each course required by their major.

B.S. in Chemistry - Curriculum Map

First Year

Fall	Credits	Spring	Credits
CH 103 General Chemistry I	4	CH 104 General Chemistry II	4
EN 101 Composition and Literature I	3	EN 102 Composition and Literature II	3
MA 121 Calculus I	4	MA 122 Calculus II	4
Elective	3	Intro. Computer Science[1]	3
	14		**14**

Second Year

Fall	Credits	Spring	Credits
CH 225 Organic Chemistry I or 327 Physical Chemistry I ***and*** 337 Physical Chemistry Laboratory I[§]	4	CH 226 Organic Chemistry II or 328 Physical Chemistry II ***and*** 338 Physical Chemistry Laboratory II[§]	4
PS 211 University Physics I	4	PS 212 University Physics II	4
EN 201 World Literature I[2]	3	EN 202 World Literature II[2]	3
HI Elective (except HI 209)	3	MA 224 Differential Equations	4
CH 214 Communication in Chemistry[§]	0-1	CH 204 Quantitative Analysis (or Elective)[§]	3-4
	14-15		**18-19**

Third Year

Fall	Credits	Spring	Credits
CH 225 Organic Chemistry I or 327 Physical Chemistry I ***and*** 337 Physical Chemistry Laboratory I[§]	4	CH 226 Organic Chemistry II or 328 Physical Chemistry II ***and*** 338 Physical Chemistry Laboratory II[§]	4
CH 438 Advanced Inorganic Chemistry (or SC/MA Elective)[3, §]	3	CH 204 Quantitative Analysis or 314 Instrumental Methods ***and*** 315 Analysis Laboratory[§]	4
PS 205 Basic Instrumentation in the Natural Sciences (or Elective)[§]	3-4	CH 324 Biochemistry I (or SC/MA Elective)[3, §]	3-4
Elective	3	Arts or Humanities Elective[4]	3
CH 214 Communication in Chemistry (or in 2nd year)[§]	0-1	Elective	3
	13-15		**17-18**

Fourth Year

Fall	Credits	Spring	Credits
CH 421 Chemical Synthesis and Examination I	3	CH 422 Chemical Synthesis and Examination II	3
CH 438 Advanced Inorganic Chemistry (or SC/MA Elective)[3, §]	3-4	CH 314 & CH 315 (or Elective)	3-4
PS 205 Basic Instrumentation in the Natural Sciences (or Elective)[§]	4	CH 324 Biochemistry I (or SC/MA Elective)[3, §]	4
CH 413 Chemistry Seminar	1	PH Elective in Ethics[6]	3
SS Elective[5]	3	Elective	3
	14-15		**16-17**

Total Credits: 120-127

1 MA 241 **OR** IS 121 **OR** EG 112 **OR** EG 110

2 EN 112 or EN 204 may be substituted for one semester of EN 201 - EN 202.

3 Recommended SC/MA courses: CH 439; MA 223 or MA 310; PS 232, PS 354

4 An Arts or Humanities course. Use the Arts and Humanities list for this requirement.

5 Social Science Elective; may enroll in any course in Sociology, Economics, Psychology or Political Science.

6 A Philosophy (PH) course in ethics. Use the General Education Ethics list for one of the ethics requirements.

§ This course is offered in alternate years. Both courses listed are required. For the years these courses are offered, see Course Descriptions.

B.S. in Biochemestry - Curriculum Map

First Year

Fall	Credits	Spring	Credits
CH 103 General Chemistry I	4	CH 104 General Chemistry II	4
EN 101 Composition and Literature I	3	EN 102 Composition and Literature II	3
MA 107 Precalculus Mathematics	4	MA 121 Calculus I	4
BI 101 Principles of Biology I	4	BI 102 Principles of Biology II	4
	15		**15**

Second Year

Fall	Credits	Spring	Credits
CH 225 Organic Chemistry I	4	CH 226 Organic Chemistry II	4
PS 201 General Physics I[1]	4	PS 202 General Physics II[1]	4
EN 201 World Literature I[2]	3	CH 324 Biochemistry I or 204 Quantitative Analysis[§]	4
BI 202 Genetics	4	MA 122 Calculus II	4
CH 214 Communication in Chemistry (or in 3rd year)[§]	0-1		
	15-16		**16**

Third Year

Fall	Credits	Spring	Credits
CH 327 Physical Chemistry I (or Elective)[§]	3-4	CH 328 Physical Chemistry II or 324 Biochemistry I[§]	3-4
CH 325 Biochemistry II (or Elective)[§]	3-4	CH 204 Quantitative Analysis or 314 Instrumental Methods ***and*** 315 Analysis Laboratory[§]	4
BI 306 Cell Biology (or HI Elective (except HI 209))[§]	3-4	EN 202 World Literature II[2]	3
SS Elective[3]	3	BI 304 Physiology (or Elective)[5, §]	3-4
PH Elective in Ehics[4]		Elective or in 4th year	0-3
CH 214 Communication in Chemistry (or in 2nd year)[§]	0-1		
	12-16		**13-18**

Fourth Year

Fall	Credits	Spring	Credits
CH 327 Physical Chemistry I (or Elective)[§]	3	CH 328 Physical Chemistry II (or Elective)[§]	3
CH 325 Biochemistry II (or Elective)[§]	3-4	CH 314 & CH 315 (or Elective)[§]	3-4
BI 306 Cell Biology (or HI Elective (except HI 209))[§]	4	BI 304 Physiology (or Elective)[§]	3-4
CH 413 Chemistry Seminar (or HI Elective (except HI 209))[§]	3-4	CH 422 Chemical Synthesis and Examination II	3
Arts or Humanities Elective[6]	3	Elective or in 3rd year	0-3
	16-18		**12-17**

Total Credits: 114-131

§ This course is offered in alternate years. Both courses listed are required. For the years these courses are offered, see Course Descriptions.

1 PS 211 - PS 212 may be substituted for PS 201 - PS 202.

2 EN 112 or EN 204 may be substituted for one semester of EN 201 - EN 202.

3 Social Science Elective; may enroll is any course in Sociology, Economics, Psychology or Political Science.

4 A Philosophy (PH) course in ethics. Use the General Education Ethics list for one of the ethics requirements.

5 Recommended Science courses as electives: CH 438.

6 An Arts or Humanities course. Use the Arts and Humanities list for this requirement.

Minor in Chemistry

For award of a **minor in chemistry** students must complete six chemistry courses (of three or more credits), four of which must be above the 100 level. The chemistry minor is not available to those majoring in biochemistry or chemistry.

Geology and Environmental Science

Charles A. Dana Professor Westerman; Professor Dunn (Chair); Assistant Professor Koteas; Lecturer Grigg; Research Associate Springston

Norwich University, in the middle of the Green Mountain State, is ideally situated for unhurried and unhampered studies of our natural environmental. Both the Bachelor of Science in Geology and the Bachelor of Science in Environmental Science degree programs are designed to take advantage of this location.

The Geology degree provides a broad background in the physical sciences with a strong focus on geology and its pivotal role in understanding our environment. In addition to the solid foundation in geology and supportive sciences, students often use their ten free electives to develop an additional concentration. Geology graduates are prepared for a variety of possible careers, such as to begin work in industry, consulting, state and federal surveys, or teaching, or to go on to graduate school.

The Bachelor of Science in Environmental Science is a highly interdisciplinary degree designed to provide an education for students with interests and career goals related to the environment. Environment Science majors start their curriculum with the development of a firm base in the sciences and mathematics in their first two semesters. Each student must develop an area of specialization by selecting a Concentration from one of the two Options defined below. Selection of an Option I Concentration leads to a heavier emphasis in science and engineering, whereas selection of an Option II Concentration results in a stronger emphasis in the social sciences, humanities and business.

Environmental Science students have access to the facilities and equipment of the Department of Geology and Environmental Science as well as of the primary departments of their Concentration. The ten selected Environmental Science Concentrations provide an education that is rigorous and makes graduates widely marketable within industry, graduate education, and the military.

All Geology courses and Environmental Science courses except ES 251/GL 251,GL 260 , ES 450/GL 450, and ES 451/GL 451 are designed to meet the General Education requirements by providing a basic level of literacy in current scientific knowledge and theories, and developing an appreciation of the natural world.

B. S. in Geology – Curriculum Map

First Year

Fall	Credits	Spring	Credits
GL 110 Introduction to Geology	4	GL 156 Historical Geology	4
EN 101 Composition and Literature I	3	EN 102 Composition and Literature II	3
MA 107 Precalculus Mathematics	4	MA 108 Applied Calculus	4
CH 103 General Chemistry I	4	CH 104 General Chemistry II	4
	15		**15**

Second Year

Fall	Credits	Spring	Credits
GL 2XX Elective[1]	3-4	GL 2XX Elective[1]	3-4
EN 201 World Literature I	3	EN 202 World Literature II	3
PS 201 General Physics I	4	PS 202 General Physics II	4
Social Science Elective[2]	3	Arts & Humanities Elective	3
Elective	3-4	Elective	3-4
GL 251 Sophomore Seminar in Geology	1		
	17-19		**16-18**

Third Year

Fall	Credits	Spring	Credits
GL 2XX Elective[1]	3-4	GL 2XX Elective[1]	3-4
Tech Elective[3]	3-4	Tech Elective[3]	3-4
History Elective[4]	3	Ethics Elective[5]	3
MA 232 Elementary Statistics	3	Elective	3-4
Elective	3-4	Elective	3-4
	15-18		**15-19**

Fourth Year

Fall	Credits	Spring	Credits
GL 2XX Elective[1]	3-4	GL 2XX Elective[1]	3-4
GL 450 Directed Study in Geology	4	GL 451 Geology Seminar	3
Tech Elective[3]	3-4	Tech Elective[3]	3-4
Elective	3-4	Elective	3-4
Elective	3-4	Elective	3-4
	16-20		**15-19**

Total Credits: 124-143

1 These six electives must include Sedimentation (GL 257), Structural Geology (GL 262), and Mineralogy (GL 263).

2 Sociology, Psychology, Political Science, or Economics.

3 Technical Electives for this degree include Science, Mathematics (above MA 103 College Algebra I), Engineering or Information Systems (above IS 120 Business Applications & Problem Solving Techniques) courses.

4 Except HI 209 Historical Methods.

5 PH 323 Environmental Ethics strongly recommended.

B. S. in Environmental Science – Curriculum Map

For Those Pursuing Option I

Students electing Environmental Biology, Environmental Chemistry Environmental Geology, Environmental Engineering or Climate Science as the Concentration will share a common curriculum as upperclassmen that draws heavily from the sciences. Graduates in this Option will have broad interdisciplinary training with a strong science background. Their strength will be in this breadth as well as in the specific focus in which they concentrate their studies.

First Year

Fall	Credits	Spring	Credits
EN 101 Composition and Literature I	3	EN 102 Composition and Literature II	3
MA 107 Precalculus Mathematics	4	MA 108 Applied Calculus[2]	4
BI 101 Principles of Biology I[1]	4	BI 102 Principles of Biology II[1]	4
GL 110 Introduction to Geology	4	GL 111 Oceanography	4
	15		**15**

Second Year

Fall	Credits	Spring	Credits
CH 103 General Chemistry I	4	CH 104 General Chemistry II	4
PH 323 Environmental Ethics (or Arts & Humanities Elective)	3	ES 130 Introduction to Environmental Law (or Literature Elective)	3
ES 251 Sophomores Seminar Environmental Science	1	MA 232 Elementary Statistics	3
Concentration Elective	3-4	Concentration Elective	3-4
ES 270 Fundamentals of Environmental Science (or Elective)[3]	3-4	Elective[3]	3-4
	14-16		**16-18**

Third Year

Fall	Credits	Spring	Credits
ES 270 Fundamentals of Environmental Science (or Elective)[3]	4	PS 202 General Physics II	4
PS 201 General Physics I	4	ES 130 Introduction to Environmental Law (or Literature Elective)	3
PH 323 Environmental Ethics (or Arts & Humanities Elective)	3	Concentration Elective	3-4
Concentration Elective	3-4	Elective[3]	3-4
EC 201 Principles of Economics (Macro) or 202 Principles of Economics (Micro)	3		
	17-18		**13-15**

Fourth Year

Fall	Credits	Spring	Credits
ES 450 Directed Study in Environmental Science	4	ES 451 Environmental Seminar	3
BI 405 Ecology	4	History Elective[4]	3
CE 433 Groundwater Hydrology	3	Concentration Elective	3-4
Concentration Elective	3-4	Elective[3]	3-4
	14-15		**12-14**

Total Credits: 116-126

1 EnvCH and EnvEG concentrations students take CH 103 and CH 104 as freshmen, and BI 101 and BI 102 in the second year.

2 Or equivalent, especially if needed as a prerequisite for Concentration courses.

3 Can be used out of sequence and to take more than one concentration elective concurrently.

4 Except HI 209 Historical Methods.

Available Concentrations – Option I

Environmental Biology

BI 275	Environmental Biology	4
BI 316	Plant Taxonomy	4
or BI 351	Dendrology and Silvics	
BI 326	Natural History of the Vertebrates	4
or BI 424	Woodland Ecology and Management	
BI 220	Introductory Microbiology	4
or BI 240	Environmental and Food Microbiology	
GL 261	Field Geology	4
CH elective: CH204 or above, 3-4 cr. options only		3-4
Total Credits		23-24

Environmental Geology

GL 253	Geomorphology	4
GL 257	Sedimentation	4
GL 261	Field Geology	4
GL 263	Mineralogy	4
GL 2XX Elective or EG 203 Materials Science		3-4
CH elective: CH204 or above, 3-4 cr. options only		3-4
Total Credits		22-24

Environmental Chemistry

CH 204	Quantitative Analysis	4
CH 205	Survey of Organic Chemistry	4
GL 263	Mineralogy	4
BI 240	Environmental and Food Microbiology	4
Two of the following:		4-7
GL 261	Field Geology	4
CH 314	Instrumental Methods	3-1
or CH 315	Analysis Laboratory	
EG 203	Materials Science	3
Total Credits		20-23

Environmental Engineering

EG 109	Introduction to Engineering i	3
CE 211	Surveying	3
EG 203	Materials Science	3
AP 221	Site Development and Design	3

GL 253	Geomorphology	4
One of the following:		3-4
GL 261	Field Geology	4
BI 275	Environmental Biology	4
MA 241	Mathematical Computation and Modeling	3
CH elective: CH 204 or above, 3-4 cr. options only		3-4
Total Credits		19-20

Climate Science

CH elective: (CH 204 Quant. Analysis recommended) (must be CH 204 or above, 3-4 cr. options only)		3-4
GL 265	Glacial Geology	4
GL 253	Geomorphology	4
PS 207	Meteorology and Climatology	4
MA 241	Mathematical Computation and Modeling	3
One of the following:		3
PO 215	International Relations	3
PO 305	Geopolitics (recommended)	3
PO 415	International Law	3
Total Credits		21-22

For those pursuing Option II

Students pursuing Concentrations in Environmental Policy and Management, Environmental Law and Protection, Environmental Writing, Green Design, or Education share a curriculum during their last three years that has a strong emphasis on social sciences, business, and humanities with less emphasis in the pure sciences. These students will be prepared to enter careers in which social responsibility toward the environment is emphasized.

First Year

Fall	Credits	Spring	Credits
EN 101 Composition and Literature I	3	EN 102 Composition and Literature II	3
MA 107 Precalculus Mathematics	4	MA 108 Applied Calculus	4
BI 101 Principles of Biology I	4	BI 102 Principles of Biology II	4
GL 110 Introduction to Geology	4	GL 111 Oceanography	4
	15		**15**

Second Year

Fall	Credits	Spring	Credits
PH 323 Environmental Ethics or EN 203 Advanced Composition	3	ES 130 Introduction to Environmental Law (or Literature Elective)	3
ES 251 Sophomores Seminar Environmental Science	1	PY 211 Introduction to Psychology	3
PO Elective 1[1]	3	PO Elective 2[1]	3
Concentration Elective	3-4	MA 232 Elementary Statistics	3
ES 270 Fundamentals of Environmental Science, EC 201 Principles of Economics (Macro), or EC 202 Principles of Economics (Micro)	3-4	Concentration Elective	3-4
	13-15		**15-16**

Third Year

Fall	Credits	Spring	Credits
CH XXX Chemistry Elective	4	GL 253 Geomorphology (or Elective)[2]	3-4
EC 201 Principles of Economics (Macro), 202 Principles of Economics (Micro), or ES 270 Fundamentals of Environmental Science	3-4	ES 130 Introduction to Environmental Law (or Literature Elective)	3
SO 201 Introduction to Sociology	3	Concentration Elective	3-4
EN 203 Advanced Composition or PH 323 Environmental Ethics	3	History Elective[3]	3
Concentration Elective	3-4	Elective[2]	3-4
	16-18		**15-18**

Fourth Year

Fall	Credits	Spring	Credits
ES 450 Directed Study in Environmental Science	4	ES 451 Environmental Seminar	3
BI 405 Ecology	4	GL 253 Geomorphology (or Elective)[2]	3-4
Concentration Elective	3-4	Concentration Elective	3-4
Arts & Humanities Elective	3-4	Elective[2]	3-4
		Elective[2]	3-4
	14-16		**15-19**

Total Credits: 118-132

1 Selected from PO 105 American Politics, PO 215 International Relations and PO 305 Geopolitics; Green Design concentration students take EG 109 Introduction to Engineering i and EG 110 Introduction to Engineering II.

2 Can be used out of sequence and to take more than on concentration elective concurrently.

3 Except HI 209 Historical Methods.

Available Concentrations – Option II

Environmental Policy and Management

MG 101	Introduction to Business	3
IS 120	Business Applications & Problem Solving Techniques	3
PO 314	The Legislative Process	3
PO 321	U.S. Constitutional Law	3
MG 309	Management of Organizations	3
MG 341	Business Law I	3
Total Credits		18

Environmental Law and Protection

CJ 101	Introduction to Criminal Justice	3
CJ 102	Substantive Criminal Law	3
CJ 402	Law and Society	3
Two of the following three:		6
PO 321	U.S. Constitutional Law	3
PO 314	The Legislative Process	3
PO 331	State and Local Politics	3
SO 202	Problems of Modern Society	3
Total Credits		18

Environmental Writing

EN Elective [1]		3
EN 251	Literature of the Sea	3
EN 306	Creative Writing	3
EN 320	Literature of the Third World	3
CM 109	Introduction to Mass Media	3
CM 209	Broadcast Writing	3
Total Credits		18

1 English elective approved by the Environmental Science Program.

Green Design

AP 111	Fundamentals of Architecture	4
AP 118	Fundamentals of Architecture II	4
AP 221	Site Development and Design	3
AP 225	Introduction to Passive Environmental Systems	3
AP 325	Materials, Construction, and Design	3
One of the following three:		3
FA 201	History/Theory of Architecture I	3
FA 202	History/Theory of Architecture II	3
FA 308	History/Theory of Artchitectural III	3
Total Credits		20

Education [1]

PY 220	Developmental Psychology	3
PY 315	Exceptional Child I	3
ED 234	Learning and Teaching Strategies	4
ED 351	Methods of Teaching Science to Elementary Students	3
ED 360	Language Arts and Teaching Reading in the Elementary School	4
MA 360	Teaching Mathematics at the Elementary - Middle School Level	3
Total Credits		20

1 For Education concentration students seeking licensure, ED 232 substitutes for MA 232 Elementary Statistics, electives must be used to take PY 352 Learning and Memory and ED 425 Student Teaching, and the 1 credit courses ED 101 Foundations of Education I, ED 102 Foundations of Education II, ED 201 Foundations of Education III and ED 202 Foundations of Education IV must be taken as an overload.

Minor in Geology

For a minor in Geology, the student must complete six geology courses with at least four at the 200-level or higher.

Mathematics

Professors Frey, LaVarnway, Poodiak (Chair) and True; Associate Professors McQuillan, Olsen, Olson and Timoszyk; Assistant Professors Kramer, Latulippe, C and Latulippe, J; Lecturers Herman, Ku and Mathai.

The Mathematics Department offers a four-year program leading to the Bachelor of Science degree in Mathematics. The courses offered are intended to:

1. prepare mathematics majors for graduate work in mathematics or careers in computer science, engineering, industry, business, actuary science, or teaching;
2. support the curricula in all disciplines, and
3. supply the students with the mathematics courses necessary to qualify for teacher licensure.

Courses required of the mathematics major are listed in the following pages. Mathematics majors must obtain grades of “C” or better in at least three of the four courses MA 121, MA 122, MA 223, MA 224 and in at least six math courses at the 300-400 level, other than MA 360. Courses listed in the third year and fourth year of the program as math electives are taken at the 300-400 level.

B.S. in Mathematics - Curriculum Map

First Year

Fall	Credits	Spring	Credits
MA 121 Calculus I	4	MA 122 Calculus II	4
EN 101 Composition and Literature I	3	EN 102 Composition and Literature II	3
Lab Science Elective	4	Lab Science Elective	4
Elective	3	MA 241 Mathematical Computation and Modeling	3
	14		**14**

Second Year

Fall	Credits	Spring	Credits
MA 223 Calculus III	4	MA 224 Differential Equations	4
MA 306 Discrete Mathematics	3	MA 310 Linear Algebra	3
EN 201 World Literature I	3	EN 202 World Literature II	3
General Education Elective	3	General Education Elective[1]	3
PS 211 University Physics I	4	PS 212 University Physics II	4
		MA 250 Communication in Mathematics	1
	17		**18**

Third Year

Fall	Credits	Spring	Credits
MA 303 Advanced Calculus I or 309 Algebraic Structures[2]	3	MA 304 Advanced Calculus II or 312 Statistical Methodology II[3]	3
MA 311 Statistical Methodology	3	MA Elective	3
General Education Elective[1]	3	General Education Elective[1]	3
Elective	3	Elective	3
Elective	3	MA Elective	3
	15		**15**

Fourth Year

Fall	Credits	Spring	Credits
MA 309 Algebraic Structures or 303 Advanced Calculus I	3	MA Elective	3
MA 411 Senior Seminars	3	MA Elective	3
Elective	3	Elective	3
Elective	3	Elective	3
Elective	3	Elective	3
	15		**15**

Total Credits: 123

1 The four required general education electives are:
1. a course in History (except HI 209).
2. a Social Science Elective.
3. a course in Ethics, either PH 303 or PH 350.
4. a Humanities Elective.

2 MA 303 and MA 309 alternate as fall semester courses; both courses are required. For year these courses are offered See Course Descriptions.

3 MA 304 and MA 312 alternate as spring semester courses; one of the two courses is required.

B.S. in Mathematics - Actuarial Concentration - Curriculum Map

First Year

Fall	Credits	Spring	Credits
MA 121 Calculus I	4	MA 122 Calculus II	4
EN 101 Composition and Literature I	3	EN 102 Composition and Literature II	3
Lab Science Elective	4	Lab Science Elective	4
General Education Elective[1]	3	MA 241 Mathematical Computation and Modeling	3
	14		**14**

Second Year

Fall	Credits	Spring	Credits
MA 223 Calculus III	4	MA 224 Differential Equations	4
MA 306 Discrete Mathematics	3	MA 310 Linear Algebra	3
EN 201 World Literature I	3	EN 202 World Literature II	3
EC 201 Principles of Economics (Macro)	3	EC 202 Principles of Economics (Micro)	3
PS 211 University Physics I	4	PS 212 University Physics II	4
		MA 250 Communication in Mathematics	1
	17		**18**

Third Year

Fall	Credits	Spring	Credits
MA 303 Advanced Calculus I or 309 Algebraic Structures[2]	3	MA 312 Statistical Methodology II	3
MA 311 Statistical Methodology	3	MA Elective	3
MA 212 Finite Mathematics	3	General Education Elective[1]	3
General Education Elective[1]	3	Elective	3
Elective	3	MA Elective	3
	15		**15**

Fourth Year

Fall	Credits	Spring	Credits
MA 309 Algebraic Structures or 303 Advanced Calculus I[2]	3	MA 321 Financial Mathematics	3
MA 411 Senior Seminars	3	MA Elective	3
Elective	3	Elective	3
Elective	3	Elective	3
Elective	3	Elective	3
	15		**15**

Total Credits: 123

1 The three required general education electives are:

1. a course in History (except HI 209).
2. a course in Ethics, either PH 303 or PH 350.
3. a Humanities Elective.

2 MA 303 and MA 309 alternate as fall semester courses; both courses are required. For years these courses are offered See Course Descriptions.

The required courses for the Actuarial Concentration are (to be completed with a grade of "C" or better); EC 201, EC 202, MA 212, MA 311, MA 312, and MA 321.

A grade of "B-" or better is required in EC 201, EC 202, MA 311, and MA 312 to meet the Society of Actuaries Validation by Educational Experience requirement.

B.S. in Mathematics - Curriculum Map

(meeting requirements for Teacher Licensure - grades 7-12 mathematics teacher)

First Year

Fall	Credits	Spring	Credits
MA 121 Calculus I	4	MA 122 Calculus II	4
EN 101 Composition and Literature I	3	EN 102 Composition and Literature II	3
Lab Science Elective	4	Lab Science Elective	4
PY 211 Introduction to Psychology	3	MA 241 Mathematical Computation and Modeling	3
ED 101 Foundations of Education I	1	ED 201 Foundations of Education III	1
ED 102 Foundations of Education II	1	ED 202 Foundations of Education IV	1
	16		**16**

Second Year

Fall	Credits	Spring	Credits
MA 223 Calculus III	4	MA 224 Differential Equations	4
MA 306 Discrete Mathematics	3	MA 310 Linear Algebra	3
EN 201 World Literature I	3	EN 202 World Literature II	3
ED 234 Learning and Teaching Strategies	4	PY 220 Developmental Psychology	3
PS 211 University Physics I	4	PS 212 University Physics II	4
		MA 250 Communication in Mathematics	1
	18		**18**

Third Year

Fall	Credits	Spring	Credits
MA 303 Advanced Calculus I or 309 Algebraic Structures[1]	3	MA 304 Advanced Calculus II or 312 Statistical Methodology II[2]	3
MA 311 Statistical Methodology	3	MA Elective	3
MA Elective	3	MA Elective	3
Elective (HI or PH or MA 360)	3	HU Elect, if program inc MA 360	3
PY 352 Learning and Memory	4	PY 324 Adolescent Psychology	3-4
PY 315 Exceptional Child I	3	ED 363 Reading and Writing in the Content Area	4
	19		**19-20**

Fourth Year

Fall	Credits	Spring	Credits
MA 309 Algebraic Structures or 303 Advanced Calculus I[1]	3	ED 425 Student Teaching	12
MA 411 Senior Seminars	3		
MA Elective	3		
Elective (HI or PH or MA 360)			
HU Elective			
ED 368 Curriculum & Methods in Secondary Subjects	4		
	13		**12**

Total Credits: 131-132

1 MA 303 and MA 309 alternate as fall semester courses; both courses are required. For years these courses are offered, see Course Descriptions.

2 MA 304 and MA 312 alternate as spring semester courses; one of the two courses is required.

Minor in Mathematics

Students must complete six courses of 3 or more credits each in mathematics (MA) above of MA 121 (https://nextcatalog.norwich.edu/residentialprogramscatalog/collegeofscienceandmathematics/mathematics) (at least three at the 300-400 level) with a grade of “C” or better. Students are invited to design their own programs so as to blend these courses with their academic majors, with the advice of the Mathematics Department.

Physics

Charles A. Dana Professor Parker; Professors Syed; Associate Professor Hyde (Chair); Assistant Professors Knapik and Pallone.

Norwich University offers the Bachelor of Science in Physics to students desiring a strong background in basic physics. This curriculum prepares students for work in industry and government, for graduate work in physics and other physical sciences, or for a military career.

The Bachelor of Science curriculum requires 129-degree credits for graduation. Six hours of approved ROTC courses may be included in degree credits. Many advanced physics courses have designated courses as prerequisites.

B. S. in Physics - Curriculum Map

First Year

Fall	Credits	Spring	Credits
EN 101 Composition and Literature I	3	EN 102 Composition and Literature II	3
MA 121 Calculus I	4	MA 122 Calculus II	4
CH 103 General Chemistry I	4	CH 104 General Chemistry II	4
Elective (1)[1]	3-4	PS 110 Physics of Continuous Media	3
	14-15		**14**

Second Year

Fall	Credits	Spring	Credits
EN 201 World Literature I	3	EN 202 World Literature II	3
MA 223 Calculus III	4	MA 224 Differential Equations	4
PS 211 University Physics I	4	PS 212 University Physics II	4
PS 205 Basic Instrumentation in the Natural Sciences (or Elective)[§]	4	Electives (2)	6
Elective (1)[2]	3		
	18		**17**

Third Year

Fall	Credits	Spring	Credits
Mathematics[3]	3	Mathematics[3]	3
PS 331 Mechanics or 354 Thermodynamics[§]	4	PS 332 Mechanics II or 363 Optics[§]	4
Elective (1)[2]	3	PS 442 Modern Physics II or 424 Electricity and Magnetism II[§]	4
PS 205 Basic Instrumentation in the Natural Sciences (or Elective (1))[§]	4	Electives (2)[2]	6
	14		**17**

Fourth Year

Fall	Credits	Spring	Credits
PS 354 Thermodynamics or 331 Mechanics[§]	4	PS 363 Optics or 332 Mechanics II[§]	4
PS 423 Electricity and Magnetism I or 441 Modern Physics I[§]	4	PS 424 Electricity and Magnetism II or 442 Modern Physics II[§]	4
PS 461 Senior Project I	1	PS 462 Senior Project II	1
PS 451 Seminar I	1	PS 452 Seminar II	1
Electives (2)[2]	6	Electives (2)[2]	6
	16		**16**

Total Credits: 126-127

§ This course is offered in alternate years. Both courses listed are required. For the years these courses are offered, see Course Descriptions.

1 PS 107 Recommended.

2 One elective must be a semester of history.

2 One elective must be a course in psychology, sociology, economics, or political science.

2 One elective must be an ethics course offered by the philosophy program.

3 These math courses are subject to approval of Physics Dept.

Minor in Physics

The student must complete six physics courses each valued at three or four degree credits. These courses must include PS 211, PS 212, and either PS 205 and one course above 300 or two courses above 300.

College of National Services

Dean: Colonel Lawrence J. Oliver

The school is comprised of the Departments of Army Military Science, Aerospace Studies, and Naval Science, each having a department chair and staff.

Army Military Science

Professor COL Steven V. Smith (Chair); Assistant Professors: MAJ Thomas Whipple, MAJ Matt Aldrich (Dartmouth Liaison Officer), MAJ Marius Balas, MAJ Danny Scanlon (Army ROTC Recruiting Operations Officer), CPT Elisha Husband, CPT Brian Kalaher; Assistant Military Instructors: SGM Lonnie Clary (Detachment Sergeant Major), MSG Walter Hooper, SFC Matthew Lundell.

The instructional program of the Department of Military Science is designed to attract, motivate, and prepare selected students to serve as commissioned officers in the U. S. Army, either on active duty or on reserve duty, in the National Guard or Army Reserve. The curriculum is structured to provide an appreciation and understanding of the importance land power has played and will continue to play in the defense of the United States. In addition, it will develop the dynamic leadership required in the 21st century. It is also designed to complement the Cadet's goal of acquiring a baccalaureate degree in the course of study of his or her own choosing.

The Department's Leadership Laboratory is a weekly two-hour period of practical instruction that is an integral part of the Military Science curriculum. It is conducted one afternoon a week throughout each semester. Its objective is to provide practical application of classroom instruction to enhance leadership, physical fitness, and military skills training. The Mountain and Cold Weather Company offers additional training to develop leader skill and attributes while conducting military mountaineering, cold weather survival, and small unit light infantry tactics. The Ranger Company offers further leadership development demonstrated through military training to Cadets which develops their ability to lead effectively by providing hands-on training in small unit operations and patrolling. The Ranger Challenge Team provides the opportunity for Cadets to further build on their leader training and development on a competitive team. In the fall of each year, Ranger Challenge Cadets compete at Fort Knox, Kentucky against other Senior Military Colleges in a military skills competition. The Norwich Artillery Battery offers Cadets the opportunity to build on their military and leadership skills by training on Army artillery equipment. The Battery provides all ceremonial cannon fire support for University events.

To qualify for enrollment in the Army ROTC Advanced Course, MS III and MS IV, Cadets must have a minimum academic cumulative average of 2.0, must meet established physical requirements, must attain a 2.0 or higher grade point average in the Army ROTC Basic Course (MS I and MS II), and must demonstrate leadership potential. The Advanced Course requires Cadets to attend and successfully complete a thirty-five day Leadership Development and Assessment Course in the summer, normally following the MS III (junior) year. In addition to the Military Science courses listed below, each cadet is required to complete a military history course. For specific details on these courses, see your Assistant Professor of Military Science.

Air Force Aerospace Studies

Professor Col Manning (Chair); Assistant Professor Lt Col Klink;, Maj Cooper, Capt Peterson, Capt Gee; NCOIC TSgt Peirano, NCOIC TSgt Jackson-Little.

The curriculum of the Air Force ROTC program provides professional preparation for future Air Force officers. It is designed to assist men and women to apply their total college experience toward responsible service as commissioned officers. The AFROTC curriculum is divided into two major programs: the General Military Course (GMC) and the Professional Officer Course (POC). The GMC is offered during the freshman and sophomore years. Course work in the GMC deals with the structure, doctrine, and function of the Air Force; communicative skills; and the historical role of air-power. Admission to the advanced course (POC) is on a competitive basis. To enroll in the POC, a student must pass the Air Force Officer Qualifying Test (AFOQT), pass an Air Force physical examination, meet physical fitness standards, qualify academically, successfully complete the AFROTC field training program, and be selected by a board of Air Force officers. The first year of the POC deals with leadership theory and practice, Air Force management theory and practice, and other aspects of being a professional officer. The second and final year of the POC addresses a broad range of civil/military relations, and the overall social and political context in which U.S. defense policy is formulated and affected. Leadership Laboratory meets one period per week for two hours throughout the student's enrollment in Air Force ROTC. Instruction is conducted within the framework of an Air Force organization with a progression of experience designed to develop each student's leadership potential. The cadet physical training program is an essential part of leadership laboratory and is mandatory for all cadets. A detailed introduction and orientation to life on an active Air Force base occurs during a field encampment between the student's sophomore and junior years.

Naval Science

Professor Col Lawrence Oliver (Chair); Assistant Professors CDR Walker, Maj Verduzco, Capt Castro, LT Gazarek, LT Blachford, LT Nuttall, GySgt Brostowski.

The mission of the Department of Naval Science at Norwich University is to develop young men and women morally, mentally, and physically and to instill in them the highest ideals of courage, honor, and commitment. The program educates and trains young men and women for leadership positions in

the increasingly technical U.S. Naval service. Through the National Scholarship Board and the College Program , midshipmen are prepared for service as commissioned officers in the active components of the U.S. Navy or U.S. Marine Corps reserve.

The primary goals of the Naval ROTC Program are to provide students:

1. a strong sense of personal integrity, honor, and individual responsibility;
2. leadership training that will enable them to successfully lead others under stressful and demanding conditions;
3. an understanding of the fundamental concepts of naval science and a basic level of military aptitude;
4. an academic background that will allow them to successfully undertake the demanding leadership and managerial positions they will receive;
5. a high state of physical fitness for personal health and performance.

The Naval Science Laboratory is a weekly laboratory, normally two hours in length, conducted during each academic semester. Emphasis is placed on professional training that is not of an academic nature. The laboratory is intended for such topics as drill and ceremonies, leadership and ethics, physical fitness and swim testing, cruise preparation, cruise evaluation, sail training, safety awareness, preparation for commissioning, personal finances, insurance, and applied exercises in naval ship systems, navigation, naval operations, naval administration, and military justice.

Course Descriptions

Accounting (AC)

Courses

AC 201. Introduction to Accounting and Financial World. 3 Credits.
This course is designed strictly for the non-business major. It is a survey course of accounting and financial concepts, including the basic accounting equation, financial statement structure, financial statement analysis, cost structures (fixed/variable/breakeven analysis/overhead), cost systems, an introduction to basic capital markets, working capital management and present value concepts. Whenever possible the materials used in this class will use the context of the individual student's major area of study or future professional area of employment. 2 lecture hours and 2 laboratory hours.

AC 205. Principles of Accounting-Financial. 4 Credits.
An introduction to accounting principles and theory for the sole proprietorship. The recording of business transactions through the accounting cycle, from journalizing, posting, adjusting, and closing entries through work papers and preparation of financial statements, is studied. Related topics include: internal control, receivables and payables, the control of cash transactions, inventories, depreciation, intangible assets, and payroll accounting. Ethical business practices and client privacy issues are stressed throughout all phases of the course.

AC 206. Principles of Accounting-Managerial. 4 Credits.
The completion of the study of financial accounting and an introduction to and emphasis on managerial accounting. Topics covered include: partnerships, corporations, earnings per share, dividends, bonds payable, the Statement of Cash Flows, the analysis and interpretation of financial statements, the budgeting process and cost accounting concepts. Protection of proprietary information and information security is re-enforced throughout the course. Prerequisite: AC 205.

AC 335. Intermediate Accounting I. 3 Credits.
Building on the foundations of Principles of Accounting the course provides a more in-depth study of accounting theory and practice. Beginning with a brief review of the accounting process, the course delves into the conceptual framework for accounting, the accounting standards setting process, and the hierarchy of accounting pronouncements. The course then explores the components of the financial statement package including such issues as the quality of earnings and the measurement and reporting of unusual, infrequent, and non-operating items; the Statement of Cash flows is also studied in depth. Accounting, reporting, and valuation issues surrounding cash, receivables, inventory and long-term assets are also covered including the impairment of tangible and intangible assets. Prerequisite: A grade of "C" or better in AC 205 and AC 206.

AC 336. Intermediate Accounting II. 3 Credits.
A continuation of the in-depth study of accounting theory and practice begun in Intermediate Accounting I. The course addresses the valuation, accounting, and reporting of both short and long-term investment securities, current and contingent liabilities, notes and bonds payable, and shareholders' equity. In addition, the accounting for leases, income taxes, pensions, stock-based compensation, earning per share, and accounting changes are also studied. Prerequisite: AC 335 or AC 205 and AC 206 with a grade of "C" or better and permission of the instructor.

AC 419. Taxation I. 3 Credits.
Designed to introduce the student to certain elementary tax concepts: tax rate structure, exemptions, deductible versus non-deductible expenses, depreciation basis, capital gains and losses, tax credits, withholding, and computation of the personal income tax. Within the context of the personal income tax, planning considerations will be stressed as well as legal and ethical issues concerning client confidentiality. Prerequisites: AC 205 and AC 206 with a grade of "C" or better.

AC 428. Auditing. 3 Credits.
A study of the auditing environment, including legal liability and professional ethics begins with the concept of auditing and the auditing profession. Additional topics concerning the audit process, including internal control, evidence, sampling and EDP auditing and specific audit procedures are examined. In addition the nature and types of auditors' reports are studied. Prerequisites: AC 336 or permission of the instructor. 3 lecture hours.

AC 441. Cost Accounting. 3 Credits.
A study of the basic elements of cost accounting concepts and procedures. Emphasis is on how cost data can be used as management tools. Cost behavior and control, cost-volume-profit relationships, job and process costing, activity-based accounting, budgeting and responsibility accounting, flexible budgeting and standards, income effects of alternative costing methods and cost behavior, costs and the decision process, and philosophy and organization of the master budget are analyzed. Prerequisite: AC 206.

AC 442. Advanced Accounting. 4 Credits.
An advanced course emphasizing accounting theory and practical applications in selected areas. Such areas include: partnerships, branches, business combinations, consolidated financial statements, segment reporting, forecasts, multinational companies, bankruptcy, and accounting for governmental units and other non-profit entities. Prerequisite: AC 336.

AC 450. Internship in Accounting. 3 Credits.
The internship program is designed for students who want to apply their studies by working in a public accounting firm or in private accounting within a business, industry, or public agency. The student will be required to work closely with a faculty supervisor to develop and implement a structured experience tailored to the career goals of the student. Prerequisites: junior or senior standing and written consent of the department chair and internship committee.

Aerospace Studies (AS)

Courses

AS 101. The Foundations of the United States Air Force. 1 Credit.
This is a survey course designed to introduce students to the United States Air Force and Air Force Reserve Officer Training Corps. Featured topics include: mission and organization of the Air Force, officership and professionalism, military customs and courtesies, Air Force opportunities, group leadership problems, and an introduction to communication skills. A mandatory leadership laboratory complements this course by providing cadets with followership experiences. Includes 1 lecture hour and Leadership lab (2 hours) and PT (3 hours). Course Attributes: Not eligible for use as part of the six ROTC credits allowed for degree electives.

AS 102. The Foundations of the United States Air Force. 1 Credit.
This is a survey course designed to introduce students to the United States Air Force and Air Force Reserve Officer Training Corps. Featured topics include: mission and organization of the Air Force, officership and professionalism, military customs and courtesies, Air Force opportunities, group leadership problems, and an introduction to communication skills. A mandatory leadership laboratory complements this course by providing cadets with followership experiences. Prerequisite: AS 101 or equivalent. This requirement may be waived with the approval of the detachment commander. Includes 1 lecture hour and Leadership lab (2 hours) and PT (3 hours). Course Attributes: Not eligible for use as part of the six ROTC credits allowed for degree electives.

AS 201. The Evolution of USAF and Space Power. 1 Credit.
This course focuses on facilitating the transition from Air Force ROTC cadet to Air Force ROTC candidate. Featured topics include: Air Force heritage, Air Force leaders, general aspects of air and space power, introduction to ethics and values, group leadership problems, and continuing application of communication skills. A mandatory leadership laboratory complements this course by providing cadets with their first opportunity for applied leadership experiences. Prerequisite: Must have successfully completed AS 101 and AS 102 (or equivalent) or obtain approval from AFROTC Commander. Includes 1 lecture hour and Leadership lab (2 hours) and PT (3 hours). Course Attributes: Not eligible for use as part of the six ROTC credits allowed for degree electives.

AS 202. The Evolution of USAF and Space Power. 1 Credit.
This course continues its focus on educating and developing Air Force ROTC candidates to become Air Force officers. Featured topics include: Air Force heritage, Air Force leaders, general aspects of air and space power, introduction to ethics and values, group leadership problems, and continuing application of communication skills. A mandatory leadership laboratory complements this course by providing cadets with their first opportunity for applied leadership experiences. Prerequisite: AS 201 (or equivalent) or obtain approval from AFROTC Commander. Includes 1 lecture hour and Leadership lab (2 hours) and PT (3 hours). Course Attributes: Not eligible for use as part of the six ROTC credits allowed for degree electives.

AS 311. Air Force Leadership Studies. 3 Credits.
A study of leadership and quality management fundamentals, professional knowledge, leadership ethics, and communicative skills required of an Air Force junior officer. Case studies are used to examine Air Force leadership and management situations as a means of demonstrating and exercising practical application of the concepts being studied. A mandatory leadership laboratory complements this course by providing advanced leadership experiences in officer-type activities, giving students the opportunity to apply the leadership and management principles discussed in class. Prerequisite: Must pass AS 202 (or equivalent) with a C or better or permission of the Professor of Aerospace Studies. Includes 3 lecture hours and Leadership lab (2 hours) and PT (3 hours). Course Attributes: May be used as part of the six ROTC credits allowed for degree electives.

AS 312. AF Leadership & Management. 3 Credits.
AS 312 is a continuation of AS 311 on the study of leadership and management fundamentals, professional knowledge, leadership ethics, and communicative skills required of an Air Force junior officer. Case studies are used to examine Air Force leadership and management situations as a means of demonstrating and exercising practical application of the concepts being studied. A mandatory leadership laboratory complements this course by providing advanced leadership experiences in officer-type activities, giving students the opportunity to apply the leadership and management principles discussed in class. Prerequisite: Must pass AS 311 (or equivalent) with a C or better or permission of the Professor of Aerospace Studies. Includes 3 lecture hours and Leadership lab (2 hours) and PT (3 hours). Course Attributes: May be used as part of the six ROTC credits allowed for degree electives.

AS 411. National Security Affairs/Preparation for Active Duty. 3 Credits.
The course examines the national security process, regional studies, advanced leadership ethics, and Air Force doctrine. Special topics of interest include the military as a profession, officership, military justice, civilian control of the military, preparation for active duty, and current issues affecting military profession. Within this structure, continued emphasis is given to the refinement of communication skills. A mandatory leadership laboratory complements this course by providing advanced leadership experiences, giving students the opportunity to apply the leadership and management principles of the ROTC program. Enrollment restricted to students pursuing a commission. Prerequisite: AS 312. Includes 3 lecture hours and Leadership lab (2 hours) and PT (3 hours). Course Attributes: May be used as part of the six ROTC credits allowed for degree electives.

AS 412. National Security Affairs/Preparation for Active Duty. 3 Credits.
The course continues the sudy of the national security process, regional studies, advanced leadership ethics, and Air Force doctrine. Special topics of interest include the military as a profession, officer-ship, military justice, civilian control of the military, preparation for active duty, and current issues affecting the military profession. Within this structure, continued emphasis is given to the refinement of communication skills. A mandatory leadership laboratory complements this course by providing advanced leadership experiences, giving students the opportunity to apply the leadership and management principles of the ROTC program. Enrollment restricted to students pursuing a commission. Prerequisite: AS 411. Includes 3 lecture hours and Leadership lab (2 hours) and PT (3 hours). Course Attributes: May be used as part of the six ROTC credits allowed for degree electives.

Architecture (AP)

Courses

AP 106. Architectural Drafting. 3 Credits.
Techniques of architectural drafting are introduced as basic skills used to describe architectural form. The various graphic tools, techniques, and conventions are presented and the rationale behind their use is explained. In addition to the basic graphic constructions and multi-view projections, the methods of developing architectural plans, elevations, and sections are addressed. This course is primarily intended for students who have had little or no prior introduction to mechanical and architectural drafting. One hour of lecture and three 3-hours of studio per week. 1 lecture hour and 3 studio hours.

AP 111. Fundamentals of Architecture. 4 Credits.
An introduction to the basic principles and skills that constitute the discipline of architecture. A series of two and three dimensional graphic exercises is used to cultivate an understanding of architectonics, the intentional arrangement of space and enclosure to communicate human values while also introducing graphic techniques for communicating concepts and solutions. One hour of lecture and three 9-hour studios per week.

AP 118. Fundamentals of Architecture II. 4 Credits.
A continuation of the introduction to the fundamental processes and technologies that constitute the discipline of architecture. This course investigates the design process, explores interactive computer graphics (CAD) as a design tool, and culminates with the application of these principles, processes, and skills to an architectural design problem. One hour of lecture and 9 hours of studio per week. Prerequisite: AP 111.

AP 211. Architectural Design I. 5 Credits.
The first in a sequence of design studio courses introducing the processes, judgment, and communications involved in the synthesis of architectural form. Through a focused series of individual and group projects, the influences of the human and physical contexts on form are explored. One hour of lecture and three 4-hour studios per week. Prerequisite: AP 118. 1 lecture hour and 12 studio hours.

AP 212. Architectural Design II. 5 Credits.
Second in a sequence of design studio courses emphasizing the processes, judgment, and communications involved in the synthesis of architectural form. Through a focused series of individual and/or group projects, the influences of functional requirements on form are explored. One hour of lecture and three 4-hour studios per week. Prerequisite: AP 211. 1 lecture hour and 0 to 12 studio hours.

AP 221. Site Development and Design. 3 Credits.
A course that deals with engineering principles and design considerations involved with site design. Earth shaping, drainage, roadway alignment, parking lot layouts, code requirements and environmental factors are studied prior to and after design changes. Two hours of lecture and one 2-hour studio per week. 2 lecture hours and 2 studio hours.

AP 222. Human Issues in Design. 3 Credits.
An introduction to the psychological, sociological, and physical factors that influence the design of architectural space. The fields of anthropometrics, ergonomics, and proxemics are addressed, as well as considerations for barrier-free environments. Three hours of lecture/discussion per week. 3 lecture hours.

AP 225. Introduction to Passive Environmental Systems. 3 Credits.
Through coordinated lectures and demonstrations, the impacts of environmental energies on architectural form are introduced and explored. Emphasis is given to the processes by which the architect orders light, climate, gravity, and sound responses to achieve building geometry. The course also addresses concepts and strategies for responding to environmental hazards, and designing healthy buildings and green architecture. Three hours of lecture. Prerequisite: AP 118, EG 110 or instructor’s permission. 3 lecture hours.

AP 241. Architectural Delineation. 3 Credits.
A studio course in advanced graphic methods. Various rendering techniques, definitive design development, and the principles of construction drawings and architectural detailing are presented and explored through individual projects. One hour of lecture and two 2-hour studios per week. 1 lecture hour and 4 studio hours.

AP 311. Architectural Design III. 5 Credits.
The development of the comprehensive building process as a synthesis of spatial, functional, and contextual concerns with emphases on building systems and materials. Individual and group problems are of a limited and defined scope. One hour of lecture and three 4-hour studios per week. Prerequisites: AP 212 and AP 325. Corequisites: AP 327.

AP 312. Architectural Design IV. 5 Credits.
This fourth course in the design studio sequence continues the development of a comprehensive building design process with problems of complex but limited scope. The synthesis of spatial, functional, and contextual concerns, as directly linked to the understanding and employment of building systems, continues to provide a framework. One 1-hour lecture and three 4-hour studios per week. Prerequisite: AP 311. 1 lecture hour and 12 studio hours.

AP 325. Materials, Construction, and Design. 3 Credits.
An introduction to the processes by which construction materials and systems are evaluated, selected, incorporated, and detailed in building design. Both measurable and immeasurable design responses to environmental energies are explored in soils, concrete, masonry, wood, and metals. Three hours of lecture per week. Prerequisite: AP 225. 3 lecture hours.

AP 327. Active Building Systems I. 3 Credits.
A survey of contemporary mechanical building equipment and systems, including heating, ventilation and air conditioning. Emphasis is placed on comparisons of design parameters, interfaces, and impacts on overall building form. Energy efficiency is addressed. Prerequisites: AP 225 and MA 107. 3 lecture hours.

AP 328. Active Building Systems II. 3 Credits.
A continuation of AP 327, surveying contemporary electrical, lighting, and plumbing equipment and systems. Emphasis is placed on comparisons of design parameters, interfaces, and impacts on overall building form. Energy efficiency and building codes are addressed. Prerequisite: AP 327. 3 lecture hours.

AP 403. Architectural Seminar in History and Theory. 3 Credits.
As both an art and a science, the profession of architecture is continually undergoing change and reassessment. This elective seminar focuses on one or more specific issues and topics regarding the historic and philosophical contexts that influence architecture today. Typically these topics range from the study of specific historic periods or schools of thought regarding design to the diverse trends in current architectural thinking. AP 504 shall require a graduate-level paper or project. This course may be repeated for credit. Three hours of lecture/discussion per week. 3 lecture hours.

AP 406. Architectural Theory. 3 Credits.

AP 411. Architectural Design V. 5 Credits.
Comprehensive problem-oriented design studio offered to fourth year students by various faculty members. The extension of the comprehensive design proves to include problems of an expanded scope and large scale, including building complexes and urban design. Individual and group problems emphasize the complex relationships of environmental factors, human concerns, and architectural form. This studio is considered the undergraduate capstone course in the undergraduate portion of the Architecture Program. A design portfolio, covering all seven semesters of studio work and including a written paper, is required to be submitted at the completion of this course. Prerequisite: AP 312. 1 lecture hour and 12 studio hours.

AP 412. Architectural Design VI. 5 Credits.
Elective problem-oriented studios offered to fourth year students by various faculty members. The extension of the comprehensive design process to include problems of expanded scope and large scale, including building complexes and urban design. Individual and group problems emphasize the complex interrelationships of environmental factors, human concerns, and architectural form. One hour of lecture and three 4-hour studios per week. Prerequisite: AP 312. 1 lecture hour and 12 studio hours.

AP 414. Architectural Seminar In Design. 3 Credits.
This elective seminar investigates in a non-studio setting one or more specific concepts, issues, or topics related to architectural design and its associated disciplines, such as urban, landscape, interior, and visual design. AP 514 shall require a graduate level paper or project. This course may be repeated for credit. Three hours of lecture/discussion per week. Prerequisite: approval of instructor. Cross listed with AP 520.

AP 424. Architectural Seminar in Technology. 3 Credits.
As both an art and science, the profession of architecture is continually undergoing change and reassessment. This elective seminar focuses on one or more of the specific issues, topics, or skills related to technologies in architecture today. Typically, these specific semester topics range from advanced materials and construction systems to energy-conserving design; from environmental issues to hands-on building experiences. AP520 shall require a graduate-level paper or project. This course may be repeated for credit. Three hours of lecture/discussion per week. Prerequisites: AP114, AP325, or approval of instructor. Cross listed with AP520.

AP 434. Architectural Seminar in Process. 3 Credits.
As both an art and science, the profession of architecture is continually undergoing change and reassessment. This elective seminar focuses on one or more specific topics regarding the current and future practice of architecture: what architects do, and how they do it. Typically, these topics range from design techniques to office management and from specialties within the practice, to the legal environmental, and social forces that influence it. AP 534 seminar shall require a graduate-level paper or project. This course may be repeated for credit. Three hours of lecture/discussion per week. Prerequisite: instructor's approval. Cross listed with AP 534.

AP 436. Project Delivery and Documentation. 4 Credits.
Relationships between the formal methods of project delivery and the architectural office form the basic investigation of this course. The project delivery process and the methods of communication and the documentation involved provide a detail study of typical office procedures. The studio component of this course provides practical experience of the typical project delivery process. Documentation is approached as the fundamental means of architectural communication. This communication is multi-layered acting as a foundation for the means of production of contemporary architecture. Various tools will be utilized ranging from computer aided design to conceptual organization schema in both the practice of typical architectural project delivery and the development of new means of communication and production. Two hours of lecture and four hours of studio per week. 2 lecture and 4 studio hours.

AP 455. Special Projects in Architecture. 1-3 Credit.
An execution of a singular project related to architectural design, history/theory, process, or technology selected by the individual student. The course focuses on in-depth independent research, development, and a formal written and/or graphic presentation of an architecturally-related topic not otherwise covered in course offerings. The student must secure a faculty member who will agree to serve as advisor/evaluator for the project. Limited to Architecture majors who have completed at least the first two years of the curriculum. Hours and credits to be arranged. 1 to 3 lecture hours.

AP 456. Senior Project. 4 Credits.

AP 499. Sketching School. 3 Credits.

AP 499L. Adv. Seminar: Sketching. 0 Credits.

Athletic Training (ST)

Courses

ST 310. Upper Extremity Injuries. 3 Credits.
Advanced athletic training course that incorporates areas of assessment/diagnosis, clinical anatomy and biomechanics utilizing evidence-based medicine to provide a comprehensive approach to caring for upper extremity and cervical/thoracic spine injuries. Classroom 3 hours. Prerequisite: SM 220.

ST 311. Clinical Education in Athletic Training I. 2 Credits.
Emphasis will be placed on the application of knowledge and skills introduced in BI 216 (Human Anatomy and Physiology), PE 260 (Personal and Community Health), and SM 220 (Care and Prevention of Athletic Injuries). This course will also provide the opportunity for students to further develop clinical proficiencies introduced in preceding courses. Supervised practicum in an athletic training setting. Class meets for 2 hours/week utilizing lecture, demonstrations and hand-on instructional techniques plus Clinical Rotation (average 4 hours/week). Prerequisites: SM 226 and SM 220, PE 260 and BI 216. Open only to declared Sports Medicine-Athletic Training Concentration students.

ST 320. Lower Extremity Injuries. 3 Credits.
Advanced athletic training course that incorporates areas of assessment/diagnosis, clinical anatomy and biomechanics utilizing evidence-based medicine to provide a comprehensive approach to caring for lower extremity, pelvis and lumbar spine injuries. Classroom 3 hours. Prerequisite: SM 220.

ST 321. Clinical Education in Athletic Training II. 2 Credits.
Emphasis will be placed on the application of knowledge and skills introduced in PE 365 (Kinesiology) and ST 310 (Upper Extremity Injuries). This course will also provide the opportunity for students to further develop clinical proficiencies introduced in preceding courses. Supervised practicum in an athletic training setting. Class meets for 2 hours/week utilizing lecture, demonstrations and hands-on instructional techniques plus Clinical Rotation (average 4 hours/week). Prerequisites: ST 310.

ST 410. Clinical Education in Athletic Training III. 3 Credits.
Emphasis will be placed on the application of knowledge and skills introduced in PE 371 (Physiology of Exercise), SM 420 (Therapeutic Modalities) and ST 320 (Lower Extremity Injuries). This course will also provide the opportunity for students to further develop clinical proficiencies introduced in preceding courses. Supervised practicum in an athletic training session. Class meets 2 hours/week utilizing lecture, demonstrations and hands-on instructional techniques plus Clinical Rotation (average 7 hours/week). Prerequisites: ST 321 and ST 320, SM 420 and PE 371.

ST 421. Clinical Education in Athletic Training IV. 3 Credits.
Emphasis will be placed on the application of knowledge and skills introduced in SM 422 (Therapeutic Exercise) and SM 437 (Senior Seminar I). This course will also provide the opportunity for students to further develop clinical proficiencies introduced in preceding courses. Supervised practicum in an athletic training setting. Class meets for 2 hours/week utilizing lecture demonstrations and hands-on instructional techniques plus Clinical Rotation (average 8 hours/week). Prerequisites: ST 410, SM 422, PE 371 and SM 437.

Biology (BI)

Courses

BI 101. Principles of Biology I. 4 Credits.
This course is the prerequisite for all biology courses and satisfies general education laboratory science requirements for both majors and non-majors. This course gives an introduction to biochemistry, cell structure, metabolism, and protein synthesis, as well as human anatomy and physiology. Dissection of living and preserved animals is required. Classroom 3 hours, laboratory 2 hours. Offered fall and spring semesters.

BI 102. Principles of Biology II. 4 Credits.
This course is a prerequisite for most biology courses and satisfies general education laboratory science requirements for both majors and non-majors. This course explores genetics, evolutionary theory, diversity of life on earth, history of life on earth, and ecology. Dissection of preserved animals is required. Classroom 3 hours, laboratory 2 hours. Prerequisite: BI 101 or permission of the instructor. Offered spring semesters.

BI 201. Comparative Vertebrate Anatomy. 4 Credits.
A study of the origins, structure and functions of the organ systems of representative vertebrates. An attempt is made to correlate form and function in the evolution of the vertebrates. Classroom 3 hours, laboratory 3 hours. Prerequisites: BI 101, BI 102. Offered fall semesters of odd numbered years.

BI 202. Genetics. 4 Credits.
The physical and chemical basis of inheritance, expression, and interaction of the hereditary units, linkage, and variation. The application of Mendelian principles to plants and animals. Consideration is also given to microbial and viral genetics and genetic engineering. Classroom 3 hours, laboratory 2 hours. Prerequisites: BI 101, BI 102. Offered fall semesters.

BI 203. Introduction to Scientific Method & Bioscientific Terminology. 1 Credit.
An introduction to the philosophy of science, the scientific method and bioscientific terminology. Analysis of data and interpretation of scientific and science-related popular press articles is stressed. Includes exposure to various forms of scientific communication and data collection and analysis. Prepares the student for the rigors of majoring in the biological sciences. Classroom 1 hour. Prerequisites: Sophomore standing, major in Biology.

BI 215. Human Anatomy and Physiology. 4 Credits.
This is the first half of a two semester course exploring human anatomy and physiology. It covers cellular metabolism, tissues, and the following body systems: skeletal, muscle, coetaneous, and nervous. Dissection of preserved animals is required. Classroom 3 hours, laboratory 2 hours. Prerequisite: BI 101 or permission of the instructor. Offered fall semesters.

BI 216. Human Anatomy and Physiology. 4 Credits.
This is the second half of a two semester course exploring human anatomy and physiology. It investigates the following body systems: endocrine, digestive, respiratory, circulatory, lymphatic (including the immune response), urinary, and reproductive. Dissection of preserved animals is required. Classroom 3 hours, laboratory 2 hours. Prerequisite: BI 215 or permission of the instructor. Offered spring semesters.

BI 220. Introductory Microbiology. 4 Credits.
A survey of the field of microbiology with emphasis on those microorganisms of medical significance. Fundamentals of microbial structure, physiology and control are considered along with the role of pathogenic organisms in the infectious and disease processes. Laboratory exercises are designed to provide facility in visualizing, staining, culturing, enumerating, isolating, maintaining, and identifying micro organisms. Classroom 3 hours, laboratory 2 hours. Prerequisite: BI 101 or permission of the instructor. Offered spring semesters.

BI 240. Environmental and Food Microbiology. 4 Credits.
A course designed to develop an awareness of the essential role of microbes in maintaining the biosphere and the quality of life of its human inhabitants. The role of microorganisms as degraders, bioremediators and recyclers of essential elements will be presented and reinforced through laboratory exercises. The dependence of humans on microorganisms for health, food transformation, pharmaceutical production and genetic engineering will be explored in lecture and lab. Controversies surrounding the use of biotechnology to produce genetically engineered foods and animals as well as agents for bioterrorism, will be discussed. Classroom 3 hours, laboratory 2 hours. Prerequisites: BI 101, BI 102 or permission of the instructor. Offered even-numbered fall semesters.

BI 253. Foods and Nutrition. 4 Credits.
A course designed to provide the student with a background in organizational structure and activities that emphasize the physiological basis of nutrition with an analysis of nutritional needs at various age levels. Consideration given to the relationship of nutrition to health and fitness, principles of food selection, metabolism of nutrients, vitamins and minerals, energy balance and obesity, food safety and technology. Classroom 3 hours, Field Experience/Laboratory 2 hours. Prerequisite: BI 101. Offered spring semesters.

BI 260. Orinthology. 4 Credits.
A survey of avian biology and ecology to include evolution, the anatomical and physiological adaptations for flight, migration, behavior, reproduction and identification of birds and their songs. Integrated classroom, laboratory, and field studies will emphasize Vermont birds. Dissection of the pigeon during the spring semester is an integral part of the spring course's laboratory component. The summer course features a nesting study in lieu of dissection. Classroom 3 hours, laroratory 2 hours. Offered spring semesters.

BI 275. Environmental Biology. 4 Credits.
An introduction to the interaction of man and the environment with emphasis on contemporary problems and their possible solutions. Local and global forms of pollution, detrimental environmental practices, and other relationships will be explored in the classroom and the laboratory. Classroom 3 hours, laboratory 2 hours. Prerequisities: BI 101, BI 102 or permission of the instructor. Offered even-numbered spring semesters.

BI 301. Histology. 4 Credits.
A study of the cellular anatomy of the fundamental tissues and organs. May require dissection of living and preserved animals. Classroom, 3 hours, laboratory 2 hours. Prerequisite: BI 101, BI 102 or permission of instructor. Offered even-numbered fall semesters.

BI 302. Embryology. 4 Credits.
A study of the fundamental principles of development through the establishment of the major organs and systems, exemplified in the laboratory by study of representative embryonic forms. May require dissection of living and preserved animals. Classroom 3 hours, laboratory 2 hours. Prerequisite: BI 101, BI 102 or permission of instructor. Offered even-numbered spring semesters.

BI 304. Physiology. 4 Credits.
A study of the comparative physiology of animals. Physical and chemical principles, cell physiology, with emphasis on homeostatic mechanisms and the study of functions of organ systems. May require dissection of living animals. Classroom 3 hours, laboratory 3 hours. Prerequisites: BI 101, BI 102, and 1 year of college chemistry. Offered even-numbered spring semesters.

BI 305. Modern Laboratory Procedures. 4 Credits.
Students are familiarized with the theories and applications of the new technologies that pervade the fields of biotechnology and molecular biology. Laboratory exercises illustrate key concepts and provide hands-on experience in the use of instrumentation essential to modern biologists. Classroom 2 hours, laboratory 4 hours. Prerequisites: BI 101, BI 102 or BI 215, BI 216, and CH 103, CH 104. Offered odd-numbered fall semesters.

BI 306. Cell Biology. 4 Credits.
A molecular level examination of the ultrastructure and function of the cytoplasm, intracellular components, cell membrane, extracellular structures and formation, and excretion of extracellular products. Recent developments in molecular biology will be stressed, including the implications for the biotechnology industry. The laboratory component will include state-of-the-art procedures and will emphasize hands-on experimental techniques. May require dissection of living animals. Classroom 3 hours, laboratory 3 hours. Prerequisites: BI 101, BI 102 and one year of college chemistry. Offered even-numbered fall semesters.

BI 316. Plant Taxonomy. 4 Credits.
A general survey of the taxonomy and evolution of vascular plants, emphasizing herbaceous plants. Recognition of plant families, identification of species, and principles of collecting and preserving are stressed. Classroom 3 hours, laboratory 3 hours. Prerequisite: BI 102 or permission of instructor. Offered even-numbered fall semesters.

BI 325. Invertebrate Zoology. 4 Credits.
A fundamental course designed to give the student a general knowledge of the structure, physiology, life histories, and ecology of the invertebrate animals. Requires dissection of living and preserved animals. Classroom 3 hours, laboratory 2 hours. Prerequisites: BI 101, BI 102. Offered even-numbered fall semesters.

BI 326. Natural History of the Vertebrates. 4 Credits.
A study of the classification, identification, and ecology of the vertebrates with special emphasis on the local fauna. Collection and preservation of organisms is an integral part of the course. Classroom 3 hours, laboratory 3 hours. Prerequisites: BI 101, BI 102. Offered odd-numbered fall semesters.

BI 330. Immunology. 4 Credits.
A course presenting the basic principles of immunology, including antigen-antibody characteristics, the role of the immune system in defense and disease, and the application of fundamental concepts in the development of new technologies and immunodiagnosis. Classroom 3 hours, laboratory 3 hours. Prerequisites: BI 101, BI 102 or BI 215, BI 216, and 1 year of college chemistry. Offered odd-numbered spring semesters.

BI 341. Plant Anatomy. 4 Credits.
[CAB1 (A), CAB2 (B), CAB5 (S)] The anatomy of vascular plants analyzed from an evolutionary viewpoint. Cell structure, tissues, their distribution in roots, stems, leaves and reproductive organs, and plant development are stressed. Classroom 3 hours, laboratory 3 hours. Prerequisite: BI 102 or permission of instructor. Offered odd-numbered spring semesters.

BI 351. Dendrology and Silvics. 4 Credits.
An introduction to major woody plant species in the Northeast, including taxonomic characteristics, life histories, habitat requirements, and economic importance. Classroom 3 hours, laboratory and/or field work 3 hours. Prerequisite: BI 102 or permission of instructor. Offered odd-numbered fall semesters.

BI 360. Pathophysiology. 3 Credits.
The study of human illness with primary emphasis on the pathogenesis of disease, its disruption of normal physiology, and the body's mechanism for restoring the steady state. The biology of the disease process is examined at the molecular, cellular, tissue, organ, and organ system level. Classroom 3 hours. Prerequisites: minimum "C" grade in BI 215, BI 216 or permission of instructor. Offered fall semesters.

BI 364. Pathophysiology in Sports Medicine. 4 Credits.
The study of human pathology with primary emphasis on the pathogenesis of those pathological states most commonly encountered in sports medicine, their disruption of normal physiology and the body's mechanism for restoring the steady state (homeostasis). The biology of the disease process is examined at the molecular, cellular, tissue, organ and organ system level. Classroom 3 hours, laboratory 2 hours. Prerequisites: BI 215 & BI 216 with "C" or higher, or permission of instructor. Offered even-numbered spring semesters.

BI 370. Introduction to Neuroscience. 4 Credits.
An interdisciplinary course designed to introduce the structure and function of the mammalian nervous system. Topics include, but are not limited to, neuronal development, sensory and motor systems, chemical control of the brain and behavior, and the underlying mechanisms of neurodegenerative disease. May require dissection of living animals. Classroom 3 hours, laboratory 2 hours. Prerequisites: BI 101 and either BI 215 or PY 230. Offered fall semesters.

BI 401. Senior Seminar. 3 Credits.
This is the capstone course that integrates reading, writing, speaking and critical thinking skills. It includes instruction in scientific writing, use of contemporary scientific biological literature, library research techniques, and requires a major paper considering ethics in science and research. Students will prepare research papers on current topics using primary sources and give oral presentations on their topics to the department faculty. Classroom 3 hours. Prerequisites: senior class standing or permission of the instructor. Offered fall semesters.

BI 402. Evolution. 4 Credits.
This course is designed to introduce the student to Darwinian and Non-Darwinian mechanisms of evolutionary change, a history of life in the context of contemporary biology, and scientific and cultural controversies surrounding this topic. Offered Fall semesters. Classroom: 4 hours. Prerequisites - BI 101, BI 102 and BI 202 or permission of the instructor. This class can fulfill the CAB1 (anatomy) or CAB5 (systematic) requirements.

BI 405. Ecology. 4 Credits.
The interrelationships between living organisms and their total environment are studied through a combination of lecture, laboratory and field studies. Major concepts include ecosystem structure and function, community development, species diversity, succession, interspecific and intraspecific relationships, competition, predation, behavior, population growth and regulation. Collection and preservation of plants and animals may be required. Classroom 3 hours. If taken for four credits also laboratory and/or field work 3 hours. Prerequisites: BI 101, BI 102. Offered fall and spring semesters.

BI 418. Medical Microbiology. 4 Credits.
A study of pathogenic microorganisms including their general characteristics, physiology, pathogenesis, pathology, diagnosis, treatment, immunity, prevention, and control. Laboratory exercises are designed to familiarize students with diagnostic procedures used in the clinical microbiology laboratory. Classroom 2 hours, laboratory 4 hours. Prerequisite: BI 220 or BI 240. Offered even-numbered spring semesters.

BI 424. Woodland Ecology and Management. 4 Credits.
A review of biotic and abiotic factors controlling the forest environment, methods for determining vegetation structure and succession, introduction to major forest associations in the Northeast, and consequences of various harvesting and management techniques. Classroom 3 hours, field studies 3 hours. Prerequisites: BI 351 or BI 316, or permission of instructor. Offered even-numbered spring semesters.

BI 440. Reading and Research. 3,4 Credits.
Independent study under the supervision of a department faculty member. Open to junior and senior majors with permission of instructor. BI 440 may be taken no more than twice, for a maximum of 7 credits. Students requesting this course must have a 3.0 GPA in biology courses or departmental approval. An approved topic, a brief outline of the research to be conducted, and a signature from a biology mentor must be submitted to the department chair before the end of the drop-add period of the enrolled semester.

BI 450. Intership in Biology. 3,4 Credits.
Intership in Biology.

BI 499. Evolution. 4 Credits.

Chemistry (CH)

Courses

CH 100. Introduction to Forensic Science. 4 Credits.
An introductory survey course of Forensic Science/Criminalistics. The course will focus on scientific principles behind the recognition, collection, preservation, analysis, and interpretation of physical evidence found at a crime scene. The emphasis will be put on providing students with an understanding of the capabilities and limitations of forensic science as it is currently practiced. Lecture 3 hours, laboratory 3 hours. Recommended for students not majoring in science and engineering. Offered fall and spring semesters.

CH 103. General Chemistry I. 4 Credits.
Introduction to chemical characteristics and behavior, stressing atomic structure, stoichiometry, chemical equilibrium and kinetics, and descriptive chemistry of important elements. Laboratory includes qualitative and quantitative exercises, and syntheses. Lecture 3 hours, laboratory 3 hours. Credit will not be granted for more than one of the following sequences: CH 103 - CH 104, CH 111 - CH 112, or CH 103 - CH 112. Prerequisites: One year of high school chemistry and a score of 2 or better on the Norwich University Mathematics Placement Test or a "C" or better in MA 103. Offered fall semesters.

CH 104. General Chemistry II. 4 Credits.
Continuation of the study of chemical characteristics and behavior, stressing atomic structure, stoichiometry, chemical equilibrium and kinetics, and descriptive chemistry of important elements. Laboratory includes qualitative and quantitative exercises, and syntheses. Lecture 3 hours, laboratory 3 hours. Credit will not be granted for more than one of the following sequences: CH 103 - CH 104, CH 111 - CH 112, or CH 103 - CH 112. Prerequisites: CH 103. Offered spring semesters.

CH 111. Chemistry and the Chemical World. 4 Credits.
Entry-level chemistry course introducing the non-science major to chemistry's impact upon the modern world. Qualitative interpretation of chemistry's role in areas of societal concern such as natural resources, environmental quality and pollution, and nuclear and alternative energy forms. Laboratory work will include qualitative as well as quantitative investigations. Lecture 3 hours, laboratory 3 hours. Credit will not be granted for more than one of the following sequences: CH 103 - CH 104, CH 111 - CH 112, or CH 103 - CH 112. Recommended for students not majoring in science and engineering. Prerequisite: Score of 1 or better on the Norwich University Mathematics Placement test or successful completion of MA 005. Offered fall semesters.

CH 112. Living Chemistry. 4 Credits.
Introduces practical aspects of organic and biochemistry and will include applied areas of biochemistry, such as drugs and chemical therapy, nutrition and food additives, toxicology, and consumer chemistry. Laboratory emphasis directed toward synthetic and analytical techniques as applied to these areas. Lecture 3 hours, laboratory 3 hours. Prerequisites: CH 111 or CH 103, or one year of high school chemistry taken within last five years, or by permission of the instructor. Credit will not be granted for more than one of the following sequences: CH 103 - CH 104, CH 111 - CH 112, CH 111 - CH 113 or CH 103 - CH 112. CH 112 or CH 113 may not be taken for credit after successful completion of CH 205. Recommended for students not majoring in science or engineering. Prerequisites: Score of 1 or better on the University Mathematics Placement Test or successful completion of MA 005.

CH 204. Quantitative Analysis. 4 Credits.
A course on the general principles and laboratory practices of quantitative analysis, applied principally in colorimetric and volumetric determinations. Studies of theory and practical procedures associated with gravimetric analysis, potentiometric titrations, and use of pH-meters. Lecture 3 hours, laboratory 6 hours. Prerequisites: CH 103, CH 104. Offered spring semesters of odd numbered years.

CH 205. Survey of Organic Chemistry. 4 Credits.
An introduction to the covalent compounds of carbon. Laboratory work involves elementary manipulation of organic laboratory equipment, preparation and identification of typical organic compounds, and the characteristics of the major functional groups. Lecture 3 hours, laboratory 2 hours. Prerequisites: CH 103 - CH 104. Offered fall semesters of odd numbered years.

CH 214. Communication in Chemistry. 1 Credit.
This course illustrates the organization of the chemical literature, the efficient search of the literature and a formal introduction to scientific writing. Offered fall semesters of even years.

CH 225. Organic Chemistry I. 4 Credits.
An introduction to the study of carbon compounds; preparation and identification of typical compounds. Lecture 3 hours, laboratory 3 hours. Prerequisites: CH 103 - CH 104 or by petition. Offered fall semesters.

CH 226. Organic Chemistry II. 4 Credits.
A continuation of the study of carbon compounds; preparation and identification of typical compounds. Lecture 3 hours, laboratory 3 hours. Prerequisite: CH 225. Offered spring semesters.

CH 314. Instrumental Methods. 3 Credits.
A course on the Theory of Modern Instrumental Methods. Lecture 3 hours. Prerequisites: CH 204 required, CH 327 - CH 328 recommended. Offered spring semesters of even numbered years.

CH 315. Analysis Laboratory. 1 Credit.
A course that provides upper class laboratory experience in chemical methods of measurement and analysis. Laboratory 3 hours. Prerequisite: CH204. Offered spring semesters of even numbered years.

CH 324. Biochemistry I. 4 Credits.
A course on the chemical phenomena and energy effects in life processes. Topics include structure and function of biomolecules, metabolism (catabolism and anabolism), photosynthesis and recombinant DNA technologies. Lecture 3 hours, laboratory 3 hours. Prerequisites: CH 103 - 104, and either CH 205 or co-requisite of CH 226. Offered even numbered spring semesters.

CH 325. Biochemistry II. 4 Credits.
A continuation of the study of the chemical phenomena and energy effects in life processes. Topics include structure and function of biomolecules, metabolism (catabolism and anabolism), photosynthesis and recombinant DNA technologies. Lecture 3 hours, laboratory 3 hours. Prerequisite: CH 324. Offered even numbered fall semesters.

CH 327. Physical Chemistry I. 3 Credits.
A course on the physical properties and structure of matter; general principles and theories of chemical interaction. Major areas studied are chemical applications of thermodynamics; phase equilibria; electrochemistry; reaction kinetics; description of electronic structure of atoms and molecules. Lecture 3 hours. Prerequisites: CH103-104; co-requisite; MA224 and college physics (recommended). Offered even numbered fall semesters.

CH 328. Physical Chemistry II. 3 Credits.
A continuation of the study of the physical properties and structure of matter; general principles and theories of chemical interaction. Major areas studied are chemical applications of thermodynamics; phase equilibria; electrochemistry; reaction kinetics; description of electronic structure of atoms and molecules. Lecture 3 hours. Prerequisite: CH 327. Offered odd numbered spring semesters.

CH 337. Physical Chemistry Laboratory I. 1 Credit.
Laboratory investigations with written formal reports on the physical properties and chemical behavior of substances. Laboratory 3 hours. Prerequisite or co-requisite: CH 327. Offered even numbered fall semesters.

CH 338. Physical Chemistry Laboratory II. 1 Credit.
Laboratory investigations with written formal reports on the physical properties and chemical behavior of substances. Laboratory 3 hours. Prerequisite or co-requisite: CH 328. Offered odd numbered spring semesters.

CH 413. Chemistry Seminar. 1 Credit.
Part of a capstone experience that provides individual assignments, written reports, oral reports, and class discussions on chemical topics of current interest. Reading, writing, speaking and critical thinking skills are emphasized. Lecture 1 hour. Prerequisites: CH 225 - CH 226, CH 327 - CH 328.

CH 421. Chemical Synthesis and Examination I. 3 Credits.
A capstone experience in which organic, inorganic and compounds of biological interest are synthesized and examined with respect to purity and properties. The objectives are to develop an integrated perspective on the general field of chemistry and to develop proficiency in practical laboratory procedures and in reporting results. Laboratory and occasional lectures 8 hours. Prerequisites or co-requisites: CH 225 - CH 226, CH 327 - CH 328. Offered fall semesters.

CH 422. Chemical Synthesis and Examination II. 3 Credits.
A capstone experience in which organic, inorganic and compounds of biological interest are synthesized and examined with respect to purity and properties. The objectives are to develop an integrated perspective on the general field of chemistry and to develop proficiency in practical laboratory procedures and in reporting results. Laboratory and occasional lectures 8 hours. Prerequisites or co-requisites: CH 225 - CH 226, CH 327 - CH 328. Offered spring semesters.

CH 425. Thesis. 1-3 Credit.
This course allows the student to conduct research on a project approved by the faculty of the chemistry and biochemistry programs. The student can be expected to perform the necessary experiments, organize and interpret the data and to communicate the results of the project with a comprehensive report. Prerequisites: CH 225 - CH 226. Co-requisites: CH 327 - CH 328, CH 438. Permission of the program faculty is also required. The student may re-enroll in CH 425 for up to 6 credits.

CH 438. Advanced Inorganic Chemistry. 3 Credits.
A course on the chemistry of the elements: properties, characteristics, and behavior. Lecture 3 hours. Prerequisites: CH 327 - CH 328. Offered fall semesters of odd numbered years.

CH 439. Advanced Organic Chemistry. 3 Credits.
An advanced and thorough development of topics introduced in CH 225 - CH 226. Lecture 3 hours. Prerequisites: CH 225 - CH 226. Offered fall semesters of even numbered years.

CH 450. Topics in Chemistry. 3 Credits.
A course in which a selected limited topic in advanced chemistry is covered in depth. Offered on occasion. Prerequisite: permission of the instructor.

Chinese (CN)

Courses

CN 111. Beginning Chinese I. 6 Credits.
An intensive course providing an introduction to the Mandarin language, including both traditional Chinese characters and the Pinyin transliteration system. In this course, speaking proficiency (including familiarization with Chinese tones), aural comprehension, vocabulary acquisition, reading and writing of Chinese characters are brought to a level enabling students to use the language actively in everyday situations. Classroom 6 hours, laboratory 2 hours. Not open to students who have successfully completed CN 205 or higher.

CN 112. Beginning Chinese II. 6 Credits.
A continuation of CN 111, with continued emphasis on each of the language skill areas--speaking, listening, vocabulary, reading and writing. Classroom 6 hours, laboratory 2 hours. Prerequisite: CN 111 or equivalent NU placement. Not open to students who have suceessfully completed CN 205 or higher.

CN 205. Intermidiate Chinese I. 3 Credits.
A course providing aural-oral practice in Chinese, in which students enter into full discussion of topics that include abstract themes and cultural perspectives; includes the expanded use of syntactical structures, the reading of sophisticated material, composition, and the viewing of selected Chinese films and documentary materials from Chinese-language television. Taught entirely in Chinese. Classroom 3 hours, laboratory 1 hour. Prerequisite: CN 112, NU language placement exam, or permission of the instructor.

CN 206. Intermediate Chinese II. 3 Credits.
A course providing aural-oral practice in Chinese, in which students enter into full discussion of topics that include abstract themes and cultural perspectives; includes the expanded use of syntactical structures, the reading of sophisticated material, composition, and the viewing of selected Chinese films and documentary materials from Chinese television. Taught entirely in Chinese. Classroom 3 hours, laboratory 1 hour. Prerequisite: CN 205 or the equivalent, NU language placement exam. 3 lecture hours.

CN 301. Advanced Chinese I. 3 Credits.
Oral and written practice of the language through class discussions of selected Chinese texts. Selective review of grammar, especially of the more difficult and subtle aspects, designed to facilitate an idiomatic and fluent use of the language. Classroom 3 hours. Prerequisite: CN 206, NU placement, or permission of instructor.

CN 302. Advanced Chinese II. 3 Credits.
Oral and written practice of the language through class discussions of selected Chinese texts. Selective review of grammar, especially of the more difficult and subtle aspects, designed to facilitate an idiomatic and fluent use of the language. Classroom: 3 hours. Prerequisite: CN 301, NU placement, or permission of instructor.

CN 321. Chinese Literature, Culture and Society I 1911-1949. 3 Credits.
Introduction to major currents in Chinese social, literary, and cultural history from 1911 to 1949. Taught in Chinese. Prerequisite: CN 206 or a 300-level course, NU placement, or permission of instructor.

CN 322. Chinese Literature, Culture and Society II 1949-Present. 3 Credits.
Introduction to major currents in Chinese social, literary, and cultural history from 1949 to present. Taught in Chinese. Classroom: 3 hours. Prerequisite: CN 206 or a 300-level course, NU placement, or permission of instructor.

CN 331. Advanced Chinese Composition and Conversation (I). 3 Credits.
A study of original Chinese journalistic texts to elevate students' Chinese language proficiency in writing and composition, oral reports and discussion, reading and comprehension, and in Chinese-English/English-Chinese translation. Prerequisite: CN 206 or a 300-level course (may be taken concurrently), NU language placement test, or permission of the instructor. 3 lecture hours.

CN 332. Advanced Chinese Composition and Conversation (II). 3 Credits.
A study of original Chinese literary texts to elevate students' Chinese language proficiency in writing and composition, oral reports and discussion, reading and comprehension, and in Chinese-English/English-Chinese translation. Prerequisite: CN 206 or a 300-level course (may be taken concurrently), NU language placement test, or permission of the instructor. 3 lecture hours.

CN 365. Chinese Literature, Culture and Society III: 221 BCE-1911. 3 Credits.
A survey of representative Chinese classical works – novels, short stories. Prose, poetry, and traditional operatic dramas – during Qin Dynasty (221-226 BCE), Han Dynasty (960-1279), Yuan Dynasty (1271-1368), Ming Dynasty (1368-1644) and Qing Dynasty (1644-1911). Lectures, readings, discussions and written reports in Chinese. Prerequisite: CN 206 or a 300-level course (may be taken concurrently), NU language placement test, or permission of the instructor. 3 lecture hours.

CN 366. Chinese Literature, Culture and Society IV: Beginning-221 BCE. 3 Credits.
A survey of Chinese literary, historical and philosophical writings, legends. Folklore, myth, songs, and poems from Zhou Dynasty (1045 BCE-256 BCE), Shang Dynasty (1600 BCE- 1046 BCE), Xia Dynasty (2100 BCE-1600 BCE) and before. Lectures, readings, discussions and written reports in Chinese. Prerequisite: CN 206 or a 300-level course especially CN 365, NU language placement test, or permission of the instructor. 3 lecture hours.

Civil Engineering (CE)

Courses

CE 211. Surveying. 3 Credits.
A course in the theory and practice of plane surveying. Horizontal and vertical control, design of circular and parabolic curves, tachometry, construction surveys and earthwork quantities are covered in lecture. Fieldwork presents the practical applications of lecture material with the use of transits, tapes, levels, electronic distance measuring devices and theodolites. Classroom 2 hours, laboratory 3 hours. Prerequisite: MA 107.

CE 214. Site Development and Engineering. 4 Credits.
A course that teaches the tasks and considerations involved in environmentally sound land development. Road design and it's interaction with development sites will be presented. Other topics covered include contours, drainage utilities, cut and fill, and aesthetic considerations. Codes and legal requirements will also be covered. CADD (Computer Aided Drawing and Design) software specific to Civil Engieering work will be introduced and employed extensively on student projects.

CE 220. Introduction to Environmental Technology. 4 Credits.
A study of the fundamentals of environmental control technology. The course covers the topics of air pollution, water pollution, solid and hazardous wastes, and radioactive wastes. Noise pollution and control are also covered. The generation and treatment of wastes along with their effects on the environment are included in the course. The laboratory includes the basic methods of measuring pollution. Three Credits: Classroom 3 hours. Four Credits Classroom 3 hours, laboratory 2 hours. Prerequisite: CH 103 or CH 111. Not open to engineering students.

CE 318. Soil Mechanics. 3 Credits.
An introduction to the engineering properties of soil: soil classification; soil structure and mineralogy; water flow through soils; compressibility and consolidation; shear strength. Laboratory testing of soils and soil exploration. Offered to allow students from other institutions to transfer 3 credit equivalent courses.

CE 321. Materials Laboratory. 1 Credit.
A laboratory course in the application of basic mechanics of materials principles to cement, aggregate, concrete, steel and wood. Operation of various types of testing machines and gauges. Tests of tension, compression, flexure, torsion, impact, shear, hardness and fatigue. Laboratory observations, analysis, interpretation and reports. Classroom 1 hour, laboratory 2 hours. Corequisite: EG 301 or CE 351.

CE 322. Fluid Mechanics Laboratory. 1 Credit.
A laboratory course in which the principles of fluid mechanics are applied to civil engineering problems. The design and implementation of a laboratory research study, the analysis of data, the presentation of results, and the development of engineering conclusions are integral parts of this course. Lab topics include hydrostatics, pipeflow, open channel flow, flow measurement, and resistance to flow. Classroom 1 hour, laboratory 2 hours. Prerequisite or concurrent enrollment: EG 303.

CE 328. Soil Mechanics. 4 Credits.
An introduction to the engineering properties of soil: soil classification; soil structure and mineralogy; water flow through soils; compressibility and consolidation; shear strength. Laboratory testing of soils and soil exploration. Classroom 3 hours, laboratory 2 hours. Prerequisite: EG 301 or permission of the instructor.

CE 332. Engineering Hydrology. 3 Credits.
A study of the location, movement, and distribution of the waters of the earth for practical applications to society. This course includes the study of the engineering aspects of precipitation, evaporation, infiltration, steamflow and flood and drought prediction. The application of hydrological statistics and computer applications are stressed. Classroom 3 hours. Prerequisite: EG 303 or permission of the instructor.

CE 348. Structural Analysis. 4 Credits.
A course on the analysis of statically determinate and indeterminate beams, frames and trusses. Topics include loads to buildings, shear and moment diagrams, influence lines and classical methods of analysis. Computer applications are introduced using a general frame analysis program. The use of analysis in the overall design process is stressed using a semester-long project. Classroom 4 hours. Prerequisite: EG 301.

CE 351. Statics and Mechanics of Materials. 4 Credits.
A study of elementary, primarily two-dimensional engineering mechanics. Fundamental concepts and basic laws of statics, force systems, structures, and support reactions for loading patterns. Stress-strain relationships to forces: concepts and applications. Consideration of engineering materials and their suitability in various structures and mechanisms. Classroom 4 hours. Prerequisites: MA 107 and PS 201. Not open to engineering students.

CE 399. Intro to Transportation Eng. 3 Credits.

CE 419. Foundation Engineering. 3 Credits.
A course on the use of soil properties to determine bearing capacity and settlement of shallow and deep foundations. Design of earth and earth supporting structures. Classroom 3 hours. Prerequisite: CE 328 or permission of the instructor.

CE 421. Sanitary Engineering. 4 Credits.
Sources, quantities and constituents of water and wastewater are examined and their interaction with the environment is developed. Design of chemical, physical and biological treatment facilities according to current practice is stressed. The laboratory develops standard methods of chemical, physical and biological examination and analysis. Classroom 3 hours, laboratory 3 hours. Prerequisites: EG 303 and CH 104.

CE 422. Water and Wastewater Treatment. 3 Credits.
A study of physical, chemical and biological processes for water and wastewater treatment. The course emphasizes the evaluation of unit processes and the design of water and wastewater treatment facilities. Classroom 3 hours. Prerequisite: CE 421.

CE 432. Solid and Hazardous Waste Engineering. 3 Credits.
A course on the state-of-the-art techniques for disposal of solid and hazardous waste material. Aspects covered will be system design, public health protection, and environmental protection. Classroom 3 hours. Prerequisites: CH 104 and junior or senior status in engineering or science.

CE 433. Groundwater Hydrology. 3 Credits.
A course that covers the basic principles of groundwater flow and modeling, its development as a water source, prevention of groundwater contamination and contaminated groundwater remediation. Classroom 3 hours. Prerequisite: CE 328 or permission of the instructor.

CE 441. Transportation Engineering. 3 Credits.
The planning, design, and construction of transportation systems to meet the mobility requirements of society while considering economic, environmental, and societal constraints. System maintenance and administration are also included. Classroom 3 hours. Prerequisite: CE 211 or permission of the instructor.

CE 442. Design of Metal Structures. 3 Credits.
An introduction to the design of metal structures using the LRFD-AISC code as the basis. Topics include design of tension, compression and bending members; bolted and welded connections. Classroom 3 hours. Prerequisite: CE 348.

CE 444. Reinforced Concrete Design. 3 Credits.
An introduction to the design of reinforced concrete members under bending, shear and axial loadings according to ACI 318R code requirements. Topics also include one-way slabs, footings and retaining walls and an introduction to pre-stressed concrete. Use of the computer as a design tool is introduced. Classroom 3 hours. Prerequisite: CE 348.

CE 450. Air Pollution Control. 3,4 Credits.
A course presenting sources of air pollution and the effect on the environment, the measurement of air pollutants, modeling of air pollutant dispersion, and design of control measures. Use of manual monitoring techniques and physical and chemical fundamentals to measure air quality. Course may be taken for three credits without the lab. Classroom 3 hours, laboratory 3 hours. Prerequisite: EG 206.

CE 451. Air Pollution Control Equipment Design. 3 Credits.
This course builds on and amplifies material studied in CE 450. Properties of air pollutant emissions and thermodynamics, fluid mechanics and heat transfer principles are utilized to design air pollution control equipment. Several major design projects are undertaken by student teams; interim and final design reports are required. In addition, a module on air quality modeling is included. Classroom 3 hours. Prerequisite: CE 450.

CE 452. Introduction to Air Pollution Control. 3 Credits.
A course presenting sources of air pollution and the effect on the environment, the measurement of air pollutants, modeling of air pollutant dispersion, and design of control measures. Classroom 3 hours, laboratory 3 hours. Prerequisite: EG 206.

CE 453. Air Pollution Measurement Lab. 1 Credit.
Use of manual monitoring techniques and physical and chemical fundamentals to measure air quality. Laboratory 3 hours. Corequisite: CE 452.

CE 455. Structures I. 3 Credits.
This course builds directly on the material learned in CE 351 and is specifically directed to the study of the response of structural systems to various loadings. Gravity and lateral loads as well as load combinations on a structure are developed using appropriate building codes. The response of the structural system to imposed loading is studied by classical and computer analysis techniques. Finally, this course introduces the students to the design of simple steel structures that meet the appropriate building code. Classroom 3 hours. Prerequisite: CE 351. Not open to engineering majors.

CE 456. Structures II. 3 Credits.
This course is intended to introduce the students to and develop an understanding of, structural design of wood, concrete and masonry. Particular attention will be given to failure modes of the member types and materials. Each of the principal member types, beam and column as well as connections, will be studied and members designed to meet the appropriate code. Classroom 3 hours. Prerequisite: CE 455. Not open to engineering majors.

CE 457. Wood, Steel, and Concrete Structures. 4 Credits.
This course builds directly on the material learned in CE 351 and is specifically directed to the study of the response of structural systems to various loadings. Gravity and lateral loads as well as load combinations on a structure are developed using approriate building codes. The response of the structural system to imposed loading is studied by classical and computer analysis techniques. This course introduces the students to applicaitons - the design of simple structures of wood, steel, concrete and other materials that meet the appropriate building code. Classroom 4 hours. Prerequisite CE 351. Not open to engineering majors.

CE 458. Structural Issues for Construction. 3 Credits.
This course is intended to introduce the students to structural building applications, and to develop knowledge and comprehension of structural design of steel, wood, concrete, and masonry. Particular attention will be given to concrete members, concrete form design requirements, steel connections, failure modes of the member types and materials. Detailed construction issues with each material will be emphasized. Each of the principal member types, beam and column as well as connections, will be studied and members designed to meet the appropriate code. Lecture 3 hours. Prerequisites: CE 455 or CE 457. Not open to engineering majors.

CE 460. Construction Management. 3 Credits.
A course on the organization, scheduling and management of the construction project utilizing CPM and PERT. Survey of management functions by which construction is authorized, purchased, supervised, accomplished, inspected and accepted, including labor management relations and site design. Classroom 3 hours. Prerequisite: MA 107.

CE 464. Specifications and Estimating. 1 Credit.
A laboratory in plan reading, quantity analysis and cost estimating of Civil Engineering projects. Students will be exposed to standard formats for specifications and estimating. Students will write sample specifications and will gain experience in construction estimation. Laboratory 3 hours. Prerequisites: CE 211 and CE 460.

CE 475. Senior Project Planning. 1 Credit.
Each student will work with a mentor and together will define and analyze a project so that an efficient design can be completed. The project scope will be developed, tasks will be laid out, and a schedule to complete the project will be created. All of this will be presented orally and in written form in a project proposal. Prerequisite: Senior status. Corequisite: CE 460.

CE 480. Senior Design. 3 Credits.
A capstone course in civil engineering. This course builds on and integrates the engineering concepts developed in prior course work into the complete design of a major civil engineering project. The course will require a written and an oral presentation of the completed design to include, where appropriate, plans and specifications. Prerequisites: CE 328, CE 348, and CE 421, or departmental approval.

CE 490. Advanced Topics. 4 Credits.
A course that provides instruction in an area of the instructor’s special competence and student interests. Advanced topics would be presented in such areas as air pollution control, water and wastewater treatment, bioremediation, and nuclear radiation. Offered as the occasion demands. Prerequisite: senior standing.

CE 499. Applied Soils and Foundations. 4 Credits.

Common Engineering (EG)

Courses

EG 043. Conference. 0 Credits.
A scheduled weekly conference hour with the faculty and senior engineering students for discussions of topics such as placement, professional registration, professional ethics, and professional growth after graduation. The course includes a substantial writing component on ethics. A grade of satisfactory (S) is required for graduation. Classroom 1 hour. Prerequisite: senior standing.

EG 044. Conference. 0 Credits.
A scheduled weekly conference hour with the faculty and senior engineering students for preparation of the Fundamentals of Engineering (FE) exam. The student must take the FE exam to receive a satisfactory grade in this course. EG 044 is not required if the student has already passed the FE exam. Classroom 1 hour. Prerequisite: senior standing.

EG 109. Introduction to Engineering i. 3 Credits.
An introduction to engineering, the concepts of engineering design and the non-technical aspects of engineering. The concepts of graphical communication skills to depict engineering designs using computer aided drawing will be covered. Students will perform design projects to incorporate the technical and the non-technical aspects of design into projects. Classroom 2 hours; laboratory 3 hours.

EG 110. Introduction to Engineering II. 3 Credits.
A continuation of EG 109 to include an introduction to engineering computing through the design of algorithms to solve engineering problems. The design projects will be coordinated with mathematics and science courses being taken concurrently by the students to reinforce the material learned in those courses. Design projects will include the technical and non-technical aspects of engineering design. Prerequisite: EG 109 or permission of the instructor. Classroom 2 hours; laboratory 3 hours.

EG 111. Fundamentals of Engineering I. 3 Credits.
An introduction to engineering and the concepts of engineering design. Includes an introduction to graphical communication skills used in engineering through the use of sketching and computer-aided design (CAD) on personal computers. The concepts of orthographic and isometric drawings are stressed and extended to include sections and dimensions. The use of spreadsheets in engineering is also included. This course is open only to students in an Engineering major or those with permission of the Engineering Division Head. Classroom 2 hours, laboratory 3 hours.

EG 112. Fundamentals of Engineering II. 4 Credits.
A continuation of the concepts of engineering design. Includes an introduction to engineering computing through the design of algorithms using structured techniques that employ a high-level engineering computer language. This course is open only to students in an Engineering major or those with permission of the Engineering Division Head. Classroom 3 hours, laboratory 2 hours.

EG 201. Engineering Mechanics (Statics, Dynamics). 3 Credits.
A course in elementary engineering mechanics. Vector notation. Force systems, moments, equilibrium, the free body diagram. Friction, simple frames, trusses, beams, centroids, and second moments. Kinematics: rectilinear and curvilinear motion; translation and rotation; relative motion. Kinetics: force, mass, and acceleration; impulse and momentum; work and energ y. Elementary vector calculus. Classroom 3 hours. Corequisites: MA 122 and PS 211.

EG 202. Engineering Mechanics (Statics,Dynamics). 3 Credits.
A course in elementary engineering mechanics. Vector notation. Force systems, moments, equilibrium, the free body diagram. Friction, simple frames, trusses, beams, centroids, and second moments. Kinematics: rectilinear and curvilinear motion; translation and rotation; relative motion. Kinetics: force, mass, and acceleration; impulse and momentum; work and energy. Elementary vector calculus. Classroom 3 hours. Prerequisites: EG 201 and MA 122.

EG 203. Materials Science. 3 Credits.
An introduction to the science of materials based on the physics and chemistry of their internal structures. The effects of structure on the properties and behavior of metallic, polymeric, ceramic, semiconductor, and composite materials. Classroom 3 hours. Prerequisite: CH 103.

EG 206. Thermodynamics I. 3 Credits.
A study of the fundamental concepts and laws of thermodynamics and of the p operties of pure substances, with applications to engineering processes and operations. Classroom 3 hours. Corequisite: MA 122.

EG 301. Mechanics of Materials. 3 Credits.
A course on the concepts of stress and strain; effect of loads; analysis of plane stress and strain; deformations of beams, shafts, and axial members; buckling and combined stresses. Classroom 3 hours. Prerequisite: EG 201.

EG 303. Fluid Mechanics. 3 Credits.
A study of fluid properties and their significance. Fundamental mechanics of compressible and incompressible fluid motion with application to engineering problems. Topics include resistance of fluids in laminar and turbulent flow; open-channel flow; fluid statics; dimensional analysis and similitude. Classroom 3 hours. Prerequisite: MA 122; Prerequisite or concurent enrollment: EG 206 or permission of the instructor.

EG 447. Special Projects (Technical Elective). 1-6 Credit.
A report on an approved engineering design project or topic area to meet the specific objectives of a student in a particular area of study. Limited to students who have organized plans and/or projects that can be related to their engineering interests. Hours and credits to be arranged. Prerequisite: permission of the curriculum department chair and advisor.

EG 450. Professional Issues. 3 Credits.
A course to prepare the engineering student for the non-technical aspects of the engineering profession. Topics covered include engineering registration, ethical responsibilities, malpractice and legal responsibilities, and the business aspects of the engineering profession. Classroom 2 hours. Recitation 2 hours. Prerequisites: junior or senior status.

Communications (CM)

Courses

CM 109. Introduction to Mass Media. 3 Credits.
The mass media are so pervasive in contemporary society that students in many disciplines will find this course valuable. It provides a comprehensive overview of the development of such media as newspapers, magazines, books, radio, television, film, recordings and the Internet. In addition, it introduces students to issues of regulatory control, audience analysis, media ethics and international mass communications.

CM 207. Journalism I: News Gathering. 3 Credits.
This course covers the fundamentals of news gathering, reporting and writing on assignment. Students learn to evaluate how the media relate events. The course also treats such issues as the right to privacy, the risks of libel, and the ethical contexts of gathering information.

CM 208. Journalism II: Advanced News Gathering and Design. 3 Credits.
This course continues CM 207 and concentrates on in-depth and investigative reporting, interviewing and feature writing, as well as basic newspaper layout and design. Students explore the patterns of thinking and feeling that enable the reporter to make sound observations and judgments. Prerequisite: CM 207 or permission of instructor.

CM 209. Broadcast Writing. 3 Credits.
This course acquaints the student with the theory and practice of writing for broadcast media. Students are introduced to writing styles used in radio, television, and film. They also learn about news gathering, documentary techniques, and dramatic writing. Prerequisite: CM 109 or permission of instructor.

CM 211. Broadcasting Techniques. 3 Credits.
This survey of broadcasting in America stresses the basic principles and professional techniques of radio and television. In addition to learning historical and contemporary applications of broadcast technology, students use campus radio broadcast facilities and the video production studio as working laboratories. Students develop perspective on changing industry standards. Prerequisite: CM 109 or permission of instructor.

CM 261. Interpersonal Communications. 3 Credits.
This course provides an overview of the theories, practices, and processes of human communication, studying such subjects as language acquisition, signs and symbols, body language, proxemics, paralanguage, and feedback. The effects of communication on individuals, society, and intercultural issues are explored. Students identify communication problems and propose creative solutions to them.

CM 271. Television Production. 4 Credits.
An introduction to electronic field production (EFP), electronic news gathering (ENG), and multi-camera studio production with a special-effects switcher. This course is a required course for communications majors. Students will learn how to use professional camera equipment and to construct a news feature segment on the Avid media Composer editing suite platform. Classroom 3 hours, laboratory 3 hours. Offered spring and fall semesters.

CM 303. Advertising. 3 Credits.
A survey of advertising practices and advertising campaigns. Students analyze the visual and verbal properties of successful advertising, discovering the key elements of creative strategy and design.

CM 304. Principles and Practices of Corporate Communications. 3 Credits.
An analysis of the theory and practice of public relations, its functions in organizations, and its role in society. Students apply course material to public relations program planning and management by working individually and in groups on case-study projects. Prerequisite: CM 109 or permission of instructor.

CM 335. Television Criticism. 3 Credits.
This course develops critical perspectives on television programming and introduces students to the complexities of dramatic and non-dramatic programming, including serials, series, sitcoms, docudramas, documentaries, and news stories.

CM 351. Radio Production. 3 Credits.
This course, a continuation of CM 211, is designed for students interested in developing their broadcast production skills as well as their understanding of the entire range of issues associated with radio work. In addition to discussing the most recent cable, satellite, and computer broadcast applications, the course emphasizes work on voice and diction, interviewing, radio news gathering and editing, cultural and public affairs programming, and commercial production. Prerequisite: CM 211 or permission of the instructor.

CM 390. Topics in Communications. 3 Credits.
A course designed to introduce students to a special area or current topic in communications. Course material varies each semester. Analytical writing required. Prerequisite: permission of instructor.

CM 391. Advanced Television Production. 3 Credits.
This course draws on skills learned in CM 271: Television Production. Students gain confidence in their abilities, explore advanced techniques, and learn how to become working members of a professional production team. Advanced areas of instruction include an introduction to the SONY BetacamSP and the development of skills necessary to function as an assistant editor (logging, digitizing, and rendering effects). This is the first in a track of advanced digital technology courses that must be completed in sequential order.

CM 392. Documentary Television Production. 3 Credits.
In this course, students learn the basic fundamentals of traditional long-form documentary production. Early units emphasize research skills, including letters, telephone contacts and archival research. Later units cover on-camera interviewing, logging and organization of footage into off-line drafts. Students learn the functions of the assistant editor on major projects. This is the second in a track of advanced digital technology courses that must be completed in sequential order. Prerequisite: CM 391.

CM 393. Non-linear Digital Television. 3 Credits.
Emphasizes the principles of non-linear post-production. Through discussion,practical exercises and demonstrations, students analyze the differences between linear and non-linear editing systems, the potential and limitations, of digital technology. Students digitize and organize footage, edit sync and non-sync material and assist in the development of sophisticated finished projects for professional portfolios. This is the third in a track of advanced digital technology courses that must be completed in sequential order. Prerequisite: CM 392.

CM 407. Senior Communications Seminar. 3 Credits.
A required course for Communications majors, designed to provide students up-to-date information about the fields of radio, television, journalism, advertising, public relations, public information, wire services and the Internet. Special applications of these fields in business, the military, politics, law, and other professions will be considered. As part of this capstone course, seniors will be required to present and analyze before an audience of department faculty and/or other faculty, a portfolio of prior work. Prerequisite: senior status or permission of instructor.

CM 408. Communications Internship. 3 Credits.
A course designed to combine practical work experience with college-level study in such communications areas as radio, television, advertising, film, journalism, and public relations. Normally, students are required to find their own internship location and must provide their own transportation. Prerequisite: senior status or permission of instructor.

CM 436. Communications Law and Ethics. 3 Credits.
A survey of laws pertaining to journalism, broadcasting, and advertising, emphasizing ethical problems facing journalists and media specialists. Students study the history of press freedom and control and explore First Amendment issues such as the right to privacy; obscenity; and libel. Special emphasis will be placed on media ethics. Prerequisite: CM 109 or permission of instructor.

CM 491. Media Composer Techniques. 3 Credits.
An introduction to the basic technology and aesthetic possibilities of the Avid Media Composer (the industry non-linear post-production standard). As producers and editors, students lead teams of assistants in creating long-form projects. The course combines instructor-led discussion, hand-on demonstration and mentoring assistance. This is the fourth in a track of advanced digital technology courses that must be completed in sequential order. Prerequisite: CM 393.

CM 492. Advanced Media Composer Techniques. 3 Credits.
This course prepares students for professional careers as Media Composer producers and editors. It includes an introduction to mediabase management and stresses speed and efficiency of organizing and editing material using Media Composer software, multiple digital audio tracks, and image compositing. Students create a finished program by course completion. This is the fifth in a track of advanced digital technology courses that must be completed in sequential order. Prerequisite: CM 491.

CM 493. Media Composer Graphics and Effects. 3 Credits.
This course includes a study of the basics in designing multi-layered and multi-nested titles, graphics and effects using the Pinnacle 3D Effects Module. Exercises help students learn to create both real-time and rendered effects. Topics include preparing and importing graphics, creating and using alpha matte keys, the use of Adobe Photoshop and third party packages, creating and saving effects templates and short-cuts and tips for maximum quality and optimal render time. This is the sixth in a track of advanced digital technology courses that must be completed in sequential order. Prerequisite: CM 492.

CM 494. Advanced Media Composer Effects and Graphics. 3 Credits.
Features use of advanced graphics software and broadening of skills learned in CM493: Media Composer Graphics and Effects. Students design complex program openings utilizing 3D templates, mattes, chroma keys, advanced nesting and title features. Third party packages utilized include Adobe After-Effects, BlueICE and Artel BorixFX. This is the seventh in a track of advanced digital technology courses that must be completed in sequential order. Prerequisite: CM 493.

CM 495. Systems Configuration and Media Data Management. 3 Credits.
Offers an overview of systems configuration and maintenance as well as media data-base management to minimize systems downtime and maximize Media Composer productivity. Laboratory work and role-playing give students practical experience. Topics include SCSI, storage, hardware and software troubleshooting, signal flow, systems integration and issues involving external peripheral devices. Features a practicum conducted at Avid Technology. This is the eighth in a track of advanced digital technology courses that must be completed in sequential order. Prerequisite: CM 494.

Computer Engineering (CP)

Courses

CP 431. Network Security. 3 Credits.
Topics include security for networked and internetworked computer systems. It examines secrecy, integrity, and other information assurance objectives in terms of high level policy and presents security services used to address those requirements. Selection and management of cryptographic algorithms and keys to achieve network security objectives will be addressed. Network security architectures, including public key infrastructures and their use of directory services, are examined in terms of systems able to insure that critical security functions are protected from unauthorized modification, are correct, and are always invoked. Access control in networked systems is examined. A review of past and current security architectures will be conducted. Topics include security peripherals for cryptography and authentication, the cascade problem, guards and filters. Laboratory will be used to introduce students to a variety of security-related technologies including discretionary access controls, mandatory access controls in both low and high assurance systems, identification and authentication protocols and database technology in trusted systems. Classroom 3 hours.

Engineering Management (EM)

Courses

EM 101. Intro Construction Project Mgt. 3 Credits.
This course provides a broad overview of the managerial, technological and physical processes that are involved in the creation of the built environment. It specifically focuses on understanding the issues in the management of a construction project. (Prerequisites: none. 3 credit-hours - 2 hours lecture and 3 hours lab).

EM 299. Test course. 4 Credits.

EM 301. Project Management. 3 Credits.
The course covers the principles and practices of project management with particular emphasis on issues related to engineering and construction projects. Students will learn the principles of project management within the firm and in an environment characterized by inter firm relationships. 3 hours of class time per week.

EM 302. Supply Chain Management. 3 Credits.
The course covers the principles and practices of supply chain management with particular emphasis on issues related to engineering and construction projects. Students will learn the principles of supply chain management and purchasing in an environment characterized by inter firm relationships. 3 hours of class time per week.

EM 320. Construction Productivity. 3 Credits.
This course focuses on the planning and execution of the construction of vertical and horizontal construction projects. The course emphasizes the means and methods associated with heavy civil projects, earthwork, and the construction of the project's structural elements. Equipment selection and methods will be a major focus. (Prerequisites: Junior standing. 3 credit-hours lecture).

EM 399. Seminar. 3 Credits.

EM 401. Pre-Construction Mgt. 3 Credits.

EM 402. Construction Management Practices. 3 Credits.
A capstone and practicum course in construction management engineering that explores the processes of management as applied to actual construction projects. Topics will be reviewed in the seminar and students will work in teams to review how these topics were applied in an actual construction project and to design a construction management plan for a proposed project during laboratory. Two 1.5 hours seminar periods and a 3 hour laboratory per week. Prerequisite: CE 460.

EM 405. Preconstruction Planning. 3 Credits.
This course addresses the initial phases of the building creation process. It focuses on addressing the owner's design and construction needs and the delivery of value to the owner. Business development, estimating, planning and presentation skills are emphasized. A Design/ Build model is employed to encompass the full spectrum of architecture, engineering and construction (AEC) requirements. Classroom 3 hours. Prerequisites: EM 302.

EM 410. Pre-Construction Mgt. 3 Credits.

Criminal Justice (CJ)

Courses

CJ 101. Introduction to Criminal Justice. 3 Credits.
A general survey of the principles, system, and process of criminal justice. Introduction to conceptions and definitions of crime, criminal law, and due process. Examination of the organization and operation of the three basic components of the criminal justice system -- the police, the courts, and corrections -- individually and in relationship to one another. Offered in fall semesters.

CJ 102. Substantive Criminal Law. 3 Credits.
This course presents the development of criminal law in the United States and discusses its principles, sources, distinctions, and limitations. The following topics are covered in detail: criminal liability; offenses against persons, property, public peace and public justice; preparatory activity crimes; and defenses available to those charged with criminal activity. Offered spring semester.

CJ 201. Criminology. 3 Credits.
This course covers the various biological, psychological, and sociological types of theory that have been offered to explain the incidence of crime in society. Various types of crime, including violent, property, corporate, political and victimless crime, methods of studying crime, and characteristics of criminals are also examined. Offered spring semesters.

CJ 209. Methods of Social Science Research. 4 Credits.
An examination of the methodological foundations of the social sciences; the logic and technique of empirical inquiry; the nature of social facts, the operationalization of concepts, and the construction of hypotheses; research designs including surveys, interviews, experiments, observation, and evaluation; the organization and analysis of data; graph and table construction and interpretation; the common problems of empirical social research; and research ethics. Emphasis given to criminal justice applications. The lab part of the course instructs students how to use and apply SPSS and other relevant software. Cross-listed with SO 209. Offered fall semester. Classroom and Laboratory 4 hours.

CJ 300. Topics in Criminal Justice. 3 Credits.
Selected topics offered on occasion.

CJ 301. Criminal Procedure. 3 Credits.
This course addresses the legal procedure connected with arrest, search and seizure, identification and questioning, bail setting, indictments, and plea bargaining. Offered fall semesters.

CJ 304. Juvenile Delinquency. 3 Credits.
An examinatoin of the social and psychological dimensions of juvenile delinquency, its nature, extent, distribution, and patterns. Evaluation of theories and explanations of delinquent causation, and the investigation of delinquent subcultures. Consideration of labeling and conflict factors in the processing, prevention, and treatment of delinquents.

CJ 305. Juvenile Justice. 3 Credits.
A general survey of the philosophy, system and process of juvenile justice. Examination of the social and legal control of juvenile delinquency by the police, courts and corrections, as well as by private agencies. Emphasis on the distinctions in philosophy, law, jurisdiction, organization and terminology between the juvenile justice system and the adult criminal justice system. Offered every other year.

CJ 306. Victimology. 3 Credits.
An examination of the role of the victim in crime and the treatment of the victim by the criminal justice system. Instruction in the use of victimization data in determining crime rates and in developing prevention programs. Review of victim assistance, restitution and compensation programs. Offered every other year.

CJ 307. Social Control and Crime Prevention. 3 Credits.
The course will focus on crime prevention as a method of social control and will examine processes of social control as social and institutional sources of crime prevention. Examination of personal defense, environmental, situational, community, and social models of crime prevention. Offered every other year.

CJ 308. The Police. 3 Credits.
A general survey of American policing and police organizations. Examination of the history of the police and the police idea, as well as structural, cultural, and social psychological analyses of police organizations. Coverage of the topics of police socialization, behavior, and discretion; routine and specialized operations; community policing; and police misconduct, accountability and change in policing.

CJ 310. The Courts. 3 Credits.
An analysis of America's courts, and the courtroom work group with particular attention given to the dual role of the courts in adjudicating cases and interpreting the U.S. and state constitutions.

CJ 312. Corrections. 3 Credits.
An analysis of the development and present structure of the correctional process in America, including detailed examinations of the operational problems of correctional institutions, probation and parole practices and other community-based correctional alternatives. Offered spring semesters.

CJ 314. Restorative Justice. 3 Credits.
This course presents a new paradigm of community justice as an alternative to the retributive model. The course examines and contrasts restorative approaches and traditional punitive responses to crime. Topics include mediation, victim-offender reconciliation, reparation for harm done to victims and the community and offender re-integration into the community. Offered every other year. Prerequisite: CJ 101 or permission of instructor. 3 lecture hours.

CJ 320. Drugs and Society. 3 Credits.
This course focuses on the interrelationships between drugs and the social order. Issues considered include: the nature and effects of legal and illegal drugs; the determinants of drug effects, especially the social determinants; the history of drug prohibition; drug addiction and drug treatment; and drug policy. Cross-listed with SO 320. Offered every other year.

CJ 330. Terrorism. 3 Credits.
In this course, students examine the critical issues of domestic and international terrorism. The phenomenon of terrorism is analyzed from varying theoretical and empirical perspectives. Topics include terror organizations/networks, ideology, motives, tactics, and propaganda. Attention is also given to terrorism research trends, current events, and future implications. Offered annually. Prerequisite: CJ 101 or permission of instructor.

CJ 341. Cyber Law and Cyber Crime. 3 Credits.
The course includes extensive discussion of the legal constraints, both civil and criminal, that underlie acceptable behavior using computers and networks today. Prerequisites: IS 120 or IS 130 and CJ 201 or permission of instructor. Offered in fall semesters.

CJ 400. Independent Study. 3 Credits.
An opportunity for qualified upperclass students to engage in an intensive research program in fields of interest not satisfactorily covered by regular course offerings. Periodic conferences will be required. Prerequisite: written consent of the instructor to a specific project presented by the applicant. Open only to criminal justice majors with a cumulative quality point average of 2.5 or better and who have grades averaging 3.0 or better in prior course work in criminal justice. Offered on occasion.

CJ 402. Law and Society. 3 Credits.
An analysis of various theoretical perspectives on the nature, courses, organization and operation of law and legal systems. Emphasis will be placed on law creation, conflict resolution, the legal profession, and the role of law in social change. Cross listed with SO 402. Offered every other year.

CJ 403. Criminal Justice Administration. 3 Credits.
An introduction to the principles of public administration as they are applied in the operation of criminal justice agencies. This course will emphasize how such topics as organization, decision making, leadership style, personnel policy, planning, and budgeting are specifically adapted by criminal justice administrators to meet the needs of their agencies. Simulations will be used extensively as a tool for mastering administrative principles. Prerequisite: CJ 101 or permission of instructor. Offered every other year.

CJ 405. Internship. 3 Credits.
This elective course permits an upper-level student to participate directly in the criminal justice process by serving as an aide to agencies involved in the process. This offering is subject to the availability of such internships. Open only to junior and senior criminal justice majors, and to senior criminal justice minors on availability. Offered fall, spring and summers.

CJ 410. Senior Seminar. 3 Credits.
A course dedicated to intensive research and analysis of major issues in criminal justice. Emphasis will be placed on critical thinking and evaluation of topics previously discussed during the student's academic career in the criminal justice program. Attention will also be given to professional development topics, ethics and criminal justice policy. Prerequisite: criminal justice major and senior standing. CJ 410 meets capstone requirement. Offered spring semesters.

CJ 421. Comparative Criminal Justice Systems. 3 Credits.
This course examines how countries other than the United States deal with the problem of crime and its control. It begins from the classic approach of a critical analysis of the history and development of the world's great legal traditions, and the role and structure of the crimina justice systems inside those traditions. Prerequisite: CJ 101. Offered every other year. 3 credits hours.

CJ 422. Civil Liability in the Criminal Justice System. 3 Credits.
This course examines the civil law that governs criminal justice agencies. As representatives of the government, Criminal Justice agencies must adhere to the Constitution and other State and Federal laws. When they fail to do so, the aggrieved party has the right to sue. This course explores the major state and federal liability theories that govern the management and daily operations of the police and correctional facilities. In addition, this course draws on your previous police, corrections and law courses to explore management issues related to civil liability. Prerequisite: CJ 101, CJ 102, CJ 301. Offered every other year. 3 credits hours. Open only to juniors and seniors.

CJ 423. Evidence. 3 Credits.
The course is an in-depth examination of the rules governing the admissibility or exclusion of evidence at trail. Subjects include competency of witness, direct and cross-examination of witnesses, the rule against hearsay and its exceptions, expert and lay opinion testimony, privileged communications, relevancy, procedural considerations, judicial notice, burden of proof, presumptions, form and type of objections, authentication, the best evidence rule and the use of demonstrative and scientific evidence. Prerequisites: CJ 101 and CJ 102. Offered every other year. 3 credit hours. Open only to juniors and seniors.

CJ 424. Murder: Our Killing Culture. 3 Credits.
This course provides a comprehensive examination of the nature and extent of both the common and unusual forms of murder in the United States. The class examines characteristics, trends, and the theoretical explanations of homicide as well as the prediction and prevention of various kiinds of murder. The impact of murder on homicide survivors is also examined as well as the use of murder as entertainment in our culture. The course is designed to give students greater insight into serial, spree and mass murder, intrafamilial homicide, murder in the workplace, profiling and stalking. Although emphasis is placed on the sociological determinants of murder, psychological and biological factors are also examined. Prerequisite: CJ 101 or permission of instructor. Offered every other year. 3 credits hours. Open only to juniors and seniors.

CJ 425. Domestic Violence. 3 Credits.
This course provides a comprehensive examination of the nature and extent of domestic violence in the United States. Theoretical perspectives used to explain intimate violence are examined as well as the social factors that are related to patterns of intimate and family abuse. The course discusses domestic violence from a historical and global perspecctive and is designed to provide students with a greater understanding of the impact of domestic abuse on victims/survivors and society as a whole. Topics including child and elder abuse; the criminal justice system's response to domestic abuse; intervention, well as related crimes such as sexual assault and intrafamilial homicides. Prerequisite: CJ 101 or permission of instructor. Open only to juniors and seniors. Course is offered every other year. 3 credit hours.

CJ 442. Introduction to Computer Forensics. 4 Credits.
This course provides the student with an ability to perform basic forensic techniques and use appropriate media analysis software. Knowledge of the security, structure and protocols of network operating systems and devices will be covered as students learn to gather evidence in a networked environment and to image and restore evidence properly without destroying its value. The student will learn and practice gaining evidence from a computer system while maintaining its integrity and a solid chain of custody. Within the laboratory, the student will gain hands-on experience in the use of current investigative tools. Classroom 3 hours, laboratory 2 hours. Prerequisites IS 228 and CJ 341. Offered in spring semesters.

Economics (EC)

Courses

EC 106. The Structure and Operation of the World Economy. 3 Credits.
This course will introduce students to the operation of the world economy. Emphasis will be on the identification and description of economic concepts such as tariffs, multinational companies, stock markets, debt, international trade balances and international banking. These concepts will be developed utilizing examples from current world economic conditions. This course fulfills General Education Requirement #5: an understanding of economic institutions that are characteristic of human societies. Prerequisite: This is a freshman course-permission of instructor required for any exception.

EC 201. Principles of Economics (Macro). 3 Credits.
Description and analysis of the American economic system in terms of basic economic concepts and the determination of national income and its fluctuation. This course fulfills General Education Requirement #5: An understanding of economic institutions that are characteristic of human societies. Prerequisite: one semester of college mathematics.

EC 202. Principles of Economics (Micro). 3 Credits.
Study of the composition and pricing of national output, distribution of income and the pricing of productive factors, international aspects of trade, and the problems of growth. This course fulfills General Education Requirement #5: An understanding of economic institutions that are characteristic of human societies. Prerequisite: one semester of college mathematics.

EC 300. Topics in Economic History. 3 Credits.
This course will focus on the progress and development of economic institutions of industrialized nations. These institutions, such as private property, free markets, financial intermediation and discretionary fiscal policy, will be discussed in a historical perspective. Prerequisites: EC 201 and EC 202. Offered in the spring odd years.

EC 301. Intermediate Price Theory. 3 Credits.
A study of the economic behavior of consumers and producers and their interrelationship in a market economy. Emphasis is on the application of economic theory and the tools of analysis to price determination and market behavior. Welfare economics and other modern analytical techniques are also introduced. Prerequisites: EC 201, EC 202 and either MA 108 or MA 121.

EC 302. National Income Analysis. 3 Credits.
The theory and policies of determining national income, achieving economic stability and maintaining economic growth. Attention is given to leading post-Keynesian and Monetarist economists' interpretation of current economic conditions. Prerequisites: EC 201, EC 202, and either MA 108 or MA 121.

EC 304. Labor Economics. 3 Credits.
Operation of labor markets from theoretical and policy perspectives. Topics include: human capital theory, the impact of labor unions and public policy issues relevant to collective bargaining, unionism, wages and income. Prerequisites: EC 201 and EC 202. Offered in the spring even years.

EC 310. Money and Banking. 3 Credits.
The principles and institutions of money, banking and finance as they influence the performance of the economy. The major topics covered are the nature of money, commercial banking and financial institutions, central banking, monetary theory, monetary policy, inflation and the international monetary system. Prerequisites: EC 201, EC 202 and QM 213 or permission of the instructor.

EC 331. Business and Government. 3 Credits.
A study of the institutional relationships between business and government, with stress upon public policies toward business and the role of government in fostering competition. Emphasis is placed upon the economic effects of the antitrust laws through outside readings and analysis of landmark court decisions. Other topics covered are concentration and mergers, restrictive business practices, monopoly and oligopoly. Prerequisites: EC 201 and EC 202. Offered in the fall even years.

EC 403. Comparative Economic Systems. 3 Credits.
The study of major economic systems. Theories of capitalism, socialism and communism and their implementation by major nations are discussed. Prerequisites: EC 201 and EC 202. Offered in the spring odd years.

EC 406. Public Finance. 3 Credits.
An investigation of the effects of government expenditures and revenues on the efficiency of resource allocation and the equity of the income distribution. Topics covered include public goods, externalities, benefit-cost analysis, the structure of major taxes and expenditure and tax incidence. Prerequisites: EC 201 and EC 202. Offered in the fall even years.

EC 419. International Economics. 3 Credits.
International trade and the theory of comparative advantage. Special attention is given to free world trade and economic development in other countries and groupings as in the European Common Market. Prerequisites: EC 201 and EC 202. Offered in the fall odd years.

EC 421. History of Economic Thought. 3 Credits.
Development of economic thought with emphasis upon the evaluation of economic theory as it has developed in response to problems of society. Prerequisites:EC 201 and EC 202. Offered in the fall odd years.

EC 499. Seminar in Economics and Finance. 3 Credits.
A capstone economics course designed to integrate the students' undergraduate studies in economics, management, accounting, information systems and finance. Prerequisite: senior standing and permission of instructor.

Education (ED)

Courses

ED 101. Foundations of Education I. 1 Credit.
This is a one-credit course that is offered during the first semester of the freshman year and introduces teacher education licensure candidates to the teaching profession. Topics include teacher characteristics, demands of the profession, self assessment, the nature of teaching, and an introduction to the development of the professional portfolio. Offered in the Fall.

ED 102. Foundations of Education II. 1 Credit.
Observations of children and adolescents in day care, preschool, and the public schools. 1 lecture hour.

ED 201. Foundations of Education III. 1 Credit.
This course examines the historical and sociological aspects of education including the impact of the family, the community, and economic and cultural influences. Offered in Spring. 1 lecture hour.

ED 202. Foundations of Education IV. 1 Credit.
This course examines the historical and philosophical aspects of education. Offered in Spring. 1 lecture hour.

ED 232. Curriculum and Methods of the Elementary School Subjects. 4 Credits.
An examination of the curriculum and teaching strategies associated with the subjects taught in the elementary school, including mathematics, science, social studies, health, physical education, and the fine arts. Knowledge and research in child growth and development are used as a guide for determining the curriculum materials and procedures that are suitable for children. Students work with children to develop curriculum and teach lessons in the elementary school. Required for elementary teacher licensure candidates. A Practicum of 30 hours will be done during this course. Usually offered in the spring semester.

ED 234. Learning and Teaching Strategies. 4 Credits.
This course includes an overview of the most commonly used strategies in elementary and secondary classrooms. Topics include planning, instructional objectives, media and computer applications, common learning strategies (lecture, discussion, cooperative learning, role playing, questioning, discovery learning) evaluation and assessment of learning. Secondary teacher licensure candidates prepare units and lessons in their fields of study applying specific methods and materials of the subject area. All students participate in microteaching situations. Required for elementary and secondary teacher licensure candidates. Twelve hours of classroom observation are required in this course. Offered in Fall.

ED 351. Methods of Teaching Science to Elementary Students. 3 Credits.
This course examines objectives, methods, and content in elementary science instruction. Emphasis will be on student preparation, teaching and carrying out science activities. These activities will be ready for classroom use. National standards, Vermont Framework, and Vermont Grade Cluster Expectations will be the basis for the content and for the appropriateness of content at different grade levels. This course cannot be used to meet the general education laboratory levels. Prerequisite ED 234. Ten hours of practicum is required and development of portfolio continues. A service-learning component is also offered to all students.

ED 360. Language Arts and Teaching Reading in the Elementary School. 4 Credits.
A study of language development and reading, including an introduction to traditional instructional methodologies of reading and a study of the whole language approach to the language arts. Students will have opportunities to apply theory in various settings. Required for elementary teacher licensure candidates. Prerequisite: ED234. Twelve hours of classroom observation are required in this course. A service Learning component is also attached to this course which will provides students an opportunity to work in the community in the context of literacy. Development of portfolio continues.

ED 363. Reading and Writing in the Content Area. 4 Credits.
A course designed to familiarize content area teachers with the theories and practices of reading and writing in specific disciplines. Students will examine the developmental nature of the reading and writing processes and design discipline-specific materials. Students work as tutors at the secondary and college levels. Required of secondary teacher licensure candidates. Prerequisite: ED 234. A Practicum of 30 hours will be done by Secondary track students during this course. Offered in Spring.

ED 368. Curriculum & Methods in Secondary Subjects. 4 Credits.
An examination of the curriculum and teaching strategies associated with the subjects taught in the secondary school, including English, mathematics, science, and social studies. Students will learn about the general methods for teaching at the Middle/High school level, but will concentrate on their area of content concentration in both their practicum and final project. Knowledge and research in child growth and development is used as a guide for determining the curriculum materials and procedures that are suitable for secondary education students. Students work with adolescents, develop curriculum, and teach lessons in the Middle/High School. Students will keep a reflective journal of all their experiences in the practicum. Required for Teacher Education Licensure secondary track. A Practicum of 30 hours will be required in this course. Offered in the fall. Development of a portfolio continues.

ED 403. Problems in Education. 1-3 Credit.
In this course students are involved in individual investigation, survey, or a project related to education. Offered on Demand.

ED 404. Problems in Education. 1-3 Credit.
In this course students are involved in individual investigation, survey, or a project related to education. Offered on Demand.

ED 425. Student Teaching. 12 Credits.
In this course there is a full-time student teaching assignment. This course may be taken only as a part of the teacher education licensure program. This is a capstone course for teacher education Licensure students. Offered every semester. 14 lecture hours. A service-learning componet is embedded in this course.

ED 432. Curriculum and Methods of the Elementary School. 4 Credits.
An examination of the curriculum and teaching strategies associated with the subjects taught in the elementary school, including mathematics, science, social studies, health, physical education, and the fine arts. Knowledge and research in child growth and development are used as a guide for determining the curriculum materials and procedures that are suitable for children. Students work with children to develop curriculum and teach lessons in the elementary school. Required for elementary teacher licensure candidates. A Practicum of 30 hours will be done during this course. Usually offered in the spring semester.

Electrical Engineering (EE)

Courses

EE 200. Engineering Programming. 3 Credits.
Introduction to a high level programming language such as C/C++. Topics include structure and organization of a computer program, variables and basic data types, flow of control, functions, file I/O, arrays and strings, computer memory, CPU and pointers, user defined structures, computer algortithms, modular design and documentation. Introduction to object oriented programming concepts. This course is offered once a year.

EE 204. Electrical Circuits I. 3 Credits.
A study of principles and methods of analysis of electric circuits with both direct and time varying sources in the steady state. KCL, KVL, mesh and nodal techniques. Network theorems are developed and applied to the analysis of networks. Energy storage elements. First order and second order circuits with forced and natural responses. Sinusoidal analysis, complex numbers, phasor diagrams. Power; average effective, and complex power in single phase systems. Classroom: 3 hours. Corequisite: MA 122.

EE 215. Fundamentals of Digital Design. 4 Credits.
An introductory course on formal design techniques for combinational and sequential logic circuits. Topics include combinational logic networks, minimization techniques, registers, synchronous sequential neworks, and control units. Applications of the concept developed in the classroom will be implemented in the laboratory. Classroom 3 hours, laboratory 2 hours.

EE 240. Electrical Concepts and Applications. 3 Credits.
A course on the theory and application of electrical devices and circuits. Discussions include magnetic circuits, transformers, electric machines, diodes, bipolar transistors, and field effect transistors. Integrated circuits are introduced. Digital switching circuits are treated, including logic gates, flip-flops, and counters. Operational amplifiers and their major applications are studied. Offered to qualified students not majoring in Electrical Engineering. Classroom 2 hours, laboratory 3 hours. Prerequisite: EE 204.

EE 242. Digital Systems Design. 4 Credits.
Topics are hierarchical design methods, design and debugging of digital hardware, determination of circuit behavior, control and timing, machine organization, control unit implementation, and interface design. A hardware design language will be used and students will acquire design experience implementing digital hard ware. Classroom 3 hours, laboratory 2 hours. Prerequisite: EE 215.

EE 303. Electromagnetic Field Theory I. 3 Credits.
Maxwell's Equations are developed from the experimental laws of electric and magnetic fields. Topics involving electric fields include Gauss's Law, divergence, energy, potential, conductors, dielectrics, and capacitance. Topics involving magnetic fields include the Biot-Savart Law, Ampere's Law, magnetic forces, magnetic materials, and inductance. Maxwell's Equations are used to describe wave motion in free space and in dielectric media. Classroom 3 hours. Prerequisites: MA 223, EE 204.

EE 314. Elements of Electrical Engineering. 4 Credits.
A course on the theory and application of electrical devices and circuits. Topics that are appropriate for discussion include dc circuits, single-phase and three-phase ac circuits, amplifiers, transducers, transformers, and electric machines. Offered to qualified students not majoring in Electrical Engineering. Classroom 3 hours, laboratory 3 hours. Prerequisite: MA 122.

EE 321. Embedded Systems. 4 Credits.
The use of computing devices in embedded applications is introduced. Computer organization topics include the arithmetic logic unit, timing and control, memory, serial and parallel I/O ports, and the bus system. Programs are written and run in assembly language and higher-level languages. Additional topics include peripheral interface control, interrupts, cross assembly and applications. Classroom 3 hours, laboratory 2 hours. Prerequisite: EG 110 or IS 130.

EE 325. Computer Architecture and Operating Systems. 3 Credits.
Machine architecture - machine performance relationships, computer classification, and computer description languages. Consideration of alternative machine architectures. Software influences on computer design. Topics include digital logic, VLSI components, instruction sets, addressing schemes, memory hierarchy ache and virtual memories, integer and floating point arithmetic, control structures, , buses, RISC vs. CISC, multiprocessor and vector processing (pipelining) organizations. Examples are drawn from Pentium and Sparc microcomputers. The primary focus is on the attributes of a system visible to an assembly level programmer. This course also introduces the fundamentals of operating systems. Topics include concurrency, scheduing, memory and device management, file system structure, security, and system performance evaluation. Lecture 3 hours. Offered once per year.

EE 350. Linear Systems. 3 Credits.
This course provides the foundations of signal and system analysis. Linear, time-invariant, causal, and BIBO stable analog and digital systems are discussed. System input-output descriptions, convolution and the impulse response are covered. Additional topics include singularity functions, Fourier and Laplace circuit analysis, circuit transfer functions, Bode plots, ideal filters, and real filters including Butterworth, Chebyschev, and Elliptic. Discrete topics include the transform, difference equations, FIR and IIR filters, the bilinear transformation, the DTFT, the DFT, and the FFT. Classroom 3 hours. Prerequisite EE 356.

EE 356. Electrical Circuits II. 3 Credits.
This course is a continuation of Electric Circuits I (EE 204). The complete solutions of linear circuits by Laplace transforms are developed. The concepts of frequency response, resonance, network functions, two port networks including hybrid parameters are studied in depth. The concepts of transformers, power, coupled circuits, multi-phase circuits, and Fourier series are introduced. Computer-based circuit simulation is used throughout. Classroom 3 hours. Prerequisite: EE 204.

EE 357. Electronics I. 3 Credits.
The basic building blocks used in electronic engineering are studied. Diodes, bipolar transistors, and MOS transistors are modeled and then used to describe the operation of logic gates and amplifiers. Emphasis is placed on the operation and applications of standard integrated circuit chips. Classroom 3 hours. Prerequisite: EE 204.

EE 359. Electrical Engineering Laboratory. 1 Credit.
Implementation, analysis, and design of electric and electronic circuits involving resistors, inductors, capacitors, diodes, bipolar transistors, MOS transistors, operational amplifiers and filters. Study and practice in the use of standard electrical engineering laboratory instrumentation. Laboratory 2 hours. Prerequisite: EE 215; corequisites: EE 356, EE 357.

EE 366. Electronics II. 4 Credits.
This course is a continuation of Electronics I (EE 357). Analog and digital circuits are discussed. Analog topics include frequency response, real world applications of operational amplifiers, power amplifiers, filters, oscillators and A/D and D/A converters. Digital electronic building blocks are discussed, including flip-flops, counters, coding and decoding circuits and memory. Classroom 3 hours, laboratory 2 hours. Prerequisites: EE 357, EE 359.

EE 373. Electrical Energy Conversion. 4 Credits.
A course on principles of energy conversion in electromechanical devices and machines. Analysis of transformers, polyphase synchronous and asynchronous machines, single phase fractional horsepower machines, and DC machines. Classroom 3 hours, laboratory 2 hours. Prerequisite: EE 356; corequisite: MA 224.

EE 399. EE Topics. 3 Credits.

EE 3XX. Electical Engineering. 4 Credits.

EE 411. Microprocessor-Based Systems. 4 Credits.
This course deals with organization, operation and design of systems where the microprocessor controls special interfaces to non-standard devices and responds to external events in a timely fashion. Topics include interface of special purpose peripherals, data structures, control structures, program and data organization and real time operating systems. Application to communications, automated measurement, process and servo control are discussed. Classroom 3 hours, laboratory 2 hours. Prerequisites: EE 215, CP 321.

EE 459. Power Systems Analysis. 3 Credits.
This course presents the foundations of electric power systems analysis after an initial review of single and three-phase power, complex power and transformers. Topics include per unit quantities, generators, transmission line models, transformer models, short-circuit analysis, load flow, and power systems economics. Lecture: 3 hours. Prerequisites: EE 356 and EE 373. Offered once per year.

EE 463. Communication Systems. 4 Credits.
Analog transmission of information signals by communication systems is analyzed. The component parts of transmitters and receivers including AM/FM modulators, filters, detectors and decoders are discussed. Mathematical concepts include the Fourier Series, Fourier Transform, dirac delta function and sinc function. Signal classification and digital modulation techniques such as ASK, FSK, PSK, PAM and QAM. Classroom 3 hours, laboratory 2 hours. Prerequisites: EE 356, EE 357, EE 359.

EE 468. Solid State Materials. 3 Credits.
Solid state materials, physics of electronic devices and integrated circuit design are studied. Topics include silicon crystal properties, diffusion, implantation, lithography and circuit fabrication. Device models are derived for junction diodes, bipolar and MOS transistors. Classroom 3 hours. Prerequisites: EE 303, EE 357.

EE 478. Control Systems. 3 Credits.
Analysis and design of continuous-time and discrete-time control systems using classical and state-space methods. Laplace transforms, transfer functions and block diagrams. Transient-response analysis, Routh-Hurwitz stability criterion, and steady-state error analysis. Analysis of control systems using the root-locus and frequency-response methods. Computer-aided design and analysis. Lecture: 3 hours. Prerequisites: EE 204 and MA 224. Offered once per year.

EE 486. Digital Signal Processing. 3 Credits.
An introductory level course that discusses the conversion of analog signals to discrete time signals. Emphasis will be on the processing of discrete signals using both time-domain and frequency-domain analysis. These techniques will be applied to the design of digital filters. Classroom 3 hours. Prerequisite: EE 350 or instructor's permission.

EE 487. Digital Signal Processing Lab. 1 Credit.
Implementation analysis and design of digital signal processing functions and techniques. Study and practice in the use of software and hardware platforms used for digital signal processing applications. Laboratory: 3 hours. Prerequisite: EE 350. Co-requisite: EE 486. This course is offered once a year.

EE 490. Advanced Topics. 3 Credits.
A course that provides advanced study in an area of the instructor's special competence. Courses that have been offered in the past include Power System Stability, Electrical Communications II, Microwave Theory and Techniques and Digital Systems. Offered as the occasion demands. Classroom 3 hours. Prerequisite: senior standing.

EE 491. Electrical System Design I. 3 Credits.
Introduction to design problems. Application of concepts of electrical engineering to a capstone design project. The first of a two-semester sequence, this course focuses on the problem statement, specification, preliminary design, design review and approval stages of the design processes, the design process involves exploring alternate solutions and design optimization and simulation. Economic constraints and human factors are considered in the design process. The course requires nine hours per week of directed reading, research and experimentation. Prerequisite: seventh semester standing and permission of the instructor.

EE 494. Electrical System Design II. 3 Credits.
This course is the second in the two-semester capstone design project sequence. It focuses on the final stages of the design process-finalized design, implementation and testing. A written project report and an oral presentation to students and faculty is required. Nine hours per week of directed readings, research, and experimentation. Prerequisite: EE 491.

English (EN)

Courses

EN 005. Basic English. 3 Credits.
A review of the fundamentals of composition designed to raise the student's command of English to the college level. Required for those whose tests and records demonstrate weakness in diction, spelling, grammar, punctuation and organization. Offered fall semester only. Students assigned to EN 005 must successfully complete the course before enrolling in EN 101. This course will not meet any degree requirements and cannot be used as an elective.

EN 101. Composition and Literature I. 3 Credits.
EN 101 is devoted chiefly to the principles of written organization, exposition, argumentation, and research.

EN 102. Composition and Literature II. 3 Credits.
EN 102 provides, through an extension and intensification of the methods and approaches of EN 101, an introduction to fiction, poetry, drama, and film. Prerequisite: EN 101.

EN 105. English as a Foreign Language I. 3 Credits.
A course for intermediate non-native speakers of English that stresses writing, reading, speaking, listening improvement and provides an introduction to the social and cultural values of the English-speaking world.

EN 106. English as a Foreign Language II. 3 Credits.
A course for advanced non-native speakers of English that stresses writing, reading, speaking, listening improvement and provides an introduction to the conduct, organization and reporting of library research. Prerequisite: EN 105.

EN 107. Composition and Literature for Foreign Nationals I. 3 Credits.
A course for advanced non-native speakers of English that parallels the content and structure of EN 101. The student and instructor will meet in conference to assess the student's progress in the course. Prerequisite: EN 106 or permission of instructor.

EN 108. Composition and Literature for Foreign Nationals II. 3 Credits.
A course for advanced non-native speakers of English that parallels the content and structure of EN 102. The student and instructor will meet in conference to assess the student's progress in the course. Prerequisite: EN 107 or permission of instructor.

EN 112. Public Speaking. 3 Credits.
A practical course in the fundamentals of public address and speech analysis.

EN 201. World Literature I. 3 Credits.
A course that examines representative works of world literature up to the mid-seventeenth century. Texts are explored in their historical, cultural, and social contexts. EN 201 is not a prerequisite for EN 202. Prerequisite: EN 102 or EN 108. 3 lecture hours. Offered every semester.

EN 202. World Literature II. 3 Credits.
A course that examines representative works of world literature from the mid-seventeenth century to the present. Texts are explored in their historical, cultural, and social contexts. Prerequisite: EN 102 or EN 108. 3 lecture hours. Offered every semester.

EN 203. Advanced Composition. 3 Credits.
A course designed to move beyond the fundamentals of writing studied in EN 101 and EN 102 and to develop the student's abilities as a writer through the composition and analysis of extended essays on a variety of topics, employing a range of rhetorical approaches.

EN 204. Professional and Technical Writing. 3 Credits.
A course that teaches the theory and practice of communicating on the job. Instruction addresses written, visual, and oral technical communication. Assignments involve students in practical, collaborative and technologically informed learning modeled upon realities of the work place.

EN 205. World Literature for Foreign Nationals I. 3 Credits.
A course in reading and writing for non-native speakers of English, which parallels EN 201. Assignments examine masterpieces of world literature and include study of the Greco-Roman, Judeo-Christian, Asian, African, and New World traditions up to the mid seventeenth century. Texts are explored in their historical, social and cultural contexts. The student and instructor will meet in conference to assess student's progress in the course. EN 205 is not a prerequisite for EN 206.

EN 206. World Literature for Foreign Nationals II. 3 Credits.
A course in reading and writing for non-native speakers of English, which parallels EN 202. Assignments examine masterpieces of world literature and include study of the European, Asian, African, and New World traditions up to the mid seventeenth century. Texts are explored in their historical, social, and cultural contexts. The student and instructor will meet in conference to assess student's progress in the course. EN 205 is not a prerequisite for EN 206.

EN 210. Modern Short Story. 3 Credits.
A study of the short story genre through reading, discussion, and written analysis of selected modern stories. The course also addresses the history of the short story and the nature and uses of literary art.

EN 220. Children's Literature. 3 Credits.
A course familiarizing students with the range and history of children's literature. Students revisit beloved classics as well as significant contemporary works, analyzing literary value.

EN 225. Survey of British Literature I. 3 Credits.
An overview of British literature from the Anglo Saxons to the late-eighteenth century in their historical and cultural contexts, with attention to the development of the English language. May include texts in Middle English. Selections may include sermons, chronicles, and letters as well as fiction, poetry, and drama. Provides a foundation for upper-level study in the discipline and is required for English majors. Prerequisite: EN 102 or EN 108. 3 lecture hours. Offered every fall.

EN 226. Survey of British Literature II. 3 Credits.
An overview of British literature from the Romantics to the present in their historical and cultural contexts. May include non-fiction as well as fiction, poetry, and drama. Provides a foundation for upper-level study in the discipline and is required for English majors. Prerequisite: EN 102 or EN 108. 3 lecture hours. Offered every spring.

EN 227. Survey of American Literature I. 3 Credits.
An overview of colonial and post-Revolutionary writing in its historical and cultural contexts, including the work of European explorers and native peoples in the eighteenth and early nineteenth centuries. Selections may include letters, travel narratives, and political documents as well as fiction, poetry, and drama. Provides a foundation for upper-level study in the discipline and is required for English majors. Prerequisite: EN 102 or EN 108. 3 lecture hours. Offered every fall.

EN 228. Survey of American Literature II. 3 Credits.
An overview of American writing from the Civil War to the present in its historical and cultural contexts. Selections may include non-fiction as well as fiction, poetry, and drama. Provides a foundation for upper-level study and is required for English majors. Prerequisite: EN 102 or EN 108. 3 lecture hours. Offered every spring.

EN 239. Introduction to Theater. 3 Credits.
A course that provides a basic introduction to theater as an art form and as an academic discipline. Topics of study include a survey of theater history; an analysis of the different forms of drama, including representative plays; and an introduction to the performance aspects of acting, directing, and theatrical design.

EN 240. Technical Aspects of Theatrical Design. 3 Credits.
A course that provides instruction in all phases of the construction of scenery, costumes and in lighting production, together with an introduction to the design of these elements.

EN 241. Acting and Directing. 3 Credits.
A course that introduces the basic techniques of acting and directing, including instruction in the relationship of the actor to the other actors on the stage. Extensive use is made of improvisation and theater games. Directing instruction gives the student practice in the solution of directorial problems through the staging of scenes, tableaux and pictorial dramatizations.

EN 242. Play Production. 1-3 Credit.
A course that provides study and performance of theater and play production techniques as well as rehearsal and presentation of a full-scale dramatic production. Students may choose to audition to act in a play or to work on one of the technical support crews. Three accumulated hours will comprise one 3-credit for free elective use only.

EN 244. The Literature of Leadership. 3 Credits.
A survey of major literary texts dealing with the theme of leadership. Differing examples and ideals of leadership are related to the philosophical assumptions and cultural values of the authors and civilizations represented by each work. Both advocacy and critique of these ideals are examined; contrasts among them emphasize the ethical implications of leaders' decisions. Topics include relationships among leadership, religion, and philosophy; leadership and technology; the role of coercion or political/economic power; and the potential conflicts of leadership and individual freedom.

EN 245. Science Fiction Literature. 3 Credits.
A study of representative readings in science fiction literature centered on novels and short fiction from the late-nineteenth century to the present with a focus on how these works develop major themes associated with the genre. Prerequisites: EN 102 or EN 108. 3 lecture hours.

EN 250. Crime in Literature. 3 Credits.
A course in which students read and discuss works of literature that explore the ethical, social and philosophical implications of criminal behavior and society's response to it.

EN 251. Literature of the Sea. 3 Credits.
A study of literature about life at sea, especially during times of crisis. The course examines attitudes toward solitude, comradeship and the ocean's beauty and power. Moral and physical qualities needed by a ship's officers and crew are also discussed. Readings are drawn from world literatures, ancient and modern.

EN 270. Military Literature. 3 Credits.
A study of men and women in war and the military service, their ideals, experiences, and strategies as seen in foreign and American military literature of the 19th and 20th centuries.

EN 272. Veterans' Literature and Writing. 3 Credits.
In this course, students read a selection of works by veterans to explore how soldier-writers have given voice to their military experiences and to reflect on how writers have depicted war and the military experience. These texts will serve as models to students as they develop personalized writing projects, either critical or creative, over the course of the semester. This course is open to anyone who is currently serving, or has served, in any branch of the military. This course fulfills a literature, writing or humanities requirement. Prerequisite: EN 102 or EN 108 and instructor permission.

EN 282. Literary Methods. 3 Credits.
Literary Methods serves as an introduction to scholarship in the discipline of English. To begin, students will examine the evolution and current state of English literary study as a discipline, learn how a literary text becomes an object of study, and identify a secondary text and the kinds of methodologies at work in them. Students themselves will then engage in the practice of literary research and analytical writing by focusing on one text in English and its respective body of criticism. Course work will comprise gathering and analyzing primary and secondary sources, enhancing close reading skills, and performing substantive piece of research. Auxiliary critical writing exercises might include an annotated bibliography or a literature review. Required for the English major and minor. Prerequisites: EN 102 or EN 108. 3 lecture hours.

EN 292. Am Ethnic Lit & Cultural Lit. 3 Credits.
The purpose of this course is two-fold: to acquaint the student with the writings of representative ethnic groups in America in terms of their contributions to American literature and culture in general; and to familiarize the student with both the problems of minority groups in integration and with the solutions which have been offered to these problems by the minority representatives themselves. The course will offer material form as many minority groups as time allows. Prerequisite: EN 102 or EN 108. 3 lecture hours.

EN 299. Topics in English Studies. 3 Credits.
Topics vary. Designed as a Humanities elective for non-majors. Prerequisite: EN 102 or EN 108. Course may be repeated for credit with a different topic. 3 lecture hours.

EN 306. Creative Writing. 3 Credits.
A course designed for those who wish to explore their own writing. Attention will be given to specific problems in the writing of fiction, poetry, drama and other literary forms.

EN 307. The History of the Motion Picture. 3 Credits.
A study of the development of the motion picture from a technological curiosity to a powerful, pervasive vehicle for art and argument.

EN 308. The Motion Picture Director. 3 Credits.
A study, through readings and viewings of representative films, of the work of three great motion picture directors: Emphasized their contributions to the art of the motion picture and their statements as artists viewing their own times.

EN 310. The Art of the Motion Picture. 3 Credits.
A study of cinema art direction, photography, editing, writing and acting. Classes involve lecture, discussion, readings in film criticism and the viewing of selected films.

EN 311. American Film Comedy. 3 Credits.
A study of representative American film comedies from a variety of standpoints: generically (as manifestations of comic tradition); culturally (as examples of satire and social criticism); aesthetically (as products of cinematic and literary techniques); historically (as parts of an evolving tradition). Representative films include works by Keaton, Chaplin, the Marx Brothers, W. C. Fields, Jerry Lewis, Stanley Kubrick, Woody Allen and others.

EN 320. Literature of the Third World. 3 Credits.
A study of the literature of developing nations. The course emphasizes works that reveal a country's distinctive religious, social, economic, political institutions and the challenges that confront them. Topics to be discussed may include colonialism: the struggle for national identity: the impact of modern technologies on traditional values: tensions between military power and democratic processes: and the clash between the wealthy and the poor,.

EN 333. The Plays of Shakespeare. 3 Credits.

EN 334. The Plays of Shakespeare. 3 Credits.
A study of selected mature comedies, problem plays, tragedies and romances.

EN 350. History of the English Language. 3 Credits.
This course will trace the linguistic, material, and cultural development of the English language from its North Germanic beginnings to its current status as a global lingua franca, with special attention to the early British forms. We will attend to the structure of language (e.g., lexicon, syntax, phonetics) as well as to its socio-political aspects (e.g., migration, class, codification). Students will be asked to read, analyze, and contextualize texts in Old, Middle, and Early Modern English. Required for the English Major. Fulfills Gen. Ed. Humanities requirement but will not serve as literature elective. Prerequisite: EN 102 or EN 108.

EN 372. English Romantic Literature. 3 Credits.
A study of major Romantic literature, including selected novels of the period.

EN 375. Victorian Literature. 3 Credits.
A study of major Victorian literature, including selected novels of the period. Writers may include Tennyson, Browning, Rossetti, Wilde, and Dickens. Prerequisite: EN 102 or EN 108. 3 lecture hours. Usually offered annually.

EN 376. Modern British Literature. 3 Credits.
A study of British literature from about 1900 through World War II. Writers may include Conrad, Woolf, Lawrence, and Joyce. Prerequisite: EN 102 or EN 108. 3 lecture hours. Usually offered annually.

EN 377. Recent British Literature. 3 Credits.
A study of British writing since World War II. Writers may include Rushdie, Sparks, Lessing, and McEwan. Prerequisite: EN 102 or EN 108. 3 lecture hours. Usually offered annually.

EN 391. Major Writers of the American Renaissance. 3 Credits.
A study of important American writers of fiction and non-fiction of the middle nineteenth century, including Hawthorne, Melville, Emerson, Thoreau, Poe, Fuller, and Douglass. Prerequisite: EN 102 or EN 108. 3 lecture hours. Offered alternate years.

EN 392. American Poetry 1890 - Present. 3 Credits.
A detailed study of modern American poetry from Robinson and Frost to the present. Prerequisite: EN 102 or EN 108. 3 lecture hours.

EN 393. Major American Social Realists. 3 Credits.
A study of the literary record of the American social, cultural, and psychological experience at home and abroad in the works of such writers as Howells, James, Wharton and Cather.

EN 394. American Short Story Writers. 3 Credits.
A study of the major artists and innovators of the genre, from Poe and Irving to Cheever, Updike and beyond.

EN 395. Major19th Century American Poets. 3 Credits.
A brief glance at Colonial and Revolutionary poets, with a more extended analysis of writers such as Poe, Longfellow, Lowell, Whitman, Dickinson, and Lanier. Prerequisite: EN 102 or EN 108. 3 lecture hours. Usually offered every other year.

EN 396. American Novelists, 1920-1940. 3 Credits.
A study of the novels of writers such as Hemingway, Faulkner, Ellison, Larsen, Yezierska, and Steinbeck. Prerequisite: EN 102 or EN 108. 3 lecture hours. Usually offered every other year.

EN 397. Writers of Contemporary American Fiction. 3 Credits.
A course emphasizing the fiction of writers such as Updike, Oakes, Cheever, Alexie, Angelou, Pynchon, and O'Connor. Prerequisite: EN 102 or EN 108. 3 lecture hours. Usually offered every other year.

EN 398. American Dramatists from 1918 to the Present. 3 Credits.
A study of American plays, including musical comedy and the experimental theater of the fifties and sixties, by such authors as O'Neill, Anderson, Rice, Odets, Wilder, Williams, Miller, Shepard, Howe, and Albee. Prerequisite: EN 102 or EN 108. 3 lecture hours. Offered on occasion.

EN 399. Topics in English Studies. 3 Credits.
Topics vary. Designed as an elective for majors and advanced non-majors. Prerequisite: EN 102 or EN 108. Course may be repeated for credit with a different topic. 3 lecture hours.

EN 406. Major Figure Seminar. 3 Credits.
A seminar that focuses on the work of a single author and allows depth of study and research.

EN 420. Thematic Seminar-Literature. 3 Credits.
A seminar that explores a topic of interest in the Humanities.

EN 425. Directed Study In Literature. 3 Credits.
A course in which a student of demonstrated ability works with a faculty mentor in a well-defined area in Literature within the competence of the department faculty. Emphasis will be on student initiative, guided reading, and consultations with the mentor. Prerequisite: permission of the instructor and the department curriculum committee.

EN 450. Senior Seminar. 3 Credits.
The required capstone course for the major. EN 450 measures students' ability to distinguish periods of English and American literature; to analyze a work in relation to one of several specified intellectual contexts; and to demonstrate competence in the practice of at least two critial approaches. Students are encouraged to bring to the seminar papers written for courses completed earlier in the major. Two essays (one of which fulfills the university requirement for a senior paper outlining ethical standards based on life experience) and a major oral presentation-to faculty members from both within and outside the English department--are required. Pre-requisite: senior status as an English major or minor or permission of the instructor. *May be repeated once, on a different topic, for a maximum of 6 credits.

Environmental Science (ES)

Courses

ES 130. Introduction to Environmental Law. 3 Credits.
Major Federal pollution regulation schemes, environmental economics, risk analysis, relevant common law, and constitutional and procedural issues are introduced. Vermont Environmental Law is addressed, as is a survey of the extensive and often novel regulatory approaches of the state of Vermont. The course introduces the law pertaining to environmental issues such as population, economic growth, energy, and pollution. Environmental problems are defined and alternative approaches for dealing with them are examined. Existing statutory efforts such as the National Environmental Policy Act, the Clean Air Act, and the Resource Conservation and Recovery Act are analyzed. Does not fulfill a science requirement. Three lecture hours per week. Offered Spring of even numbered years.

ES 251. Sophomores Seminar Environmental Science. 1 Credit.
This course introduces the fundamentals of scientific investigation and communication. A research project introduces the Sceinctific Method, while reading and comprehension of scientific literature is coupled with instruction in and application of technical and scientific writing. Other forms of scientific communication, including poster and oral presentations, are addressed. Students learn the appropriate techniques for displaying and interpreting scientific data. Students may not earn credit for both ES 251 and GL 251. Offered Fall semester.

ES 270. Fundamentals of Environmental Science. 4 Credits.
This lab science course investigates the atmosphere, hydrosphere, lithosphere, and pedosphere and their interrelations as well as the affect they have on humans and the role that humans play in large-scale change within these spheres. Subjects include modern climate principles and global climate change, water as a natural resource, natural hazards such as landslides, earthquakes and volcanoes, soil nutrient loss and erosion, sustainable agriculture, and other topics related to natural-human interactions. Prerequisite, one introductory Geology lab science. Offered Fall semester of even numbered years.

ES 399. Junior Topics. 4 Credits.

ES 450. Directed Study in Environmental Science. 4 Credits.
A capstone project carried out under the direction of a faculty member and in coordination with others taking this course. A laboratory and/or field component of the project will generate new data on an expanding base, and an environmental science report will be prepared based in part on the results of that work. Prerequisite: permission of the instructor. Credit cannot be received both for this course and GL 450. Offered fall semesters.

ES 451. Environmental Seminar. 3 Credits.
A capstone course offered in a seminar format with required reading, writing, and group participation. Designed to provide an integrating experience with sufficient flexibility to pursue individual interests. This course also includes oral and poster presentations of senior research projects and examination of codes of ethics in the environmental sciences. Classroom 3 hours. Prerequisite: junior or senior standing and permission of the instructor. Credit cannot be received both for this course and GL 451. Offered spring semesters.

Finance (FN)

Courses

FN 311. Corporate Finance. 3 Credits.
Development of the basic theoretical framework for decision-making in financial management, emphasizing the time-value of money and hte analysis of cash flows. Areas of concentration are financial institutions and markets, financial statement analysis, the role of time value in finance, bond and stock valuation,capital budgeting decision process, risk and return analysis, cost of capital and dividend policy. Prerequisites: AC 206 or AC 201, EC 202, QM 213 or permission of the instructor.

FN 407. Corporate Finance II. 3 Credits.
Special topics in financial management including: international managerial finance, mergers and acquisitions, hybrid and derivative securities, working capital management, short-term and long-term financing, financial planning, leverage analysis and capital structure theory. Prerequisites: QM 213, FN 311. Offered in the spring-odd years.

FN 412. Investments. 3 Credits.
Methods of security analysis and portfolio management, including the current theoretical literature and thought. Discussion and analysis of current events and their implications for stock price behavior. Prerequisistes: QM 213, FN 311. Offered in the spring-even years.

Fine Arts (FA)

Courses

FA 201. History/Theory of Architecture I. 3 Credits.
This course explores the architecture of different cultures from around the world beginning with the earliest evidence of human habitation and ending with the arrival of the renaissance. It examines the development of domestic, civic, and religious sites, as well as towns and settlements. The course explores major cultural, social, technological, and ideological influences on built environments, as well as examines the history, the context, and the form of notable examples. Three hours of lecture per week. Preference given to architecture majors. Note: Students who successfully complete this course may not take FA 221.

FA 202. History/Theory of Architecture II. 3 Credits.
This course explores the architecture of different cultures from around the world focusing on Western architecture from the Renaissance to the 19th century. It examines the development of domestic, civic, and religious sites, as well as towns and settlements. The course explores major cultural, social, and technological influences on built environments, as well as looks at the history, the context, and the form of notable examples. It additionally examines the developing ideologies of prominent practitioners. Three hours of lecture per week. Preference given to Architecture majors.

FA 221. History of Visual Arts I: Prehistoric to 1350. 3 Credits.
These courses provide an opportunity to develop an understanding of well-made artifacts by addressing quality or artistic value in terms of form and content. Students are acquainted with the principal periods of Western art by a study of outstanding examples of architecture, sculpture, painting, and the minor arts, ranging from prehistoric times to the present. First semester: formal vocabulary; prehistoric art to the medieval international style. Second semester: Renaissance to the present. Three hours of lecture per week.

FA 222. History of Visual Arts II: 1350 to the Modern Era. 3 Credits.
These courses provide an opportunity to develop an understanding of well-made artifacts by addressing quality or artistic value in terms of form and content. Students are acquainted with the principal periods of Western art by a study of outstanding examples of architecture, sculpture, painting, and the minor arts, ranging from prehistoric times to the present. First semester: formal vocabulary; prehistoric art to the medieval international style. Second semester: Renaissance to the present. Three hours of lecture per week.

FA 240. History of American Art. 3 Credits.
A survey of American architecture and art from colonial times to the present. Emphasis is placed on the rise and development of the arts in the United States and the changing nature and functions of art in American society. European influences and Native American contributions will be noted. Three hours of lecture per week.

FA 250. Topics in Art. 3 Credits.
Topics vary each semester, focusing on past and current issues in art related to historical style, art and the social context, aesthetic theory, tradition and innovation in media, and the role of art and the artist as an agent of communication in our time. This course may be repeated for credit. Three hours of lecture per week.

FA 260. Art Appreciation. 3 Credits.
This course is introductory in nature and focuses on varied ways to appreciate art: the role of the viewer, the purposes and functions of art, the creative process, materials and technology available to the artist, the relationship of art to culture Western and non-Western), and issues of art style and meaning. Three hours of lecture per week.

FA 308. History/Theory of Artchitectural III. 3 Credits.
This course presents a survey of architecture from approximately the mid eighteenth century through to the early 1930s, focusing on the rise and early development of the modern movement. It integrates the historic aspects of the key examples of architecture and urban design from this ear with the theoretical ideas that generated the built form. Included in the course content is a discussion of the new programs, new social/economic/ political organizations and new construction materials and methodologies the drove the search for new forms to represent the new ideas of the modern industrialized era. Prerequisite: FA 202. 3 lecture hours.

FA 309. History/Theory of Architectural IV. 3 Credits.
This course presents a survey of architecture from approximately the 1930s to the present day focusing on the various evolutionary paths of architectural development, including the codification of the international style and the subsequent challenges to the modern dogma into eras of mid and late modernism, expressionism, nationalism, organicism, brutalism, regionalism, postmodernism, deconstructivist architecture, and into the integration of the digital in design and manufacture of built works. Each evolutionary stance is discussed through analysis of the key works integrating the historic aspects with the theoretical ideas that generated the architectural works. Prerequisite FA 308. 3 hours of lecture.

French (FR)

Courses

FR 111. Beginning French I. 6 Credits.
The main purpose of this intensive course is to lead students to communicate in French at a basic level, to appreciate the French-speaking world, and to develop cultural awareness. In a highly interactive environment, students learn to understand, speak, read, and write French. French-language films, videos, and music presented in lab sessions are selected to reinforce the cultural material discussed in class, improve speaking and listening skills, and address differences in nonverbal communication. Not open to students who have successfully completed FR 205 or higher. Classroom 6 hours, laboratory 2 hours.

FR 112. Beginning French II. 6 Credits.
A continuation of FR 111 in which language skills are brought to a level enabling students to participate more fully in general conversation, to read more sophisticated passages, and to write with a firmer command of syntactical structures. Cultural competency is further developed. Classroom 6 hours, laboratory 2 hours. Prerequisite: FR 111, NU language placement, or equivalent. Not open to students who have successfully completed FR 205 or higher.

FR 150. Topics Course. 3 Credits.
Specialized topics relating to French and Francophone culture, literature, business practices, or language. Topic will be indicated in the schedule of classes. This is an introductory-level course. Course may be repeated for credit if the topic differs. May be taught in French or English; see schedule of classes. (When taught in English, this course may not count towards fulfilling the foreign-language requirement.) Classroom: 3 hours; laboratory varies with topic of course.

FR 205. Intermediate French I. 3 Credits.
A course providing aural-oral practice in French, in which students enter into full discussion of topics that include abstract themes and cultural perspectives; includes the expanded use of syntactical structures, the reading of sophisticated material, composition, the viewing of selected French and Francophone films and documentary materials from French-language television. Taught entirely in French. Classroom 3 hours, laboratory 1 hour. Prerequisite: FR 112, NU language placement, a score of 500 on the CEEB French Reading Test, or permission of the instructor.

FR 206. Intermediate French II. 3 Credits.
A course providing aural-oral practice in French, in which students enter into full discussion of topics that include abstract themes and cultural perspectives; includes the expanded use of syntactical structures, the reading of sophisticated material, composition, the viewing of selected French films and documentary materials from French television. Taught entirely in French. Classroom 3 hours, laboratory 1 hour. Prerequisite: FR 205 or the equivalent, NU language placement, score of 500 on the CEEB French Reading Test, or permission of the instructor.

FR 250. Topics Course. 3 Credits.
Specialized topics relating to French and Francophone culture, literature, business practices, or language. Topic will be indicated in the schedule of classes. This is an intermediate-level course. Course may be repeated for credit if the topic differs. May be taught in French or English; see schedule of classes. (When taught in English, this course may not count towards fulfilling the foreign-language requirement.) Classroom: 3 hours; laboratory varies with topic of course.

FR 311. Advanced French I. 3 Credits.
A continuation of grammar review at the advanced level; further development of oral expression through discussion and formal presentations. An introduction to the analysis of Francophone literature and film; an overview of major events, including cultural and scientific developments affecting French thought. Students will prepare written work in a workshop atmosphere in which rewriting and collaboration are encouraged in order to teach self-correction. Readings, lectures, discussions, student presentations, written work entirely in French. Classroom 3 hours, laboratory 1 hour. Prerequisites: FR 206, NU language placement, or permission of the instructor.

FR 312. Advanced French II. 3 Credits.
A continuation of grammar review at the advanced level; further development of oral expression through discussion and formal presentations. An introduction to the analysis of Francophone literature and film; an overview of major events, including cultural and scientific developments affecting French thought. Students will prepare written work in a workshop atmosphere in which rewriting and collaboration are encouraged in order to teach self-correction. Readings, lectures, discussions, student presentations, written work entirely in French. Classroom 3 hours, laboratory 1 hour. Prerequisites: FR 206, NU language placement or permission of the instructor.

FR 321. A Survey of French Literature I. 3 Credits.
An introduction to French Literature. Lectures, reading, discussion in French. Includes an historical survey of French civilization comprising developments in art, music, philosophy and science. Readings in French literature from the Middle Ages to 1789, from the chivalrous medieval epic to the philosophes of the Enlightenment and expression of the egalitarian ideal of the revolution.. Readings, lectures, discussions, student presentations, written work entirely in French. Prerequisites: FR 206, or a 300-level course (may be taken concurrently), NU language placement, or permission of the instructor.

FR 322. A Survey of French Literature II. 3 Credits.
An introduction to French Literature. Lectures, reading, discussion in French. Includes an historical survey of French civilization comprising developments in art, music, philosophy, the technology of warfare and the sciences. Readings in French literature from Romanticism to literature of the Absurd and beyond. Readings, lectures, discussions, student presentations, written work entirely in French. Prerequisites: FR 206, or a 300-level course (may be taken concurrently), NU language placement, or permission of the instructor.

FR 327. French Literature of the Twentieth Century I. 3 Credits.
A study of French literature (novel) from the latter part of the 19th century to the present day. Topics of study include concurrent developments in the other art forms and in the sciences; the impact of the World Wars on Francophone authors and artists. Readings, lectures, discussions, student presentations, written work in French. Prerequisites: FR 206, or a 300-level course (may be taken concurrently), NU language placement, or permission of the instructor.

FR 328. French Literature of the Twentieth Century II. 3 Credits.
A study of French literature (poetry, theater, and film) from the latter part of the 19th century to the present day. Topics of study include concurrent developments in the other art forms and in the sciences; the impact of the World Wars on Francophone authors and artists. Readings, lectures, discussions, student presentations, written work in French. Prerequisites: FR 206, or a 300-level course (may be taken concurrently), NU language placement or permission of the instructor.

FR 331. Advanced French Composition, Conversation, and Translation I. 3 Credits.
A course in French stylistics, translation, oral reports and discussions in French. Prerequisites: FR 206, or a 300-level course (may be taken concurrently), NU language placement or permission of instructor.

FR 332. Advanced French Composition, Conversation, and Translation II. 3 Credits.
A course in French stylistics, translation, oral reports, and discussions in French. Prerequisites: FR 206, or a 300-level course (may be taken concurrently), NU language placement or permission of instructor.

FR 350. Topics Course. 3 Credits.
Specialized topics relating to French and Francophone culture, literature, business practices, or language. Topic will be indicated in the schedule of classes. This is an advanced-intermediate to advanced-level course. Course may be repeated for credit if the topic differs. May be taught in French or English; see schedule of classes for prerequisite. (When taught in English, this course may not count towards fulfilling the foreign-language requirement.) Classroom: 3 hours; laboratory varies with topic of course.

FR 415. Seminar: Topics in French Literature. 3 Credits.
Study of a particular author, theme, genre, or literary movement, including cultural themes. Offered as occasion demands. Topic varies each year these courses are offered. Prerequisites: FR300-level course or permission of instructor.

FR 421. Reading and Research on a Topic in French Literature and Civilization. 3 Credits.
A report on an approved project of original research in French literature or civilization under the direction of a department member. Limited to students who have demonstrated aptitude for independent work. May be scheduled either or both semesters. Prerequisites: FR300-level course, permission of the department chair and course instructor.

Freshman Triad (FT)

Courses

FT 001. Freshman Triad. 1 Credit.
A seminar in which first year students are introduced to university life, its purpose, development and traditions, while developing skills for academic success and life-long learning. The mechanisms employed in this course include reading, writing assignments, discussions, visits to resource and research centers, and visits by speakers. 1 lecture hour.

Geography (GE)

Courses

GE 104. Introduction to Geography. 3 Credits.
A survey of man’s occupancy of the earth, his cultures and economies, their distribution and spatial relationships.

GE 300. Topics in Geography. 3 Credits.
Select topics offered on occasion.

Geology (GL)

Courses

GL 110. Introduction to Geology. 4 Credits.
An introduction to Earth’s internal and external physical processes, its materials and landforms, and the connection between natural phenomena and humans. Topics include: minerals, rocks, water and natural resources; plate tectonics, mountain building, volcanism, earthquakes, slope failure and related hazards; rivers and flood management; erosion, soil degradation, desertification and sustainable agriculture; sea-level rise, coastal and wetland erosion and shore zone management. Discussion of human interaction with the Earth will range from local policy to global economic decisions. Offered fall and spring semesters. Classroom 3 hours, laboratory 2 hours.

GL 111. Oceanography. 4 Credits.
A basic survey of the physical, chemical, and geologic character of the world’s oceans. Topics include patterns of energy exchange, chemical cycles, geological environments within the sea, and evolution of ocean basins. Classroom 3 hours, laboratory 2 hours. Offered spring semester only.

GL 156. Historical Geology. 4 Credits.
The origin and history of the earth and the evolution of life as disclosed by the rock and fossil record. The laboratory work consists of the study of fossils and geologic maps, plus field trips. Classroom 3 hours, laboratory 2 hours. Offered spring semester only.

GL 199. Geology Elective. 4 Credits.

GL 251. Sophomore Seminar in Geology. 1 Credit.
This course introduces the fundamentals of scientific investigation and communication. A research project introduces the Sceinctific Method, while reading and comprehension of scientific literature is coupled with instruction in and application of technical and scientific writing. Other forms of scientific communication, including poster and oral presentations, are addressed. Students learn the appropriate techniques for displaying and interpreting scientific data. Students may not earn credit for both ES 251 and GL 251. Offered Fall semester.

GL 253. Geomorphology. 4 Credits.
A course on the origin and evolution of topographic features by geological processes acting upon various earth materials and geological structures. Classroom 2 hours, laboratory and/or field work 4 hours. Prerequisite: GL 112, GL 153 or GL 156. Offered spring of even-numbered years.

GL 257. Sedimentation. 4 Credits.
A course that provides the analysis and interpretation of sedimentary rocks, sedimentary processes and environments of deposition. Classroom 2 hours, laboratory and/or field work 4 hours. Prerequisite: GL 112, GL 153 or GL 156. Offered fall of even-numbered years.

GL 258. Stratigraphy. 4 Credits.
A study of the description and correlation of layered rocks and the interpretation of the stratigraphic record based on examples from North America and Europe. Classroom 2 hours, laboratory and/or field work 4 hours. Prerequisite: GL 112, GL 153 or GL 156. Offered spring of odd-numbered years.

GL 260. Projects in Geology. 1-4 Credit.
A course that provides a geological field or laboratory project on a topic chosen by mutual consent of the student and the instructor. A written report is required. Prerequisites: GL 153 or GL 156 and permission of the instructor.

GL 261. Field Geology. 4 Credits.
A study of the techniques used in the measurement of large and small scale geologic structures. Emphasis is placed on field recognition of features such as bedding, cleavage, folds, faults and their use in geologic mapping. Classroom 2 hours, laboratory 4 hours. Prerequisite: GL 153 or permission of the instructor. Offered fall of even-numbered years.

GL 262. Structural Geology. 4 Credits.
A course that provides the analysis and interpretation of patterns in the structural features of the Earth's crust. Topics include the genesis of tectonic features, analysis of strain in rocks, the interpretation of multiply-deformed rocks, and modeling of faults and fractures. Classroom 3 hours, laboratory 3 hours. Prerequisite: GL261 or permission of the instructor. Offered spring of odd-numbered years.

GL 263. Mineralogy. 4 Credits.
Introductory crystallography and crystal chemistry are used to explain the properties of minerals. Each of the major mineral groups is studied in the laboratory with a focus on developing competency in the identification of the ore minerals and the rock-forming minerals. Development of an understanding of mineral associations is emphasized and field trips allow opportunity to improve these skills. Classroom 2 hours, laboratory 4 hours. Prerequisite: GL 153 or permission of the instructor. Offered fall of odd-numbered years.

GL 264. Petrology. 4 Credits.
Following an introduction to optical identification of the rock-forming minerals using the polarizing microscope, the mineralogy and textures of common rocks are studied by means of thin sections. The genesis of these rocks is explained through a study of the physical and chemical systems they represent. Classroom 2 hours, laboratory 4 hours. Prerequisite: GL 263. Offered spring of even-numbered years.

GL 265. Glacial Geology. 4 Credits.
A study of the origin and development of glaciers, interpretation of Pleistocene glacial features with emphasis on New England. Classroom 2 hours, laboratory and/or field work 4 hours. Prerequisite: GL 112, GL 153 or GL 156. Offered fall of odd-numbered years.

GL 399. Junior Topics. 4 Credits.

GL 450. Directed Study in Geology. 4 Credits.
A capstone course in which there is preparation of a geological report based on a project of original research involving field, laboratory, or library study or some combination of these. Conference schedules will be determined by the nature of the project and the student's schedule. Prerequisite: permission of the instructor. Offered fall semesters as needed. Student cannot receive credit for this course and ES 450.

GL 451. Geology Seminar. 3 Credits.
A capstone course for fourth-year students designed to review advanced geological concepts in a seminar format. The course also includes oral and poster presentations of senior research projects, and examination of codes of ethics in the geological sciences. Prerequisite: Senior Geology major or permission of the instructor. Offered spring semester as needed. Student cannot receive credit for this course and ES 451.

German (GR)

Courses

GR 111. Beginning German I. 6 Credits.
An intensive course providing an introduction to the German language, in which speaking proficiency, aural comprehension, vocabulary acquisition, reading and writing are brought to a level enabling students to use the language actively in everyday situations. Not open to students who have successfully completed GR 205 or higher. Classroom 6 hours, laboratory 2 hours.

GR 112. Beginning German II. 6 Credits.
A continuation of German 111, in which language skills are brought to a level enabling students to participate more fully in general conversation, to read more sophisticated passages, and to write with a firmer command of syntactical structures. Classroom 6 hours, laboratory 2 hours. Prerequisite: GR 111 or equivalent. Not open to students who have successfully completed GR 205 or higher.

GR 150. Topics Course. 3 Credits.
Specialized topics offered relating to culture, literature, business practices, language or linguistics. Topic will be indicated in the schedule of classes. May be repeated for credit as topics vary. May be taught in German or English; see schedule of classes. (When taught in English, this course may not count towards fulfilling the foreign language requirement.) Classroom: 3 hours.

GR 205. Intermediate German I. 3 Credits.
A sequence that provides aural-oral practice in German, in which students are enabled to enter into full discussion of topics that include abstract themes; review and expanded use of syntactical structures; intensive and extensive reading; and composition. Classroom: 3 hours, laboratory: 1 hour. Prerequisite: GR 112, NU placement, or a score of 500 on the CEEB German Reading Test.

GR 206. Intermediate German II. 3 Credits.
A sequence that provides aural-oral practice in German, in which students are enabled to enter into full discussion of topics that include abstract themes; review and expanded use of syntactical structures; intensive and extensive reading; and composition. Classroom 3 hours, laboratory 1 hour. Prerequisite: GR 205 or the equivalent, NU placement exam or score of 500 on the CEEB German Reading Test.

GR 250. Topics Course. 3 Credits.
Specialized topics offered relating to culture, literature, business practices, language or linguistics. Topic will be indicated in the schedule of classes. May be repeated for credit as topics vary. May be taught in German or English; see schedule of classes. (When taught in English, this course may not count towards fulfilling the foreign language requirement.) Classroom: 3 hours.

GR 321. Survey of German Culture I: From the Beginnings to 1848. 3 Credits.
Introduction to major currents in German social, political and cultural history from the time of the Roman Empire until the Revolution of 1848. Taught in German. Prerequisite: GR 206 or equivalent.

GR 322. Survey of German Lit I: From the Beginnings to 1848. 3 Credits.
Introduction to major texts and literary figures from the Roman Era until the Revolution of 1848, including, among others, Tacitus, Charlemagne, the courtly poets, Luther, the literary Baroque, Lessing, Goethe, Schiller, Kleist, the brothers Grimm, Buchner and Heine. Taught in German. Prerequisite: GR 206 or equivalent.

GR 323. Survey of German Culture II: 1848 to 1945. 3 Credits.
Introduction to major currents in German social, political, and cultural history from the evolution of 1848 through Bismarck and German unification to World War 1, the Weimar Republic, and the period of Fascism and the Holocaust. Taught in German. Prerequisite: GR 206 or equivalent.

GR 324. Survey of German Literature II: 1848 to 1945. 3 Credits.
Introduction to major texts and literary figures from the first unification of Germany until the end of World War II, including Nietzsche, Hofmannsthal, Rilke, Thomas Mann, Kafka, Brecht, and others. Taught in German. Prerequisite: GR 206 or equivalent.

GR 325. Survey of German Culture III: 1945 to the Present. 3 Credits.
Introduction to major currents in German social, political, and cultural history of the Germanies and Austria, post-war to post-wall: the period of Allied occupation followed by the economic miracle of the 1950s and 60s, radicalism and upheaval in the late 60s and 70s, and finally, the rise and fall of the Berlin Wall, culminating in the uneasy co-existence between East and West that has prevailed since re-unification. Taught in German. Prerequisite: GR 206 or equivalent.

GR 326. Survey of German Literature III: 1945 to the Present. 3 Credits.
Introduction to major texts and literary figures active since the end of World War II, including Borchert, Boll, Celan, Bachmann, Frisch, Durrenmatt, Grass, Christa Wolf, Peter Schneider, Jurek Becker and others. Taught in German. Prerequisite: GR 206 or equivalent.

GR 350. Topics Course. 3 Credits.
Specialized topics offered relating to culture, literature, business practices, language or linguistics. Topic will be indicated in the schedule of classes. May be repeated for credit, as topics vary. The number ascribed to the course will reflect the level of the material under study as well as the level of proficiency expected of the student. May be taught in German or English; see schedule of classes. (When taught in English, this course may not count towards fulfilling the foreign language requirement.) Classroom: 3 hours.

GR 415. Seminar on a Topic in German Literature and Culture. 3 Credits.
A study of a particular author, theme, genre, or literary movement, including cultural themes. Offered as occasion demands. Topic varies each year these courses are offered.

GR 421. Reading and Research in German Literature or Civilization. 3 Credits.
A report on an approved project of original research in literature or civilization under the direction of a department member. Limited to students who have demonstrated aptitude for independent work. May be scheduled either or both semesters. Prerequisite: permission of the department chair.

History (HI)

Courses

HI 107. The History of Civilization I. 3 Credits.
A survey providing a global perspective of the history of human cultures and institutions from earliest times to 1500 CE, focusing on Europe, Asia, and Africa. The course offers an active and participatory environment to the study of history through discussions, simulations, study of primary sources, and research assignments. Open only to first year students or by permission of department. Offered annually.

HI 108. The History of Civilization II. 3 Credits.
A survey of major world civilizations that provides a global perspective of the development of the modern world from 1500 to the present. The course offers an active and participatory environment to the study of history through discussions, simulations, study of primary sources, and research assignments. Open only to first year students or by permission of department. Offered every semester.

HI 121. American History Survey I. 3 Credits.
A survey of American history from the Age of Discovery to 1877. American institutions ranging from political and economic to social and cultural will be examined. Open only to freshmen and sophomores. Offered every semester.

HI 122. American History Survey II. 3 Credits.
A continuing survey of multiple facets of American Civilization as presented in HI121, focusing on the period from the close of political Reconstruction in 1877 to the present. The maturation of democratic institutions and the emergence of the United States as a world power will also be examined. Open only to freshmen and sophomores. Offered every semester.

HI 201. Ancient Greece and Rome. 3 Credits.
A survey of Greek and Roman civilizations from the origins of the polis to the fall of the Western Roman Empire. Prerequisite: Sophomore standing or higher. Usually offered annually.

HI 202. The Middle Ages: Europe 500 - 1500. 3 Credits.
The history of Europe from the fall of the Roman Empire to 1500. The class examines the major political, economic, social, and cultural trends in the development of a distinctive European civilization, built primarily on Christian, Greco-Roman, and Germanic foundations. Prerequisite: Sophomore standing or higher. Usually offered annually.

HI 209. Historical Methods. 3 Credits.
This course introduces students to the methods, techniques and conventions of historical research and writing, including such skills as identifying, understanding, analyzing and interpreting primary and secondary sources, compiling bibliographies, citing sources, and understanding historiography. In addition, this course approaches the issue of ethics through a discussion of the ethical responsibilities of historians, including a discussion of plagiarism. Required for all history majors. Open to sophomore history majors only or by permission of department chair. This course does not fulfill the General Education History requirement. The course must be completed by the end of the junior year. Offered annually in the fall semester.

HI 211. Early East Asian Civilizations. 3 Credits.
This broad, historical survey course is about the civilizations and cultures of East Asia and the people that lived in them until the immediate post-Mongol conquest period. The core of the course will cover the areas that include modern Japan, China and Korea with reference to the inner Asian steppes. This lecture based course will be supplemented by primary source readings and discussion on Chinese and Japanese cultures, art and political philosophy. Prerequisite: Sophomore standing or higher. Usually offered annually.

HI 212. Modern East Asian Civilizations. 3 Credits.
This is a broad historical survey of the transformation of societies and states in East Asia from traditional empires to modern nation states. Rather than an exhaustive survey of facts and dates, this course is designed to introduce students to key questions in modern East Asian history. This lecture based course will be supplemented by primary source readings and discussion on Chinese and Japanese culture and politics. Prerequisite: Sophomore standing or higher. Usually offered annually.

HI 214. History of the Middle East. 3 Credits.
This course is a survey of a historically vital region. It will include an overview of the area known as the “Cradle of Civilizations and Monotheism,” as well as the rise of the Islamic Caliphate, the rise and fall of the Ottoman Empire, and the late 19th and 20th Centuries European imperialism and colonialism. The greatest emphasis, however, will be on the modern period. In order to fully comprehend the contemporary situation, it is necessary to include an historical examination of the cultural and religious diversity, as well as the political complexity of the people and states which comprise the so-called Middle East. Prerequisite: Sophomore standing or higher. Offered in the spring semester.

HI 215. VT Regional Material Culture. 3 Credits.

HI 218. Survey of Sub-Sahara Africa. 3 Credits.
This course encompasses the history of sub-Saharan Africa from approximately 1800 to the end of the so-called "Cold War." It is a comprehensive introduction to the numerous and diverse cultural, political, and economic entities comprising this complex area of the world. The central themes of the course, however, will be the related phenomena of the Trans-Atlantic Slave Trade, European colonialism, and western neo-colonialism and their varying impact upon the different regions.

HI 223. Europe's Age of Revolution. 1500 -1800. 3 Credits.
This course traces Europe's path from medieval to modern by examining a series of political, intellectual, and technological revolutions between 1500 and 1800. Topics will include the Reformation, Scientific Revolution, Enlightenment, American and French Revolutions, and the Industrial Revolution, all discussed within the broader context of cultural change, social reform, and technological development, Prerequisite: Sophomore standing or higher. Offered annually.

HI 224. Modern European History. 3 Credits.
This course examines the political, military, and social history of Europe in the nineteenth and twentieth centuries. The nineteenth century witnessed remarkable changes in European society and politics. It was an age of romantics and reactionaries, liberals and imperialists, revolutionaries and racists, nationalists and irrationalists. At the beginning of the twentieth century, Europe dominated the world. However, two world wars, the rise and fall of fascism and communism, the concept of superpowers, and the growth of mass consumer society destroyed the old European hegemony and led to a new and evolving idea of "Europe". Prerequisite: Sophomore standing or higher. Offered alternate years.

HI 227. Modern British History, 1688 - Present. 3 Credits.
The history of the British Isles from the "Glorious Revolution" of 1688 to the region's current struggles with maintaining national identity at the dawn of the twenty-first century. Emphasis will be on the decline of the monarchy, the establishment of parliament as a truly representative body, and the rise and fall of the British Empire. Prerequisite: Sophomore standing or higher. Offered alternate years.

HI 228. Norwich University History. 3 Credits.

HI 235. Military History I. 3 Credits.
This course provides an examination of the major issues evident in the study of military affairs from the dawn of time to the present day. Using a modular approach, this course will explore the following topics: mobile warfare, urban warfare, child soldiers, war in the air, civilians in the path of war, women in war, and the unintended consequences of warfare. Prerequisite: Sophomore standing or higher. Offered every semester.

HI 236. Military History II. 3 Credits.
This course provides an examination of the major issues evident in the study of military affairs from the dawn of time to the present day. Using a modular approach, this course will explore the following topics: the origins of war, total war, soldiers in war, military theory, insurgency & counterinsurgency warfare, military revolutions, and static warfare. Prerequisite: Sophomore standing or higher. Offered every semester.

HI 260. Topics in History. 3 Credits.

HI 303. Colloquium in Ancient History. 3 Credits.
A reading and writing intensive course, emphasizing historical research and analytical skills. Possible topics include, but are not limited to, the development of historical writing, the Roman Empire, women in antiquity, pagans and Christians, etc. Prerequisite: C or better in one 200 level history course or instructor permission. May be repeated for credit with a different topic. Offered annually.

HI 304. Colloquium in Medieval History. 3 Credits.
A reading and writing intensive course, emphasizing historical research and analytical skills. Possible topics include, but are not limited to, the Crusades. medieval Christianity and medieval women. Prerequisite: C or better in one 200 level history course or instructor permission. May be repeated for credit with a different topic. Offered annually.

HI 315. Modern China. 3 Credits.
A standard reading and lecture course, Modern China introduces students to the major processes shaping twentieth century Chinese history. The course emphasizes regional knowledge, historical research and analytical skills building. Major topics will include in all cases an overview of Chinese history since 1700 (late imperial and twentieth century "modern" China) with emphasis on political, social history and environmental developments. Other sub-topics in the course include, but are limited to, nation building/nationalism, gender issues, and border/Central Asia relations. Prerequisite: C or better in one 200 level history course or instructor permission. Offered annually.

HI 317. Modern Japan. 3 Credits.
A standard reading and lecture course, Modern Japan introduces students to the major processes of shaping twentieth century Japanese history. The course emphasizes regional knowledge, historical research and analytical skills building. Major topics will include in all cases an overview of Japanese history since 1868 (Tokugawa dissolution through the late twentieth century) with emphasis on political and economic history. Other sub-topics in the course include, but are not limited to, Japan-in-the-world (international relations), gender issues, ethnic relations and the environment. Prerequisite: C or better in one 200 level history course or instructor permission. Offered on occasion.

HI 319. Colloquium in Chinese History. 3 Credits.
This is a thematic, reading and writing intensive course, emphasizing historical research and analytical skills. Possible topics include, but are not limited to, the development of ethnicity and ethnic visions of regional history in China, China's military history, frontier/border history, Ancient China and Greece, etc. Prerequisite: C or better in one 200 level history course or instructor permission. May be repeated for credit with a different topic. Offered alternate years.

HI 321. Reformation Europe. 3 Credits.
The years immediately following the 1517 publication of Martin Luther's Ninety-Five Theses saw a sudden and unprecedented upheaval in European society. This course will examine the social, political, and spiritual context of late medieval Europe, then consider the implications of the Reformation for politics, gender and the modern world. Original sources in translation will form the basis for discussion, supplemented by lecture and secondary materials. Prerequisite: C or better in one 200 level history course or instructor permission. Offered alternate years.

HI 322. Colloquium in Early Modern European History. 3 Credits.
A reading and writing intensive course covering a specialized topic within the history of Early Modern Europe. Topics could include the Thirty Years War, Crime and Deviance, the Enlightenment, the French Revolution, or Persecution and Tolerance. Designed for history majors in their junior or senior years. Prerequisite: C or better in one 200 level history course or instructor permission. May be repeated for credit with a different topic.

HI 326. Nazi Germany and the Holocaust. 3 Credits.
This course examines the political, military, cultural and social history of Germany during the period of Nazi rule, 1933-1945. Special attention is given to the sources of support for Nazism, the structure of the National Socialist state, the role of Adolf Hitler, and the Holocaust. Offered alternate years.

HI 329. Modern Russian History, 1917 to the Present. 3 Credits.
This course examines the political, military, and social history of Russia and the Soviet Union from the birth of the Soviet state through the present day. The foundations of the Soviet state - ideological, industrial, and soical - proved too shaky to support the needs and expectations of a modern society. From Nicholas II to Lenin, Stalin to Yeltsin, this course examines the unique and dynamic leadership of Russia, as well as the lives of ordinary people in this fascinating culture. Offered alternate years.

HI 331. The Colonial Period of American History. 3 Credits.
A study of the settlement and development of the British colonies from their origins to 1763. Offered alternate years.

HI 332. The American Revolution. 3 Credits.
A study of the separation of the 13 British colonies from the mother country and establishment of the United States as an independent nation in the period 1763-1789. Offered alternate years.

HI 333. Colloquium in Early American History. 3 Credits.
An intensive reading, research and writing course focusing on selected topics relating to early American history. The chronological range of possible topics extends from the Age of Discovery in the sixteenth century through the American Revolution and the ratification of the U.S. Constitution in 1789. Prerequisite: C or better in one 200 level history course or instructor permission. May be repeated for credit with a different topic.

HI 334. The Citizen-Soldier in American History. 3 Credits.
An examination of the evolution of American military policy from the colonial era through the Vietnamese War, giving special attention to the perennial conflict between the advocates of a professional army and the proponents of a civilian soldiery. Offered alternate years.

HI 335. Colloquium in 10th Century United States History. 3 Credits.
A reading and writing intensive course, emphasizing historical research and analytical skills. Possible topics include, but are not limited to, the rise of political parties in the United States, the Gilded Age, etc. Prerequisite: C or better in one 200 level history course or instructor permission. May be repeated for credit with a different topic.

HI 338. U.S. Diplomatic History, 1776-1914. 3 Credits.
A study of the foreign relations and foreign policies of the United States from the American Revolution up to the First World War. Topics include territorial expansion, the War of 1812, the Mexican-American War, the expansion of American trade, and the Spanish-American War. Offered alternate years.

HI 339. U.S. Diplomatic History, 1914-present. 3 Credits.
A study of the foreign relations and foreign policy of the United States from the First World War to the present. Topics include the two World Wars, the Cold War, the Korean War, the Vietnam War, and post-cold war policy. Offered alternate years.

HI 340. Colloquium in Twentieth Century United States History. 3 Credits.
A reading and writing intensive course, emphasizing historical research and analytical skills. Possible topics include, but are not limited to, World War I, the Great Depression, the 1960's, and the Rise of the Modern Conservative Movement. Prerequisite: C or better in one 200 level history course or instructor permission. May be repeated for credit with a different topic.

HI 341. U.S. Civil War Era, 1848-1877. 3 Credits.
This course examines the causes of the American Civil War, the course of the conflict, and the subsequent period of reconstruction through 1877. Offered alternate years. 3 lecture hours.

HI 345. Colloquium in the History of the Middle East & Northeast Africa. 3 Credits.
This colloquium topic deals with the history of the Ottoman Empire, one of the most significant and longest lasting empires in world history. It rose from the remnants of the Byzantine Empire to be the most powerful "state" in the world during the 15th and 16th Centuries. Even in its decline, the Ottoman Empire played a key role in European and global politics. Its disintegration during the late 19th and early 20th Centuries would have a lasting impact on subsequent events throughout Middle East and Eastern Europe. Special emphasis will be placed upon the evolution of its political, military, and economic institutions, as well as its successful integration of numerous and disparate ethic and religious groups. 3 lecture hours.

HI 355. Colloquium in Modern Military History. 3 Credits.
A reading and writing intensive course, emphasizing historical research and analytical skills. Possible topics include, but are not limited to, the First World War, the Second World War, the military history of Russia, etc. Prerequisite: C or better in one 200 level history course or instructor permission. May be repeated for credit with a different topic.

HI 360. Topics in U.S. History. 3 Credits.
Topics vary. Prerequisite: C or better in one 200 level history course or instructor permission.

HI 361. Topics in Modern European History. 3 Credits.
Topics vary. Prerequisite: C or better in one 200 level history course or instructor permission.

HI 362. Topics in Pre Modern History. 3 Credits.
Topics vary. Prerequisite: C or better in one 200 level history course or instructor permission.

HI 363. Topics in Non-Western History. 3 Credits.
Topics vary. Prerequisite: C or better in one 200 level history course or instructor permission.

HI 371. Nation-Building. 3 Credits.
This course provides an exposure to the challenges of crating or re-creating nations after a period of crisis and upheaval. Whether following wars, grants of independence from foreign rule, or human rights atrocities, countries must undertake political, economic, and social reforms to construct stable, popularly accepted, and economically viable polities. How have nations tried to accomplish this complex task in the past hundred years? Historical case studies may be drawn from Africa, the Caribbean, Europe, and Asia. Prerequisite: C or better in one 200 level history course or instructor permission. Offered alternate years.

HI 372. Military History of the United States I, 1775-1902. 3 Credits.
This course will trace the evolution of American military power from the early days of frontier and revolutionary conflict to an era of American imperial ambition at the end of the nineteenth century. Particular attention will be given to strategic challenges of protecting/expanding the American state, the tactical innovations and failures of nineteenth century warfare, and the formulation of the civil-military relationship in American politics and society. Prerequisite: C or better in one 200 level history course or instructor permission.

HI 373. Military History of the United States II, 1902-Present. 3 Credits.
This course will explore the evolution of the American military from its days as a small frontier force at the turn of the twentieth century to its present status as a multi-tasking, global power. Specifically, this course will examine the struggle of American political and military leaders to work together in developing strategies and tactics capable of tackling the complex challenges of modern warfare. . Prerequisite: C or better in one 200 level history course or instructor permission.

HI 400. Independent Study. 3 Credits.
An opportunity for qualified upperclass students to engage in an intensive reading or research program in fields of interest not satisfactorily covered by regular course offerings. Periodic conferences will be required. Prerequisites: written consent of the instructor to a specific project presented by the applicant. Offered as occasion demands.

HI 405. History Internship. 3-12 Credit.
Supervised experience at a museum, archives, historical society, or restoration project involving research or field work. Direct participation in such activities as the editing of manuscripts, the interpretation of artifacts, or the preservation of historic structures. Prerequisite: permission of department chair. Normally open only to seniors. Offered as occasion demands.

HI 430. Capstone Seminar in United States History. 3 Credits.
A semester course for advanced students, primarily for senior History or Studies in War & Peace majors. Topics vary from semester to semester. Prerequisite: Completion of one history colloquium with a grade of C or higher and permission of the instructor.

HI 431. Capstone Seminar in Modern European History. 3 Credits.
A semester course for advanced students, primarily for senior History or Studies in War & Peace majors. Topics vary from semester to semester. Prerequisite: Completion of one history colloquium with a grade of C or higher and permission of the instructor.

HI 432. Capstone Seminar in Pre-Modern History. 3 Credits.
A semester course for advanced students, primarily for senior History or Studies in War & Peace majors. Topics vary from semester to semester. Prerequisite: Completion of one history colloquium with a grade of C or higher and permission of the instructor.

HI 433. Seminar in Non-Western History. 3 Credits.

HI 490. Honors in History I. 3,6 Credits.
First semester of a two semester sequence honors thesis project. The first semester is devoted primarily to research. Not repeatable for credit. Does not fulfill distribution requirement for major.

HI 491. Honors in History II. 3,6 Credits.
Second semester of a two semester sequence. The second semester is devoted to writing and defending the honors thesis. Not repeatable for credit. Does not fulfill distribution requirement for major. Prerequisite: A grade of "B" or higher in HI 490 and permission of the program director and department chair. 3 lecture hours.

Honors Program (HN)

Courses

HN 101. Introductory Honors Seminar. 3 Credits.
A reading and writing intensive course, emphasizing development of creative, analytical, problem-solving and communication skills while challenging students to approach the topics discussed from an interdisciplinary perspective. Offered every semester. Prerequisites: enrollment in Honors Program or permission of the Director of the Honors Program. Repeatable when topic is different. 3 lecture hours.

HN 301. Honors Seminar. 3 Credits.

Information Systems (IS)

Courses

IS 100. Foundations of CSIA. 3 Credits.
This survey of computing and information assurance fundamentals is required for computer science and information assurance majors. The course focuses on learning to use key concepts and terminology in information technology, computer science, networking, and information security. Discussions regarding computing ethics, safety, and professionalism are included throughout. No prerequisites. Permission is required for non-computer science and non-information assurance majors to enroll in this course. (3 credits).

IS 120. Business Applications & Problem Solving Techniques. 3 Credits.
An introductory course in management information processing. The course explores the most important aspects of information systems with specific emphasis on business applications, practical usage, and current information. The student will obtain skills in word processing, spreadsheet analysis, presentation tools and website design using professional software packages. Structured problem-solving techniques will be emphasized thoughout the course. Practical implementation projects and case studies will be used to reinforce topics such as computer, academic, and professional ethics for an information-based society.

IS 121. Introduction to Computer Programming. 3 Credits.
An introduction to computer programming in a high-level language. This course combines the mechanics of learning a first computer language with the fundamental stylistic elements of general problem solving. Emphasis on the creation of basic gram structures, modular design, and logical flow of control is reinforced by writing programs both in and out of the classroom. Prerequisite: IS 120 or permission of instructor.

IS 130. Introduction to Computing. 3 Credits.
A breadth-first introduction to the discipline of computing. This course provides a broad survey of the sub-disciplines within computer science and information systems culminating in the exploration fo programming fundamentals. Topics include: hardware survey, software survey, software engineering strategies, algorithmic design, ethics in computing, societal impact of computing, history and theory of computing, and an introduction to information systems and their application, and introductory programming. Throughout the course, responsible computer, academic, and professional ethics in an information-based society will be stressed.

IS 131. Computer Programming. 3 Credits.
Application of fundamental programming concepts using a high level language. The course will emphasize object-oriented design and implementation techniques. Good software engineering practice will be introduced by means of programming projects that illustrate the importance of software quality attributes. Prerequisite: IS130.

IS 221. G.U.I. Programming. 3 Credits.
A study of the design and implementation of the graphical user interface. The course will present fundamentals of usability and human factors in GUI design. One or more of the following will be studied and implemented in a student project: Visual Basic programming, Web programming, GUI code generators. Prerequisite: IS 131.

IS 228. Introduction to Data Structures. 3 Credits.
An introduction to the basic concepts of data and the techniques used to operate on the data. Topics will include the file handling, searching, sorting, multi linked structures, trees, and graph presentations. Prerequisite: IS 131.

IS 240. Database Management. 3 Credits.
A study of the concepts and structures necessary to design and implement a database management system. Various data models will be examined and related to specific examples of database management systems. Techniques of system design, system implementation, data integrity, and file security wil be examined. Prerequisite: IS 228.

IS 260. Data Communications and Network. 3 Credits.

IS 300. Management Information Systems. 3 Credits.
This course will provide an overview of information systems, their role in organizations, and the relationship of information systems to the objectives and structure of an organization. Management of software projects, decision making with regard to systems development, and organizational roles with regard to information systems will also be discussed. 3 lecture hours.

IS 301. Software Engineering I. 3 Credits.
An in-depth initiation to the system development life cycle, the techniques of information analysis, and the logical specification of the system. Documentation and communication aids are introduced as well as interpersonal approaches and techniques used in analysis. Prerequisite: IS 240.

IS 302. Software Engineering II. 3 Credits.
Utilizing tectniques, the student will progress through the phases of specification, design, implementation, and testing of information systems. Object-oriented design techniques are used to design new logical and new physical systems for business related problems. Both technological and managerial aspects of system design and implementation are considered. Students will learn the importance of and design of security systems such as firewalls and passwords. Prerequisite: IS 301.

IS 311. Network Forensics. 3 Credits.

IS 330. Ethics in Computing & Technology. 3 Credits.
The course is designed to expose students to some of the ethical dilemmas posed to our culture as a result of the current technological trends. Students will study various ethical standards and creeds offered through a variety of organizations (e.g., ACM) Students will learn to evaluate case studies from an ehtical perspective. Students will be expected to conduct literature surveys, produce bibliographies, write literature reviews, and present oral summaries of research as well as offer critical evaluation of writings related to ethics and technology. This course fulfills General Education Requirement #6: The ability to think critically and make ethical decisions. Prerequisite: one semester of college mathematics.

IS 340. Information Systems Security Assurance I. 3 Credits.
This course provides an overview of design considerations involved with the security of site design. The course will also provide and understanding of the Levels of Trust and system accreditation/certificate processes. Life cycle management of software, hardware, and physical plant, from planning through destruction will be examined and reinforced using case studies. Additonally understanding of the variety of security systems involving computers and networks and an ability to evaluate vulnerabilities will be discussed. Prerequisite: IS 228 or permission of instructor.

IS 342. Management of Information Assurance. 3 Credits.
This course continues the study of information assurance begun in IS 340. The focus is on management of the information assurance process. Topics include human factors in reducing security breaches, security incident detection and response, remediation, management's role in information assurance, and other considerations in framing and implementing information assurance policies. The final section reviews current topics of particular interest and activity in the field of information assurance. Prerequisite: PY 240 or MG 351.

IS 353. Business Programming Languages. 3 Credits.
A study of progamming languages commonly used in business applications. A working knowledge and appreciation of the power of several business languages are obtained through programming assignments based on business-related subjects such as payroll, mailing lists, and sorting. Prerequisite: IS 228.

IS 370. Intro to Information Warfare. 3 Credits.
This course introduces students to the overall concept of Information Warfare (IW) and Information Operations (IO), particularly with regard to the US Federal government and the Department of Defense. Introduction to IW / IO surveys the development of Information Warfare (IW) and Information Operations (IO) as these elements of power have become more important for the United States Department of Defense (DoD) and Federal Government as a whole. The course assumes only a rudimentary familiarity with the basic concepts and terminology of modern Internet usage and computing and is not a technology-focused course. Prerequisites: None. Open to third and fourth year students or by permission of instructor. 3 lecture hours.

IS 380. Offensive Information Operations. 3 Credits.
This course introduces students to the overall concept of Offensive Information Operations (O-IO), which are conducted across the range of military operations at every level of war to achieve mission objectives. Combatant commanders must carefully consider the potential of IO to deter, forestall, or resolve crises. The course assumes only a rudimentary familiarity with the basic concepts and terminology of modern Internet usage and computing and is not a technology-focused course. Prerequisites: IS 370 Introduction to IW/IO. Open to third and fourth year students or by permission of the instructor. 3 lecture hours.

IS 399. Test course. 3 Credits.

IS 406. Special Topics in Computer Science. 3 Credits.
A study of topics chosen from areas of current interest that are not offered as part of the permanent curriculum. This course may be taken for credit more than once. Prerequisite: IS 228 or permission of instructor.

IS 407. Politics of Cyberspace. 3 Credits.
This course explores the interrelations of modern computing and communications technology with politics, power, news, privacy, crime, and creativity. The course assumes only a rudimentary familiarity with the basic concepts and terminology of modern Internet usage and computing and is not a technology-focused course. Open only to juniors and seniors. 3 lecture hours.

IS 410. Computing Internship. 3 Credits.
Internships within CS/CIS are designed to provide computing majors with the opportunity to apply and expand their knowledge within the computing discipline. The student must be a junior or senior at the time of enrollment and have good academic standing. The student must have the internship approved beforehand by a faculty member in CS/CIS and have the written consent of the CS/CIS Program Coordinator. In addition, a supervisor within the sponsoring organization must agree to provide a written description of the internship beforehand, and provide progress reports during and after the internship experience.

IS 411. Cyber Investigation. 3 Credits.
This course is an introduction to cyber investigation. It includes elements of cyber crime, cyber warfare and cyber terrorism. The course will examine investigative techniques for cyber investigators, case studies of representative cyber crimes and cyber warfare incidents, some cyber investigation tools and expert witnessing. The course builds up to a mock trial where students act as a cyber investigation task force on an actual case of cyber crime. This is a course that incorporates extensive reading as well as hands-on lab exercises. No prerequisites. Open to third and fourth year students or by permission of the instructor. 3 lecture hours.

IS 440. Software Engineering III. 3 Credits.
An advanced course in the field of Software Engineering. Students will refine their use of the methods and procedures of software development from conception of an idea through its implementation and beyond. A variety of software process models will be studied. The course will seek to balance theoretical foundations with practical application. A team project will be assigned to allow for the application of software engineering techniques. The course will investigate methodologies and research with the purpose of improving personal and organizational quality and productivity. Classroom 3 hours. Prerequisites: IS 302 or permission of the Instructor.

IS 455. Comtemporary Issues in Computer Science. 3 Credits.
A capstone seminar which will vary every term in accordance with the current issues of the time. Students are to work with the instructor as they explore today's issues and trends in preparation of a thesis or project. Emphasis will be placed on critical thinking, research and evaluation of current issues. A comprehensive computer exam is included in this course. Each student will be required to prepare a paper outlining ethical standards based on the student's life experiences. Prerequisites: IS 302, or permission of the instructor.

IS 460. Data Communications and Networks. 3 Credits.
An introductory study in fundamental concepts of computer networks and data communication including a survey of major protocols, standards, and architectures. Students will implement simple data communication protocols in the laboratory. Prerequisite: IS 228.

Interdisciplinary (ID)

Courses

ID 110. Ecology and Geology of the Connecticut River Valley. 4 Credits.
This course starts with a four-day, on-campus, period. During this time there are lectures and slide presentations on water chemistry, water pollution, flora and fauna of the river and valley, and geology of the Connecticut River valley. Canoe instruction, biological and geological identification procedures, surveying methods, and water analysis techniques are also taught. A nine-day canoe trip follows during which the ecology and geology of the upper river valley are studied. The final day of the course is spent back on campus for additional testing and the preparation of final reports. This four-credit laboratory science course is intended for non-science majors and is offered during the time between graduation and the beginning of summer school.

ID 120. Partridge Seminar. 3 Credits.
An inter-disciplinary course inspired by Norwich University's unique history, educational mission, and Guiding Values whose content depends on the individual instructor and/or discipline and a changing annual theme. The course is open to first-year students only. Students may only take this course once.

ID 199. Topics Course. 6 Credits.

ID 220. Interdisciplinary Studies. 3 Credits.
The study of a current subject of academic inquiry that falls across disciplinary boundaries. Specific topics of ID 220 are approved for instruction on a case-by case basis by the respective division heads, following review by program, departmental and/or divisional curriculum committees, which also determine whether such courses may count as divisional electives. Each division decides whether its recommending body shall be the program, department, and/or division. The course is taught by faculty from two or more academic disciplines. Descriptive titles reflecting course content are included on student transcripts. ID 220 may not be used to satisfy the requirement of a history course for all baccalaureate degrees. General prerequisite: sophomore standing; additional prerequisites may be announced at pre-registration.

International Studies (IN)

Courses

IN 101. Introduction to International Studies. 3 Credits.
Drawing upon the major disciplines within the social sciences, this course provides a multidisciplinary understanding of the forces that shape and affect relationships among human communities. Among the topics considered are: Ethics and human rights, geography and spatial analysis, the role of culture, and the independent and combined effects of politics and economics. In addition, the course introduces students to the methods used to address the questions and problems with which the discipline is concerned.

IN 350. Topics in International Studies. 3 Credits.
Selected Topics in international studies to be used to cover subjects not included in the regular offerings. The course can be offered and taught by faculty in other disciplines upon prior approval of the history & Political Science Department Chair. The course seeks to enhance an appreciation for the multidisciplinary nature of international studies. 3 lecture hours.

IN 410. Seminar in International Studies. 3 Credits.
This capstone course is a reading and writing intensive course designed to introduce students to graduate level work in International Studies. Seminar topics will be determined by the instructor. Prerequisite: Senior standing or permission of the instructor.

IN 490. Honors in International Studies. 3 Credits.
This course is intended for senior students who have demonstrated superior research and writing skills. It requires the commitment of an entire academic year. Topic determined by the student and faculty member. Prerequisite: Senior standing and permission of the instructor.

Management (SSMG)

Courses

SSMG 311. Operations and Project Management. 3 Credits.
This course is designed to introduce a broad overview of operations and project management, while exploring a number of important concepts critical to achieving operations and project management success. Operations management is broad in scope, encompassing products and services in a multitude of forms. These products and services range from the cars we drive, the computers we use, the Internet we access, to military operations that safeguard our county. In effect, operations management, as a field, encompasses the activities and tasks that create value for the goods and services all of us use in a variety of ways. In addition, this course will explore project management from the focus on the "nuts and bolts" or fundamentals of project management and practices, and how is supports operations management strategic goals and objectives. We'll also examine some of the key elements of project management from the project management life cycle, key processes and important tools, techniques and measurements of project. Pre-requisites: None. Note: this course is under development and will be reviewed by the University Curriculum Committee.

SSMG 315. Leadership. 3 Credits.
In this course students learn key theoretical models of leadership and apply them to a range of situations in both military and non-military organizations. Students identify key functions and skills of effective leaders, explore leadership styles through study of selected leaders and evaluate the role of communication, negotiation, strategy, purpose and ethics in leadership. Prerequisite: none.

SSMG 320. Strategic Planning. 3 Credits.
This course is designed to enhance the critical and creative thinking skills needed to solve complex and ill-defined problems. The key themes are problem framing, operational art, leadership, and the outcomes for human security. Students focus on historical and contemporary examples of strategic level planning in highly complex operations and use this learning as a framework for problem solving within and across agencies. Students complete a major team project that leverages skills learned to focus on a complex problem vignette that requires creating a course of action for the leader to meet the desired end state. There are no pre-requisites.

Management and Marketing (MG)

Courses

MG 098. Junior Career Conference. 1 Credit.
This third year seminar focuses on evolving career decisions for Business & Management majors. Guest faculty are drawn from University Board of faculty members and associates with extensive real-world business acumen. Students will experience developing skills to prepare for entering the global workplace in their chosen fields and professions. 1 lecture hour.

MG 099. Senior Career Conference. 1 Credit.
This fourth year seminar focuses on evolving career decisions for Business & Management majors. Guest faculty are drawn from University Board of faculty members and associates with extensive real-world business acumen. Students will hone and finalize skills to prepare for entering the global workplace in their chosen fields and professions. 1 lecture hour.

MG 101. Introduction to Business. 3 Credits.
The purpose of this course is to introduce the student to the world of business. Students will learn about business organization and ownership and will survey union management relations, marketing, accounting, finance, international business, the legal environment, and the stock market. The course is designed to explore the relationship between social responsibility and profits in our free enterprise system. Prerequisite: permission of instructor required for upperclassmen.

MG 299. Trial 299. 4 Credits.

MG 305. Intro to Sports Management. 3 Credits.
This course will provide an overview of the sports industry from the perspective of variety of stakeholders in the industry. It covers the major business disciplines of management, marketing, finance, operations, information technology, accounting, communications, ethics and law. 3 lecture hours.

MG 309. Management of Organizations. 3 Credits.
A study of the functions of modern management: planning, organization, staffing, leading, and controlling. This study is applicable to the management of military, government, educational and non-profit, as well as business organizations. The ethical and social responsibilities of management and contemporary challenges such as the internationalization of organizations are integrated in all aspects of this course. Prerequisites: junior or senior standing or permission of instructor.

MG 310. Production/Operations Management. 3 Credits.
Principles and applied study of the operation of manufacturing and service organizations. Managerial tools and diagnostics, decision-making, and financial management are introduced. Problems of small, medium, and large-sized businesses are studied. Prerequisites: QM 213.

MG 314. Marketing Management. 3 Credits.
This course immerses the student in the strategies and processes of marketing management - market analysis, segmentation, targeting and positioning, and the implementation and evaluation of marketing plans. When the student has completed this course they will understand how a marketing plan is developed and have the skills necessary to identify, analyze and solve marketing problems. Prerequisite: EC 202 or permission of instructor. 3 lecture hours.

MG 319. International Dimensions of Business. 3 Credits.
This course is designed to familiarize the student with the basic concepts and terminology of international business, and to gain an appreciation of the differences in social, political, and economic conditions among nations and how these affect the conduct of business and trade between nations. Topics include comparative cultural, political, and economic environments, international trade theory and policy, foreign exchange and exchange rate determination, the dynamics of international business-government relationships, and corporate policy and strategy of the multinational firm. Prerequisite: EC 201 or EC 202.

MG 341. Business Law I. 3 Credits.
A study of the law and legal system as they affect business. Topics include the court system, constitutional law, torts, criminal law, contracts, property, and the Uniform Commercial Code. In discussing business law, students will learn how morality and social responsibility are integrated into our legal system. Each student will be required to prepare a paper outlining ethical standards based on the student's life experiences. Prerequisite: junior or senior standing.

MG 346. Business Law II. 3 Credits.
A continuation of the analysis of the legal dimension of business operations that was developed in Business Law I. Special emphasis will be given to the legal environment as it relates to the accounting student's professional certification. Topics include bankruptcy, commercial paper, secured transactions, agency, corporations, and partnerships. Prerequisite: MG 341 or permission of instructor.

MG 351. Organizational Behavior. 3 Credits.
This course considers the individual, the nature of organizations, and the issues resulting from the dynamic relationship of people in organizations. The course addresses such topics as learning, personality, motivation, organization structure, leadership, ethics, communication, and change. Prerequisite: MG 309 or permission of instructor.

MG 360. Health Economics & Policy. 3 Credits.
This course introduces students to principles of health economics and public policy in health and social welfare. Topics include support for public health, policy intervention in health determinants, the relationship between government regulation and market competition, the demand for healthcare, and the supply of services. This course will enable students to apply economic reasoning to the health-care challenges facing society. Prerequisite: One semester of college level mathematics or QM 213.

MG 408. Human Resources Management. 3 Credits.
The management of human resources is one of the most challenging and critical aspects of contemporary organizational functions. This course addresses such issues as the nature of the American labor force, equal employment opportunity, personnel planning and staffing, compensation, employee well-being and job security, and collective bargaining. In addressing these issues attention is given to the ethical, legal, and moral questions involved. Prerequisite: MG 309 or permission of instructor.

MG 409. Organizational Leadership. 3 Credits.
This course prepares students to apply leadership principles to the roles they play as managers. Students will discover more about themselves and learn more about the connection between the individual and the organization. Other topics include organizational culture, structure, group behavior, motivation, power, politics, organizational change, and workplace conflict.

MG 411. Consumer Behavior. 3 Credits.
This course is designed to help the student understand the concepts of consumer behavior that provides the basis for marketing strategies. Students will gain an understanding of how consumers make decisions regarding the purchase and use of products and services and the internal and external factors that influence this process. Prerequisite: MG 314.

MG 416. Advanced Marketing. 3 Credits.
In this course students will examine the key concepts and issues in developing a marketing strategy from the perspective of the corporate and SBU decision-maker. The course will take students through the process for formulating marketing strategies under various market conditions, for developing strategic and tactical marketing action plans, and how to evaluate and control a marketing plan and budget. Students undertaking this course will be required to use knowledge gained from previous marketing subjects in completing course assignments. Prerequisite: MG 314.

MG 426. Marketing Research. 3 Credits.
This course explores the process and tools for data collection and analysis used to solve marketing problems. In addition, the subject addresses when marketing research is appropriate and how to define the research problem, as well as the role of marketing research in marketing decision making. This course will provide students with practical experience in the use of computer based data analysis techniques and make students aware of the biases and limitations inherent in various research methodologies. Prerequisites: QM 213, MG 314.

MG 429. Seminar in Advanced Management I. 3 Credits.
A topics course addressing managerial problems in various environments. Prerequisites: MG 309, MG 310, FN 311, and MG 314.

MG 441. Integrated Marketing Communications. 3 Credits.
This course will provide students with the necessary knowledge and skills to develop appropriate communication strategies consistent with strategic marketing principles. The role of communications in the client organization's marketing plan is emphasized. The concept of Integrated Marketing Communication (IMC) for coordinating the individual communication elements of advertising, direct marketing and public relations to achieve specific marketing objectives is stressed. Prerequisite MG 314. 3 lecture hours.

MG 441S. Integrated Marketing Communications. 3 Credits.
This course will provide students with the necessary knowledge and skills to develop appropriate communication strategies consistent with strategic marketing principles. The role of communications in the client organization's marketing plan is emphasized. The concept of Integrated Marketing Communication (IMC) for coordinating the individual communication elements of advertising, direct marketing and public relations to achieve specific marketing objectives is stressed. Students will complete a 40 hours practicum working with the NU Athletic Program and 3 lecture hours, plus 1 cr. (40 hours) Practicum. Prerequisite MG 314. 3 lecture hours.

MG 448. Small Business Strategies. 3 Credits.
A course that integrates the functional areas of management-human resources, finance, marketing, and operations they uniquely affect the small business enterprise. Case studies and lectures develop the student?s problem solving abilities. Prerequisites: MG 309, MG 310, FN 311, and MG 314.

MG 449. Administrative Policy and Strategy. 3 Credits.
A capstone course designed to integrate the students' undergraduate studies. Case studies, collaborative assignments, writing assignments and oral presentations provide opportunities to synthesize and apply the knowledge gained from courses in the management program. A comprehensive Division examination is included in this course. Prerequisites: MG 309, MG 310, FN 311, and MG 314.

MG 450. Internship in Management. 3 Credits.
The internship program is designed for students who want to apply their studies by working with a business, industry, or public agency. The student will be required to work closely with a faculty supervisor to develop and implement a structured experience tailored to the career goals of the student. Prerequisites: senior standing and written consent of the department chair and internship committee. Normally only available during the summer.

Mathematics (MA)

Courses

MA 005. Preparatory Mathematics. 3 Credits.
A review of high school mathematics with some geometry in preparation for freshman level mathematics. Students assigned to MA 005 must satisfactorily complete it before the end of their first year at Norwich and enrolling in any other mathematics course.

MA 101. Mathematics: A Liberal Art. 3 Credits.
An investigation of mathematical concepts and methods with emphasis given to their impact on current and ancient problems. Topics include logic, counting problems, probability, geometry and mathematics of finance. Emphasis is on techniques of problem solving. Prerequisite: Satisfactory completion of MA 005 or equivalent as determined by departmental placement testing. Not open for the first time to a student with a grade of "C" or higher in MA 107, or with credit for any mathematics course requiring MA 107 as a prerequisite. Offered fall semesters.

MA 102. Mathematics: A Liberal Art. 3 Credits.
An investigation of mathematical concepts and methods with emphasis given to their impact on current and ancient problems. Topics include mathematics of voting systems, basic graph theory including Euler circuits and the traveling salesman problem, the mathematics of population growth, statistics, and finding fair shares. Emphasis is on techniques of problem solving. Prerequisite: Satisfactory completion of MA 005 or equivalent as determined by departmental placement testing. Not open for the first time to a student with a grade of "C" or higher in MA 107, or with credit for any mathematics course requiring MA 107 as a prerequisite. Offered spring semesters.

MA 103. College Algebra I. 3 Credits.
A comprehensive study of algebraic topics, this course provides a strong foundation for subsequent mathematics-based courses. Topics include: sets, the real number systems, polynomials and factoring, linear and quadratic equations. Prerequisite: Satisfactory completion of MA 005 or equivalent as determined by departmental placement testing. Not open for the first time to students who have received degree credit in any math course except MA 101, MA 102. This course does not fulfill the General Education requirement in mathematics.

MA 107. Precalculus Mathematics. 4 Credits.
A course on topics in precalculus mathematics involving algebra and trigonometry designed to prepare students to progress into introductory calculus. It is a rapid development of elementary topics in algebra to linear, quadratic, logarithmic, and exponential functions, followed by an analytical treatment of trigonometry. Prerequisite: Grade of "C" or better in MA 103 or equivalent as determined by departmental placement testing. Not open for the first time to students with credit in any course requiring MA 107 as a prerequisite.

MA 108. Applied Calculus. 4 Credits.
A course on topics in analytical geometry progressing to differential and integral calculus. Presentation of a wide variety of practical application to technology, business, and science. Not open for the first time to a student with credit in MA 121 or any course requiring MA 108 as a prerequisite. Prerequisite: MA 107 or equivalent as determined by departmental placement testing. Not more than one of MA 108 or MA 121 may count as degree credit.

MA 121. Calculus I. 4 Credits.
An introduction to plane analytic geometry and to differential and integral calculus. Prerequisite: grade of "C" or better in MA 107 or equivalent as determined by departmental placement testing. Not more than one of MA 108 or MA 121 may count as degree credit.

MA 122. Calculus II. 4 Credits.
A continuation of MA121. Transcendental functions, methods of integration, vectors, polar coordinates, indeterminate forms, L'Hopital's Rule, improper integrals, infinite sequences and series. Prerequisite: MA121 or "C" or better in MA108 and permission of the department.

MA 212. Finite Mathematics. 3 Credits.
This course includes linear algebra with applications to systems of equations, linear programming, math of finance, sets, combinatorial analysis, and probability theory. Prerequisite: MA 107 or equivalent as determined by department placement testing. Offered spring semesters.

MA 220. Geometry in Action. 3 Credits.

MA 223. Calculus III. 4 Credits.
A course that continues MA 122. Topics include multiple integration, solid analytic geometry, partial differentiation, two- and three- dimensional vector analysis. Prerequisite: MA 122. Offered fall semesters.

MA 224. Differential Equations. 4 Credits.
Ordinary differential equations are developed as models of physical phenomena. Differential equations are investigated by finding exact solutions and using computer software to determine the solution to linear and non-linear problems. Solution techniques include operator methods, Laplace transforms, and numerical methods. Prerequisite: MA 122. Offered spring semesters.

MA 232. Elementary Statistics. 3 Credits.
A course that covers the study of frequency distributions, averages and standard deviations, normal curve, probability, decision-making, sampling techniques, testing hypotheses, chi-square, students-t and F-distributions, correlation and linear regression. This course is valuable for those who plan to enter teaching. Prerequisite: A college level mathematics course or equivalent as determined by departmental placement testing. Not open to students with credit in MA 311.

MA 235. Clinical Mathematical Methods. 3 Credits.
A course investigating mathematical concepts and methods used in the health care settings. This course will cover the essential math for medication calculations, the continued development of statistical techniques utilized in scientific research, and the mathematics of population dynamics and epidemiological studies. Case studies will be used where appropriate. Emphasis will be on critical thinking and logic of math in a health care environment and in health care research and administration. This is a mathematics course for Nursing Majors. Prerequisites: MA 232. Offered Fall semesters. 3 lecture hours and 1 laboratory hour. 3 credits.

MA 240. Introduction to Number Theory and Cryptology. 3 Credits.
An introduction to fundamental topics in number theory, including the real number system, prime numbers, modular arithmetic, the Euclidean Algorithm, Fermat's Theorem, Euler's Theorem, Euler's Phi Function. Topics will be applied to Caesar and affine ciphers and the Chinese Remainder Theorem. Prerequisite: MA 107 and knowledge of a programming language or permission of the instructor. Offered fall semesters.

MA 241. Mathematical Computation and Modeling. 3 Credits.
A course designed to introduce effective problem solving strategies and modeling techniques to find solutions to complex and often ill-defined problems. Introductory material chosen from common experiences encompassing many academic disciplines. Emphasis is placed on the development of mathematical models and computation on a variety of computing platforms and programming environments. Prerequisite: MA 108, MA 121 or permission of instructor. Offered spring semesters.

MA 250. Communication in Mathematics. 1 Credit.
This course illustrates the organization of the mathematical literature, the efficient search of the literature and a formal introduction to writing mathematics. Prerequisite: Sophomore Mathematics Major or permission of the instructor.

MA 303. Advanced Calculus I. 3 Credits.
A course that provides an extension of concepts of basic calculus to functions of several variables to include limits, continuity, differentiation, and Riemann integration. Treatment of selected topics not included in the basic calculus series as a foundation for more advanced courses in analysis and applied mathematics is also included. Prerequisite: MA 223 and either MA 306 or permission of the instructor. Offered Fall semesters of even numbered years. 3 lecture hours.

MA 304. Advanced Calculus II. 3 Credits.
A course that continues with the content of MA 303, including limits, continuity, differentiation, and Riemann integration. Treatment of selected topics not included in the basic calculus series as a foundation for more advanced courses in analysis and applied mathematics is also included. Prerequisite: MA 303. Offered Spring semesters of odd numbered years.

MA 306. Discrete Mathematics. 3 Credits.
A course in logic, sets, techniques of proof, relations and functions, directed and undirected graphs, algebraic systems, Boolean algebra, and emphasis on applications in various areas of computer science. Prerequisite: MA 108 or MA 121 and knowledge of computer programming. Offered fall semesters.

MA 308. Modern Geometry. 3 Credits.
A course in modern geometries that includes foundations of Euclidean geometry and the development of non-Euclidean geometries. Recommended for prospective teachers. Prerequisite: MA 108 or MA 121. Offered Spring 2010 and every third year. 3 lecture hours.

MA 309. Algebraic Structures. 3 Credits.
A course on groups, rings, fields, morphisms, vector spaces; special topics selected from group theory, algebraic number theory, field theory, Galois theory. Prerequisite: MA 306 or permission of the instructor. Offered Fall semesters of odd numbered years. 3 lecture hours.

MA 310. Linear Algebra. 3 Credits.
A theoretical course on such topics as matrices, determinants, linear equations, vector spaces, bases and dimensions, linear transformations, eigenvalues, and eigenvectors. Prerequisite: MA 223 or permission of the instructor. Offered spring semesters.

MA 311. Statistical Methodology. 3 Credits.
A course designed to provide a firm foundation for the employment of statistical methodology in engineering and the sciences. Examples drawn from the technical fields will be used throughout. The course will cover probability, continuous and discrete statistical distributions, estimation, tests of hypotheses, and sample regression. As time permits, other topics may be examined based on the interests of the students. Prerequisite: MA 223. Offered fall semesters. 3 lecture hours.

MA 312. Statistical Methodology II. 3 Credits.
A continuation of MA 311. Continued development of statistical techniques utilized in scientific and engineering research. Topics to be covered include regression, multiple regression, analysis of variance, experimental design, statistical quality control, time series/forecasting, and reliability analysis. Prerequisite: MA 311. Offered Spring semester of even numbered years. 3 lecture hours.

MA 318. Cryptology. 3 Credits.
A course that covers fundamental mathematical concepts from modern algebra, number theory, and other areas of mathematics. Provides a foundation for the understanding of classical encryption systems and modern encryption methods. Emphasis on the mathematical underpinnings germane to cryptoloty. Prepares students for advanced study of modern cryptography. Experience implementing encryption, decryption and cryptanalytic methods on a variety of systems. Prerequisite: MA 240 and knowledge of a programming language or permission of instructor. Offered spring semesters. 3 lecture hours.

MA 321. Financial Mathematics. 3 Credits.
A course designed to extend the student's understanding of the fundamental concepts of financial mathematics, and application of these concepts in calculating present and accumulated values for various streams of cash flows as a basis for future use in reserving, valuation, pricing, asset/liability management, investment income, capital budgeting and valuing contingent cash flows. The student will also be given an introduction to financial instruments, including derivatives, and the concept of no–arbitrage as it relates to financial mathematics. Offered Spring semesters of odd years. Prerequisites: MA 121 or MA 108, and MA 212. 3 lecture hours.

MA 360. Teaching Mathematics at the Elementary - Middle School Level. 3 Credits.
A course in the content, methods, and materials for the teaching of elementary and middle school mathematics. Prerequisites: MA 107. 3 lecture hours.

MA 370. Introduction to Operations Research. 3 Credits.
A course that concentrates on the fundamental concepts and techniques necessary to enable an individual to obtain "optimal" solutions to problems in business, economics, engineering, and the physical and behavioral sciences. Topics include linear programming, network analysis, dynamic programming. Prerequisites: MA 212 or MA 223. Offered Spring semesters of odd numbered years. 3 lecture hours.

MA 380. Theory of Computation. 3 Credits.
This course introduces the theory of computability, including important results from the study of automata and formal languages. Includes introductory material about the theory of directed graphs and trees. A discussion of automata and their relationship to regular, context free and context-sensitive languages. General theories of computability, including Turing machines, and recursive functions. Further topics include decidability, undecidability and computational complexity. Prerequisite: MA 306. Offered Spring semesters of even numbered years. 3 lecture hours.

MA 390. Numerical Linear Algebra and Analysis. 3 Credits.
Numerical techniques for solving problems in linear algebra and analysis. Topics to be studied include integration, interpolation, function approximation, solutions of systems of equations, locating Eigen values. Attention will be paid to the theoretical aspects of the techniques, with particular emphasis on estimation of errors and on convergence properties of iterative techniques. Prerequisites: MA 241, MA 224. Offered Spring 2009 and every third year. 3 lecture hours.

MA 399. Mathematical Problem Solving. 3 Credits.

MA 405. Complex Analysis. 3 Credits.
A course in complex numbers, analytic functions, differentiation, and integration of complex functions, Taylor and Laurent series, evaluation of improper real integrals. Prerequisites: MA 223 and either MA 306 or permission of the instructor. Offered Spring 2011 and every third year. 3 lecture hours.

MA 407. Vector Analysis. 3 Credits.
A course that analyzes scalar and vector fields. Topics included are Newtonian kinematics and Kepler's Law of Planetary Motion, gradient, divergence, curl, theorems of Green, Stokes, Gauss, curvilinear coordinates. Prerequisite: MA 223. Offered Fall 2009 and every third year. 3 lecture hours.

MA 411. Senior Seminars. 3 Credits.
Advanced study designed to develop student competence in working independently and to afford students an opportunity to pursue topics not otherwise offered by the department. Prerequisite: senior standing in mathematics or permission of the instructor. This is the capstone course for the Mathematics Major. 3 lecture hours.

MA 412. Senior Seminars. 3 Credits.
Advanced study designed to enhance student competence in working independently and to afford students an opportunity to pursue topics not otherwise offered by the department. Topics may extend research performed in MA 411 or be a topic independent of MA 411. Prerequisite: MA 411. 3 lecture hours.

MA 421. Number Theory. 3 Credits.
A course in the properties of integers, prime numbers, congruencies, Diophantine equations, quadratic reciprocity. Prerequisite: MA306 or permission of the instructor. Offered Spring 2011 and every third year. 3 lecture hours.

Mechanical Engineering (ME)

Courses

ME 211. Mechanical Engineer Tools I. 2 Credits.
An extension of EG 109 with a more in-depth treatment of 3-D solid model generation including extrusion, revolving, sweeping and lofting. Further development and modification of 3-D solid drawings. Laboratory: 3 hours. Prerequisite: EG 109.

ME 307. Thermodynamics II. 3 Credits.
Applications of thermodynamics to power and refrigeration cycles, combustion mechanisms, mixture and flow processes. Development of thermodynamic relationships and equations of state. Classroom 3 hours. Prerequisite: EG 206.

ME 311. Mechanical Engineering Tools II. 2 Credits.
An extension of ME 211 with additional application of computer based design and analysis methods. An emphasis will be placed on design for manufacturing and other tools appropriate to the mechanical engineering profession. Laboratory: 3 hours. Prerequisite: ME 211.

ME 356. Manufacturing Processes. 4 Credits.
A study of the principles of manufacturing processes. Metal removal, casting, joining and deformation processes are covered as well as introductions to numerically controlled machinery, computer-aided manufacturing, rapid prototyping, robotics, computer integrated manufacturing and modern manufacturing systems. Classroom 3 hours, laboratory 3 hours. Prerequisite: ME 311, EG 203.

ME 358. Metallurgy & Manufacturing. 4 Credits.
A study of the principles of physical metallurgy and manufacturing processes. The structure of metals, strengthening mechanisms, metal removal, deformation processes and welding are covered as well as introductions to numerically controlled machinery, computer-aided manufacturing, and robotics. Classroom 3 hours, laboratory 3 hours. Prerequisite: EG 203.

ME 363. Kinematic and Kinetic Sythesis. 3 Credits.
A study of the principles of motion and the forces necessary to cause, and be created by motion. Applications to the design of typical machine elements such as gears, linkages and cams. Classroom 3 hours. Prerequisites: EG 202, MA 223.

ME 368. Design of Machine Elements. 3 Credits.
A study of the application of the theories of mechanics and stress analysis to the design of fundamental machine parts. Some of the topics covered are shafts, springs, screws, belts, gears, rivets, bearings and lubrication. Classroom 3 hours. Prerequisites: EG 301.

ME 370. Mechanical Systems Design. 3 Credits.
An introduction to the methodology of design including problem definition, generation and evaluation of alternatives, and design completion. Emphasis is placed on creativity, feasibility, and the effect of economic and societal factors on alternative selection. Goals are achieved through the use of case studies and small projects. Classroom 3 hours. Prerequisite: junior standing.

ME 381. Mechanical Engineering Laborator I. 2 Credits.
A study of the fundamentals of mechanical and electronic instruments and their use in measurement systems to obtain data on temperature, pressure, displacement, acceleration, and other physical variables. Introduction to experimental methods and procedures, reduction of data to significant form, and the organization of experimental results in written reports. Lecture 1 hour, laboratory 3 hours. Prerequisite: EE 204.

ME 382. Mechanical Engineering Laboratory II. 1 Credit.
Application of instrumentation to observations of gas and liquid behavior, thermo-dynamic and mechanical aspects of machines and devices. Dynamic and transient considerations in instruments, physical systems, and experimental data. Laboratory 3 hours. Prerequisite: ME 381.

ME 435. Vibrations and Controls. 3 Credits.
Synthesis and analysis of mechanical control systems with feedback. Use of linearization techniques and Laplace Transform methods of analysis. Techniques for determining system stability. Emphasis is placed on operational characteristics of components and their effect on system design. Computer simulation of system operation. Classroom 3 hours. Prerequisites: MA 224, EG 202.

ME 465. Heat Transfer. 3 Credits.
A study of the fundamentals of heat transfer by conduction, radiation, and convection. Steady and unsteady state conduction. Study will include boundary layer theory, internal and external convective flows, two-phase flow, and heat exchange design theory. Classroom 3 hours. Prerequisites: EG 206, EG 303, MA 224.

ME 466. Gas Dynamics. 3 Credits.
A course that continues EG 303 as applied to compressible fluids. One and two dimensional flow and oblique shocks. Classroom 3 hours. Prerequisites: EG 303, EG 206. Offered as occasion demands.

ME 467. Mechanical Engineering Design I. 3 Credits.
A capstone design project is taken up to the point of prototype construction, testing and hardware specification. The specific skills and knowledge needed by practicing engineers in the product realization process are emphasized and developed. Classroom 3 hours. Prerequisite: senior standing, ME 370.

ME 468. Mechanical Engineering Design II. 3 Credits.
Design completion of the capstone project initiated in ME 467 including hardware specification, instrumentation, laboratory testing, data reduction, and evaluation. Written design report required with oral presentation and defense. Prerequisite: ME 467.

ME 474. Internal Combustion Engines. 3 Credits.
A course that correlates previous work in thermodynamics, heat transfer and design in the study of internal combustion engines. Classroom 3 hours. Prerequisites: ME 465, ME 307. Offered as occasion demands.

ME 487. Mechanical Engineering Laboratory III. 2 Credits.
A continuation of the Mechanical Engineering laboratory sequence with experiments stressing the performance characteristics of heat power equipment and the application of theory learned in thermodynamics and fluid flow. Classroom 1 hour, laboratory 2 hours. Prerequisite: EG 303. Corequisite: ME 307.

ME 490. Advanced Topics. 3,4 Credits.
A course that provides specific work in an area of the instructor's special competence and indicated student interest. An extension of basic principles to applied areas such as HVAC, heat transfer, thermodynamics, stress analysis, environmental control, turbo-machinery, propulsion systems and aerodynamics. Classroom or seminar, 1-3 hours. Prerequisite: senior standing. Offered as occasion demands.

Military Science (MS)

Courses

MS 111. Military Science I. 1 Credit.
Leader Development and Individual Soldier Skills I-An introduction to Army Customs, Courtesies, and Traditions. The curriculum includes an introduction to leadership development, the values and ethics of the Army, physical wellness and fitness, and stress management. Laboratory work concentrates on basic land navigation skills, field craft skills, and basic rifle marksmanship. 1 lecture hours and 2 other hours. Course Attributes: Not eligible for use as part of the six ROTC credits allowed for degree electives.

MS 112. Military Science I. 1 Credit.
Leader Development and Individual Soldier Skills II. The curriculum focuses on the leader development by emphasizing the Be, Know and Do characteristics vital for success as an Army officer. In addition, the importance of physical fitness and wellness continues to be stressed. Students are introduced to tactics within a team and squad structure, decision-making process and the structure and organization of the Army. Laboratory work includes advanced land navigation skills, basic rifle marksmanship, and troop leading procedures.

MS 211. Military Science II. 2 Credits.
A Study of the Principles of Small Unit Tactics-Leadership Laboratory-This course is designed to teach individual soldier skills required for survival in modern combat and the leadership roles required for the infantry team and squad leader in developing technically and tactically proficient soldiers. Cadets will receive hands-on training in intelligence gathering, radio communication, individual and crew served weapons. Cadets will be introduced to collective tasks such as tactical movements and formations needed to conduct squad offensive, defensive, and patrolling missions.

MS 212. Military Science II. 2 Credits.
A study of the Principles of Leadership and Small Unit Tactics II- Examines the leader's role in directing and coordinating the efforts of subordinates. Decision making skills, problem solving skills and troop leading procedures continue to be honed through leadership roles. Laboratory work focuses small unit tactics, advanced land navigation, physical fitness, and troop leading procedures.

MS 311. Military Science III. 3 Credits.
Advanced Tactics-Leadership Laboratory-An in-depth study of the light infantry squad and platoon operations in the offense and defense. Cadets will continue to develop their oral and written communication skills through preparation of warning, fragamentary, and operation orders; and their leadership and management skills through decision making and analytical skills utilizing combat estimates, battle analysis, and intelligence gathering. Prerequisite: Successful completion of MS 212 or approval by the Professor of Military Science. Course Attributes: May be used as part of the six ROTC credits allowed for degree electives.

MS 312. Military Science III. 3 Credits.
Advanced Leadership-Leadership Laboratory-A comprehensive study and application of light infantry and ranger patrolling operations. Cadets will learn leadership techniques by gaining a comprehensive understanding of the mission and organization of combat and reconnaissance patrols and the methods utilized by effective combat leaders. The course will explore historical examples to illustrate the critical importance of dynamic leadership. Prerequisite: Successful completion of MS 311 or approval by the Professor of Military Science. Course Attributes: May be used as part of the six ROTC credits allowed for degree electives.

MS 411. Military Science IV. 3 Credits.
This course begins the transition from Cadet to US Army 2nd Lieutenant. This is the first of two senior capstone courses in Military Science. MS411 training will include Army Operations, training management, communications and leadership skills. Additionally, cadets will participate in selected studies of Military History to include a staff ride to a Revolutionary War battlefield. This training will enable you to attain knowledge and proficiency in several critical areas needed to operate effectively and efficiently as an Army Officer. These areas include: The Army's training management system, coordinating activities with staffs, and counseling skills. These skills will assist you in leading Junior Army ROTC cadets through out the school year. Instruction will include lecture/seminar, case studies, practical exercises and military laboratories to include field-training exercises. One third of your grade will include a measurement of your ability to develop subordinate leaders and personnel. Various members of the Army Department Cadre will serve as Assistant Instructors. With the Addition of MS402 in the Spring, you will leave for your Branch specific Basic Course as Commissioned Army Officers possessing high moral character, instilled with Army Values, physically fit, knowledgeable in basic soldier skills and a rich understanding of leadership and management.

MS 412. Military Science IV. 3 Credits.
Army Leadership and Professional Development-Leadership Laboratory: The second of two senior capstone courses. Students will study the origins, development, and implementation of US National Security Policy as it applies to the application of land power. Focus will be on understanding and conducting Peace Keeping Operations, the parameters in which the US will participate, and the role of the military in PKOs. Once understanding the larger picture, the students must understand how to prepare and train their particular organization to ensure their objectives support the national will. Course includes case studies of recent Peace Keeping Operations and how tactical decisions can effect strategic outcomes. Current events are constantly examined. Students will develop their individual leadership skills and knowledge through class seminars, leadership laboratories, and a field training exercises. Students will learn how to assess the level of training in their organizations, develop a training plan to correct deficiencies and re-enforce strengths, and how to evaluate training results. The second half of the semester students will further develop an understanding of leadership in organizations, team building, counseling subordinates and the various support systems available to leaders. Students will develop oral and written communications skills by preparing written assignments in the military writing style and giving oral presentations.

MS 499. Topics in Military Science. 3 Credits.

Music (MU)

Courses

MU 101. Music Appreciation. 3 Credits.
A survey course of western music from the medieval through the contemporary periods.

MU 200. Applied Music. 1 Credit.
A course that provides studio instruction in keyboard instruments, orchestra and band instruments, and voice under the guidance of a performing artist. Offered at various levels of advancement appropriate to the individual student. Objectives include analysis and mastery of technical problems and the study of literature characteristic of the instrument or voice. This course is repeatable for credit. Prerequisites: permission of instructor and audition, if required. Three accumulated hours will comprise one three-degree-credit course upon petition by the student.

MU 210. Campus Choraleers. 1 Credit.
A select group of 40 mixed voices organized for the study and performance of advanced choral works of all periods. Repeatable for credit to three accumulated hours. Repeatable without credit indefinitely. Three accumulated hours will comprise one three-degree-credit course upon petition by the student. Prerequisite: Audition.

MU 230. Instrumental Ensemble. 1 Credit.
A course that provides study, analysis, and performance of music for small instrumental groups of verse combinations. An objective is to become acquainted with a wide variety of music and styles pertaining to the student's instrument and to other instruments as well. (This requires several sections to accommodate combinations. Sections are scheduled by the instructor with the students). Three accumulated hours will comprise one, three credit free elective course.

MU 260. Regimental Band. 1 Credit.
A course that provides study and performance of marching band literature and technique, as well as rehearsal and presentation of small ensemble pep band music. Membership is open, through audition, to members of the Corps of Cadets. This course is repeatable for credit. Three accumulated hours will comprise one three credit free elective course.

MU 271. History of Jazz. 3 Credits.
History of Jazz is a historically based music course to expose the student to American jazz. Jazz occupies a unique place in American cultural history. Although it has been influenced by the music of many countries, it remains a purely American phenomenon. The course will include the study of historical readings, listening to the many styles and artists of American jazz, and attendance at live performances. Upon completion of the course, the student should have a general knowledge of the various styles, artists, and social history of the period from 1890 to 2006.

MU 299. Music Topics. 1-3 Credit.

MU 300. The Vermont Philharmonic Orchestra. 1 Credit.
A major project in community arts development through study and performance. The Vermont Philharmonic orchestra presents, throughout the state, a series of symphonic concerts each season. Membership is open to qualified players of orchestral instruments by audition. This course is repeatable for credit. Three accumulated hours will comprise one. three credit free elective course.

Naval Science (NS)

Courses

NS 121. Introduction to Naval Science. 2 Credits.
Introduction to Naval Science - Required for all freshman midshipmen. Provides a comprehensive overview of the Navy and Marine Corps organization, military courtesies and traditions.

NS 122. Sea Power and Maritime Affairs. 3 Credits.
Sea Power and Maritime Affairs - Required for all freshman midshipmen. Provides a comprehensive overview of the Navy's heriage, mission and role in the development of the United States.

NS 221. Leadership and Management. 3 Credits.
Leadership and Management - Required for all sophomore midshipmen. Provides an introduction to the principles of both leadership and management for future leaders.

NS 222. Navigation. 3 Credits.
Navigation - Required for all sophomore Navy Midshipmen. Provides an introduction to the principles of navigation and basic seamenship.

NS 242. Marine Corps Weapons Systems. 2 Credits.
Required for all sophomore Marine midshipmen. Provides a comprehensive overview of weapons in the Marine Corps inventory. 2 lecture hours and 2 lab hours. Course Attributes: Not eligible for use as part of the six ROTC credits allowed for degree electives.

NS 321. Naval Ship Systems I. 3 Credits.
Required for all junior Navy midshipmen (except Nurses). Provides an introduction to basic naval engineering concepts and naval propulsion systems. 3 lecture hours and 3 lab hours. Course Attributes: May be used as part of the six ROTC credits allowed for degree electives.

NS 322. Naval Ship Systems II. 3 Credits.
Required for all junior Navy midshipmen (except Nurses). Provides an introduction to basic naval weapons engineering concepts and weapons systems. 3 lecture hours and 2 lab hours. Course Attributes: May be used as part of the six ROTC credits allowed for degree electives.

NS 331. Evolution of Warfare. 2 Credits.
Required for all junior Marine midshipmen and MECEPs. Provides an overview of the development of warfare through the ages using the joint principles of warfare. 2 lecture hours and 2 lab hours. Course Attributes: May be used as part of the six ROTC credits allowed for degree electives.

NS 342. Small Unit Leadership Skills. 2 Credits.
Required of all junior Marine midshipmen and freshman MECEPs. Provides candidates with all basic skills, knowledge and physical preparation for attending OCS during summer cruise. 2 lecture hours and 2 lab hours. Course Attributes: May be used as part of the six ROTC credits allowed for degree electives.

NS 421. Naval Operations and Seamanship. 3 Credits.
Required for all senior Navy midshipmen (except Nurses). Provides an introduction to advanced navigation and seamanship, shipboard operations and naval warfare doctrine. 3 lecture hours and 2 lab hours. Course Attributes: May be used as part of the six ROTC credits allowed for degree electives.

NS 422. Leadership and Ethics. 3 Credits.
Required for all commissioning seniors. Provides all prospective commissionees with advanced leadership, ethics, service etiquette, and junior training. 3 lecture hours and 2 lab hours. Course Attributes: May be used as part of six ROTC credits allowed for degree electives.

NS 431. Amphibious Warfare. 2 Credits.
Required for all senior Marine midshipmen and MECEPs. Provides an overview of the history of amphibious warfare, with a focus on Marine Corps operations. 2 lecture hours and 2 lab hours. Course Attributes: May be used as part of the six ROTC credits allowed for degree electives.

Nursing (NR)

Courses

NR 103. Introduction to Professional Nursing. 3 Credits.
This course provides a forum in which to explore the present and emerging role of the professional nurse. The student is introduced to the Norwich University BSN Program and the major strands (Nursing Process, Communication, Teaching/Learning, Leadership, Research, Personal and Professional Growth, Life Span Development and Caring) that will be built upon during subsequent courses. Socialization into professional nursing is examined. Students are introduced to nursing infomatics with an emphasis on acquisition and ethical use of knowledge through the use of the Internet. Open to Nursing Majors only, or by permission of the instructors. Classroom 3 hours.

NR 104. Focus on Nursing. 3 Credits.

NR 105. Promoting Healthy Individuals. 3 Credits.

NR 204. Nursing Informatics. 1 Credit.
This course is designed to provide students with an initial experience in accessing information from a variety of sources. Further, through active learning, this course guides students through utilization of a number of commonly used information technologies. Basic information and computer competencies will be learned and assessed. Classroom 3 hours. Concurrent: NR 104, NR 105.

NR 206. Health Assessment. 3 Credits.
This course focuses on the development of beginning skills in assessment of the healthy adult. A family and community assessment is also developed. Interviewing, obtaining a health history, and the components of a physical assessment are presented. Students learn to integrate interview data with physical findings to formulate nursing diagnoses that will guide the nursing process. Practice will be provided in a laboratory setting and selected clinical settings. Students continue to gain proficiency in interviewing and data collection. Patient's rights and issues of privacy are continued to be reinforced throughout the course. Classroom 3 hours. Prerequisites: NR 103, NR 207. Co-requisites: NR 208, BI 216 or permission of the instructor.

NR 207. Fundamentals of Nursing I. 6 Credits.
This course provides the foundation for Professional Nursing Practice. Emphasis is placed on wellness, physiological, psychological, social, cultural and spiritual factors which contribute to the well-being of the individual and family. The concepts of Nursing Process, Gordon's Functional Health Patterns and clinical decision making are explored. Communication is emphasized as an essential aspect of the professional role and is applied through interviews and data collection. Related theory from behavioral and physical sciences is incorporated. Prerequisites: BI 101, CH 112, & NR 103. Co-requisites: NR 305, MA 232, BI 215. Classroom 3 hours, clinical 8 hours.

NR 208. Medical/Surgical Nursing I. 7 Credits.
This course builds on the theoretical concepts and nursing practice skills learned in NR 207. Students continue to build critical thinking skills to effectively assess client needs and implement the nursing process to plan and provide basic nursing care. This course examines common alterations in health patterns and variety of health care problems and serves as the theoretical foundation for the future study of complex Medical/Surgical nursing problems. The theoretical concepts of stress and adaptation, inflammation, pain, fluid and electrolyte, acid base balance as well as alterations in nutrition and elimination are studied while related nursing interventions are integrated. Classroom 4 hours, clinical 9 hours. Prerequisites: NR 207, MA 232, NR 305. Co-requisites: NR 403, BI 216, NR 211.

NR 211. Nursing Pharmacology. 3 Credits.
A study of the therapeutic use of chemicals and their interactions in the human body to produce biologic effect. Students will identify pharmacotherapeutic interventions for clients of all age groups utilizing a nursing process approach. Clinical decision making in pharmacotherapeutics will be explored through the use of critical thinking exercises. Classroom 3 hours. Prerequisites: CH 112. Co-requisites: NR 207, BI 215 or permission of the instructor.

NR 215. Client, Psy/Mental Health Prob. 3 Credits.
In this course students are introduced to current theory and research about contemporary practices in mental health nursing. Students develop their use of self as a therapeutic tool and focus on a holistic approach to assessment and care of persons with psychological issues and selected psychiatric disorders and conditions. Students will provide care to patients with mental health and social health problems and their families as part of the interdisciplinary health care team. Prerequisites PY211, PY220, NR204, NR206. Co-requisite N215L. Classroom 3 hours.

NR 215L. Client, Psy/Mental Health Prob. 2 Credits.

NR 219. Simulations Clinical Practice. 2 Credits.

NR 225. Evidenced - Based Practice. 3 Credits.

NR 303. Nursing in Today's World. 3 Credits.
This course provides a forum in which to explore the present and emerging role of the professional nurse. The RN/BSN student is introduced to the Norwich University BSN Program, and the major strands (Nursing Process, Communication, Teaching/Learning, Leadership, Research, Personal and Professional Growth, Lifespan Development and Caring) that will be built on during subsequent courses. Socialization into professional nursing is examined. Students are introduced to nursing infomatics with an emphasis on acquisition and ethical use of knowledge through the use of the Internet. Classroom 3 hours. Open to nursing majors only.

NR 312. Medical-Surgical Nursing II. 9 Credits.
NR312 emphasizes the role of the nurse in the care of adults with acute and chronic Medical/Surgical problems in the acute care setting. Students refine their assessment, critical thinking and clinical decision making skills. Students apply previously learned knowledge in the use of the nursing process, and teaching/learning principles to provide care to two clients, planning care to promote or restore health. Students carry out learned complex nursing skills in providing planned care. Classroom 5 hours, clinical 12 hours for 14 weeks. Prerequisites: NR208, NR211, NR305, NR403, BI215, BI216. Co-requisites: BI360.

NR 313. Mental Health Nursing. 4 Credits.
NR313 provides an overview of current mental health issues. Current theories and nursing care of clients with mood/affect, neurotic and/or psychotic disorders will be explored. Selected clinical experiences will enhance the theory. Confidentiality is emphasized to ensure a patient's complete privacy. Classroom 2 hours, clinical 65 hours. Clinical hours are done in a five-week rotation. Prerequisites: NR211, NR312, PY 211, PY220, and SO201. Co-requisites BI220 and NR315.

NR 314. Tech Innovations Clinical Nsr. 1 Credit.

NR 315. Maternal-Child Health Nursing. 7 Credits.
NR315 builds on fundamentals of nursing and medical-surgical nursing to explore the fields of maternity and pediatric nursing. NR315 theory will emphasize nursing process, teaching/learning, and health promotion in these special populations. Students will care for clients in a variety of settings across the wellness-illness continuum. This course has two separately graded components (one for each content area), both of which must be passed. It also has two clinical components. Students will continually apply proper ethical/legal considerations into clinical practice. Classroom 4 hours, clinical 130 (65 pediatric and 65 obstetrics) hours. Prerequisites: NR312, PY220, NR211, NR305. Co-requisite NR313 and BI220.

NR 316. Care of the Adult 1. 3 Credits.
In this course students integrate the physiological, psychological, spiritual, developmental and socio-cultural dimensions of adults as they study nursing care during wellness and illness. Focus is on the musculoskeletal, endocrine, immune, integumentary, gastrointestinal and genitourinary systems. Students learn the professional nursing role in planning care of the adult client. 3 Lecture hours per week. Prerequisites: NR 219 Co-Requisite NR 316L.

NR 316L. Care of the Adult 1. 3 Credits.

NR 321. Nursing Leadership. 3 Credits.
In this course students focus on theoretical foundations and conceptual principles of nursing leadership and the skills necessary to practice leadership competently in healthcare environments. The course is designed to enhance leadership self-awareness and to encourage students to fashion personal perspectives on how to lead professionally. Analyzing trends and issues in the current healthcare system has implications for exercising leadership and will help students determine the way they can make a difference. 3 lecture hour Prerequisites: NR 314, NR 316, or permission of the instructor.

NR 331. Care of Women&Chldbearing Fmly. 3 Credits.
In this course students are introduced to current evidence based knowledge, theory and skills of the practice of maternal/newborn and women's health nursing building on knowledge from preceding courses in the social and physical sciences, and nursing courses, to help the student further develop the professional role behavior. Covered topics may include health promotion, disease prevention, genetics, social justice, issues of access and gender in healthcare. The continuity of care delivery from practitioner's office to hospital to home is stressed enabling the emerging clinician to see the interdisciplinary team at work in the care of women and childbearing families. Prerequisites: NR 314 and NR 316 Co-requisites: NR 331L.

NR 331L. Care of Wmn-Childbrng Fam Prac. 1 Credit.
In the clinical practicum of Nursing Care of Women and Childbearing Families students apply current knowledge, research and skills in contemporary practice of maternal/newborn and women's health nursing to the care of selected clients. Client selection will be based on availability and will include newborns, postpartal mothers, antepartal mothers and families, and intrapartal mothers and families. The emphasis will be on safe, evidence based care for this vulnerable patient population. Clinical hours 45. Prerequisites: NR 314 and NR 331 Co-requisite: NR 331.

NR 341. Care of Children&Child Rearing. 3 Credits.
In this course students focus on the nursing care of children, adolescents and families dealing with health and developmental challenges of childhood and explore health promotion needs of childrearing families. This course employs a developmental perspective through which major causes of morbidity and mortality are examined while it challenges students to develop critical and creative reasoning skills and utilize empathetically appropriate communication skills as the basis for care. 3 lecture hours per week. Prerequisites NR 316, NR 316L Co-Requisite NR 341L.

NR 341L. Care of Children&Child Rearing. 2 Credits.
In this course students apply knowledge of the causes of childhood and adolescent illness in context with the relevant developmental challenges specific to the patient. Health promotion needs of the child and family in illness are stressed. Critical thinking and empathetically appropriate communication serve as the context for care. Clinical hours - 80. Prerequisites: NR 316, NR 316L Co-Requisite NR 341.

NR 351. Family Centered Nursing. 1 Credit.
In this course students acquire an understanding of family centered care from a variety of cross disciplinary theoretical perspectives. Students will apply critical thinking in the analysis of family care across clinical settings and contexts. Traditional and contemporary family definitions will be examined along with the changes in structure, role, and function as families begin, age and face end of life issues. An introduction to the medical home will be incorporated, indentifying the roles of the health care team, the family and the client. 1 lecture hour Prerequisites: NR 316, NR 400.

NR 399. Pathopharmacology for Nursing. 1-4 Credit.

NR 400. Independent Study. 3 Credits.
A course in which there is an opportunity to select and read in a specific area of interest that is not available through regular course offerings. Prerequisites: three baccalaureate nursing courses and permission of the instructor. Students will continually apply proper legal/ethical considerations into clinical practice.

NR 403. Nursing Research. 3 Credits.
This course introduces students to the principles and methods of research and emphasizes the application of research in nursing as a product and process. It prepares students to critically read research articles and relate the value of that research to nursing practice and client outcomes; to develop a research problem and literaturereview; to participate with a research team; and to utilize nursing research in their practice. Confidentiality is emphasized to promote and ensure complete patient privacy. Classroom 3 hours. Prerequisites: NR103, MA232. Co-requisites: NR208 or permission of the instructor.

NR 404. Nursing Leadership. 3 Credits.
This course examines the leadership process in nursing. The student studies the effects of leadership theory in the management of people and tasks within the health care environment, such as teaching assistive personnel the requirements of ensuring security of patient's medical information and professional ethics. Emphasis is placed on a humanistic model for teaching and learning that stresses interpersonal communication as an essential component of nursing and leadership. Classroom 3 hours. Prerequisites: NR103 or NR303, NR315 or permission of the instuctor.

NR 405. The Nurse's Role in Health Promotion and Health Protection. 8 Credits.
The role of the baccalaureate nurse in the health promotion and protection of individuals, families, and populations is emphasized. The student is introduced to the components of community health nursing. The focus of the clinical components is the nursing care of families and populations. Students will continually apply proper ethical/legal considerations and the insurance of patient privacy. Classroom 4 hours, clinical 12 hours for 14 weeks. Prerequisites: NR312, NR315.

NR 416. Care of the Adult II. 4 Credits.
In this course students are required to integrate the physiological, psychological, spiritual, developmental and socio-cultural dimensions of adults as they study nursing care during wellness and illness. Focus is on the neurological system, cardiovascular system, respiratory system, hematology and oncology. Students learn the professional nursing role in planning care of the adult client. 4 lecture hours per week. Prerequisites: NR 331, NR331L, NR 341 and NR341L Co-Requisite NR 416L.

NR 416L. Care of Adult II. 4 Credits.
In this course students apply knowledge of the physiological, psychological, spiritual, developmental and socio-cultural dimensions of adults as they study nursing care during wellness and illness. Students learn the professional nursing role in planning care of the adult client through clinical experiences at external agencies. Acquisition of communication and psychomotor skills is critical to providing nursing care. 12 clinical hours a week/ Simulation 1 hour 40 minutes every other week. Prerequisites: NR 331, NR 331L, NR341 and NR 341L Co-Requisite: NR 416.

NR 420. Care at End of Life. 2 Credits.
In this course students will study current theory and research about contemporary practices caring for clients and their families at the end of life. It teaches students effective interaction skills with clients, families and health care providers. Throughout the course, students develop their use of self as a therapeutic tool and focus on a holistic approach to assessment and care of persons with a variety of life-limiting illnesses/diseases. Interventions will be discussed regarding the physical care as well as psychological, social, cultural and spiritual care of clients and their families as they face life's final journey. Classroom: 2 hours. Prerequisites: NR 331 NR 331L, NR 341, and NR 341.

NR 421. Coordinator of Care. 3 Credits.
NR 421 - Coordinator of Care 3 credits In this course students integrate the physiological, psychological, spiritual, developmental and socio-cultural dimensions of adults as they study nursing in the context of uncertain and complex clinical environments. Students will use previous medical surgical nursing knowledge and builds skill sets as they prepare to enter the nursing professions as a new graduate nurse. Students will work one on one with an agency preceptor in a specialty of interest. 3 lecture hours per week Prerequisites: NR 416 and NR416L Co-Requisite NR 421L.

NR 421L. Coordinator of Care Practicum. 4 Credits.
NR 421L - Coordinator of Care Practicum 4 credits In this final undergraduate clinical practicum, students demonstrate achievement of knowledge and skills in nursing practice as they enter into professional practice. Clinical experiences include seven weeks of practice under the guidance of an agency preceptor. Students integrate knowledge and skills from the humanities and basic, behavioral, social leadership and nursing sciences in developing the professional role in selected adult and pediatric health environments. Learning experiences allow students to gain confidence; practice critical thinking, leadership and ethical decision making in clinical situations. 168 hours clinical, 30 Simulation hours Prerequisites: NR 416 Co-Requisite NR 421.

NR 431. Promoting Health in Communities. 3 Credits.
NR 431 - Promoting Health in Communities 3 credits In this course students learn current theory and research about contemporary practices in community/public health nursing. In population-focused nursing, the group, aggregate, community, or population is the unit of care. Epidemiologic studies have shown that lifestyle, environmental and genetic factors are major determinants of population health. Students will work collaboratively with community agencies to address population-focused health issues. Classroom 3 hours Prerequisites: NR 416 and NR416L Co-requisite: NR 431L. 319.

NR 431L. Promoting Health in Communities: Clinical Practicum. 2 Credits.
NR 431L - Promoting Health in Communities: Clinical Practicum 2 credits In this course, students will apply concepts of community/public health in providing population-focused care to groups, aggregates, and communities. Clinical experiences are coordinated in a variety of settings and require students to engage with individual agencies and in collaboration with community partners in addressing community/public health issues. Students are encouraged to clarify their own beliefs and values in order to provide nonjudgmental nursing care. Clinical hours: 80. Prerequisites: NR 416, NR 416L Co-requisite: NR 431.

NR 441. Nursing Capstone. 4 Credits.
NR 441 - Nursing Capstone 4 credits In this course the student begins to transition to the role of graduate nurse and explores issues relevant to contemporary nursing practice including the ethics and regulation of practice. Local, state, national and international policies and initiatives and their influence on health of populations are examined. Students create and implement an approved capstone leadership project which is undertaken with guidance of faculty and clinical partners and reflects integration of all elements of the BSN curriculum. Classroom 2 hours; seminar leadership project 2 hours. Prerequisites: NR 416 and NR 416L.

Philosophy (PH)

Courses

PH 210. Foundations of Western Thought I: The Ancient World. 3 Credits.
The first in a four-semester sequence which enables students to enter the "great conversation" of western civilization, debating ultimate or philosophical questions about science, religion, self-awareness, ethics and politics. This course examines themes in the thought of Plato, Aristotle and the Stoic, Epicurean and neo Platonist philosophers of the ancient world. Offered fall semester of even-numbered years.

PH 230. Logic. 3 Credits.
A study of the principles of valid reasoning and argument: how to analyze arguments, detect fallacies, apply logical rules, prove and refute conclusions from given premises. Both syllogistic methods of argument and modern systems of symbolic inference are studied.

PH 303. Survey of Ethics. 3 Credits.
An introduction to critical thinking about the fundamental principles on which moral judgments and ethical conduct are based. This course will survey the major historical and contemporary positions.

PH 305. Foundations of Western Thought II: The Middle Ages. 3 Credits.
This course considers the synthesis of Christianity with classical pagan philosophy achieved by St. Augustine and St. Thomas Aquinas (1225-1274). What became of the ancients' ideal of human knowledge (of the universe, the soul, the divine, and the political community) in an age during which philosophy became the "handmaid of theology"? What were the underpinnings of the "natural law" conception of moral and political philosophy? How did this medieval synthesis break down on the scientific side with Galileo's challenge to Arostotelian physics and astronomy, and on the moral and political side with Machiavelli's portrayal of a Renaissance prince? Offered spring semester of odd-numbered years.

PH 306. Foundations of Western Thought III: 17th & 18th Centuries. 3 Credits.
This course follows the development of the European philosophical tradition through the age of religious upheaval, secular enlightenment, scientific and democratic revolutions. Included is a discussion of Post-Aristotelian physical science -- especially the concepts of space, time, motion and causation -- from Galileo through Descartes to Newton and a consideration of the foundation of modern moral and political philosophy by Hobbes and its continuation through Locke, Hume, Rousseau and Kant. Includes Kant's Copernican Revolution in moral philosophy and philosophical theology. The Enlightenment ideal. Offered fall semester of odd-numbered years.

PH 307. Foundations of Western Thought IV: 19th and 20th Centuries. 3 Credits.
This course follows themes discussed in Foundations of Western Thought I, II and III into the contemporary period. Works by Hegel, Kierkegaard, Marx, Mill, Nietzsche, Jaspers, Heidegger, Sartre, Russell, Weil and Arendt. Offered spring semester of even numbered years.

PH 322. Business Ethics. 3 Credits.
This course considers a range of ethical issues arising in the business world which are of common public concern. It is intended to provide a working knowledge of the concepts, theories and types of argument characteristic of ethics in general and an appreciation of how they relate to a market environment. The rights and responsibilities of businesses, managers and employees to each other, to stockholders and to society at large are examined in such contexts as marketing, accounting and auditing, job security, pensions and health care, working conditions, affirmative action, product liability and safety, executive compensation and governance, globalization and the natural environment.

PH 323. Environmental Ethics. 3 Credits.
An introduction to ethical issues concerning the human and non-human environment. The course provides a working knowledge of the concepts, theories, and types of arument characteristic of ethics in general. It analyzes and debates a selection of such topics as: ethical implications of continued economic and population growth; designing the infrastructure and architecture of human communities for optimal integration into the natural environment; sustainable agriculture and wilderness management; biodiversity and endangered species; pollution, waste disposal and climate change. Mainstream philosophical approaches will be compared with radical perspectives such as deep ecology and eco-feminism; and responses to ecological hazards ranging from free market strategies, through government regulation, local economic and ecological initiatives, to civil disobedience and eco-sabotage, may be examined.

PH 324. Criminal Justice Ethics. 3 Credits.
This course provides a short introduction to general ethics (about 1/3 of the semester) with applications to practices and problems in the criminal justice field. Its focus is less on specific rules of ethical conduct for criminal justice professionals than on their interface with issues of common public concern. We will debate the legitimate functions and limitations of the criminal law, as well as a selection of moral problems in policing, judicial processing and corrections. In addition, a number of recent high-profile Supreme and Appeals Court cases in the areas of civil rights and civil liberties will be analyzed. The emphasis will be on developing discussion skills and familiarity with essential patterns of legal and moral reasoning.

PH 340. Philosophy of Non-Violence. 3 Credits.
A study of permissible uses of force by individuals and nations. Topics include the theory of the just war, pacifism and non-resistance, conscientious objection, civil disobedience, and the moral problem of nuclear armaments.

PH 350. Medical Ethics. 3 Credits.
This course examines general ethics and professional ethics; patient rights and professional responsibilities; terminating and prolonging life; allocating scarce medical resources; human experimentation and informed consent; genetic intervention; and other issues.

PH 360. Philosophy of Science. 3 Credits.
A course examining the basic principles of scientific reasoning, questions concerning scientific progress and scientific revolutions and ethical issues in the technological application of scientific discoveries. Case studies are drawn both from the history of science and from contemporary controversies. Prerequisites: sophomore standing or above and one course in laboratory science.

PH 400. Reading and Research. 3 Credits.
An inquiry into the pertinent literature and source materials of a specific area concerned with a special project to be agreed upon by instructor and student. Prerequisite: consent of instructor involved.

Physical Education (PE)

Courses

PE 107. Foundations of Physical Education. 3 Credits.
A course designed to provide students with an introduction to the professional aspects of the physical education profession. Includes historical and philosophical implications with emphasis on modern trends in program design. Acquaints students with professional organizations and reviews career possibilities in the field.

PE 161. Physical Fitness & Wellness Assessment. 3 Credits.
Introduces the student to the theory and practice of teaching physical fitness activities. A personalized assessment is conducted of health-related fitness and wellness components. Based on the evluation results and individual interests, an exercise program is designed by each participant, which she/he is expected to revise and update during her/his professional preparation at Norwich University. Individualized excercise program prescriptions may include aerobics, cycling, jogging, lap swimming, walking, yoga, or weight training. Professional ethics, client privacy, and liability issues are stressed throughout the program.

PE 199. Phys Ed Topics;. 4 Credits.

PE 260. Personal and Community Health. 3 Credits.
A course that emphasizes principles, problems, and procedures concerned with the improvement of individual and community health. Consideration is given to the nature of communicable diseases and the preventative measures used in schools and community. Health information protection and client privacy are stressed as an integral part of the community health care provider’s professional ethics.

PE 261. Foundations in Health Education. 4 Credits.
This course will teach historical development, professional standards, philosophy and program planning, including current best practices in the development, implementation and evaluation of health education programs. It will focus on developing personal and social health skills, including decision making, interpersonal communication, goal setting and self managment skills. In addition, this course will integrate teaching students media literacy, personal advocacy, and how to access valid health information, products and services and how to teach this to prospective students. Lecture 3 hours: Field Experience 2 hours. Prerequisite: PE260. Offered even-numbered fall semesters.

PE 265. Lifelong Motor Development. 3 Credits.
This course studies the sequential, continuous age-related process whereby movement behavior changes. The class will cover information processing theories, theories of motor learning, effects of practice regimens and feedback and biological changes experienced over a lifetime, which affect motor skill acquisition. Understanding lifespan motor development is important for educators at all levels, special education teachers, physical educators, coaches, and adult fitness leaders.

PE 304. Motor Development Activities I. 4 Credits.
This course teaches students to apply principles of best practice to the development and delivery of appropriate instructional programs in individual and dual activities currently being taught in the public schools (e.g. dance, gymnastics, racket activities, orienteering). Consideration is given to the development of personal performance and skill acquisition in order to more effectively lead practical lessons in school. Students must demonstrate an understanding of, and competence in motor skill acquisition and physical education pedagogy in the context of public school instructional programs.

PE 305. Motor Development Activities II. 4 Credits.
This course teaches students to apply principles of best practice to the development and delivery of appropriate instructional programs in team sport and group activities currently being taught in the public schools (e.g. cooperative/challenge activities, basketball, volleyball, softball, soccer, lacrosse and floor hockey). Consideration is given to the development of personal performance and skill acquisition in order to more effectively lead practical lessons in school. Students must demonstrate an understanding of, and competence in motor skill acquisition and physical education pedagogy in the context of public school instruction programs.

PE 306. Outdoor Physical Education I. 3 Credits.
This course provides students with a comprehensive background in warm weather Outdoor Physical Education. Skills in trip planning, risk management, equipment selection concerning use and care, and group leadership techniques will be covered. This class will prepare students to recognize the assumption of risk, attractive nuisances, negligence, and the standard of care when facilitating an Outdoor Physical Education program. Students will study and practice principles and protocols for administering safe, high-quality outdoor education experiences in activities such as, canoeing, mountain biking, hiking & backpacking, and adventure. Also covered will be topics in animal and wilderness conservation, nutrition, compass use and navigation, and environmental ethics. 3 classroom/field experience hours. Prerequisites: PE 107, PE 161, or permission of instructor. Offered fall semester.

PE 307. Outdoor Physical Education II. 3 Credits.
This course provides students with a comprehensive background in cold weather Outdoor Physical Education. Students will be actively engaged in winter activities. This class will prepare students to conduct classes in outdoor education during the winter in activities such as, snowshoeing, cross-country skiing, and ice skating. Also presented will be, but not limited to, topics in animal and wilderness conservation, nutrition, mountain and cold weather illness and injuries, and snow science, such as avalanche assessment and ice assessment. An emphasis will be placed on preparing individuals to be active in cold weather under winter conditions. 3 classroom/field experience hours. Prerequisites: PE 107, PE 161, or permission by instructor. Offered spring semester.

PE 333. Management Sports Facilities. 3 Credits.

PE 341. Instructional Strategies for Physical Education in Elementary School. 4 Credits.
A course that provides classroom and laboratory experience designed to acquaint the student with basic materials, methods, and principles necessary to meet the educational needs of the elementary school child. Emphasis on curriculum development with consideration given to concepts of movement education and perceptual motor development. Application of movement theory to specific sports skills and activities. Health information protection and student privacy issues are included throughout the course of instruction. Classroom 2 hours, laboratory 3 hours on site at Barre Town Middle, Elementary School.

PE 342. Instructional Strategies for Physical Education in Middle-Secondary School. 4 Credits.
A course that places emphasis on ethics, principles, procedures, and techniques related to teaching health and physical education in the elementary and secondary schools. Methods of organization, types of programs, and content and materials of health and physical education courses. Laboratory experience provided in traditional and new media, self and peer evaluation, and micro teaching. Health information protection and student privacy issues are reinforced throughout this course. Classroom 2 hours, laboratory 3 hours on site at U-32 Jr. - Sr. High School.

PE 355. Coaching:Leadership in Sports. 3 Credits.
A course covering the philosophy, principles, and techniques of coaching individual and team sports. Emphasis on the organization and administration of interscholastic athletics in relation to the achievement of education objectives. Opportunity for youth sport certification.

PE 365. Kinesiology. 4 Credits.
A review of the structure and function of the skeletal and muscular systems with special emphasis on an analysis of human motion as related to human performance. Classroom 3 hours, laboratory 2 hours. Prerequisite: BI215, 216 or permission of the instructor.

PE 371. Physiology of Exercise. 4 Credits.
A review of physiological principles of muscular activity with emphasis on the integration of body systems in the performance of exercise and various athletic activities. Classroom 3 hours, laboratory 2 hours. Prerequisite: BI215, 216 or permission of the instructor.

PE 373. Activities and Programs for the Disabled and Aging. 3 Credits.
A study of activities and programs focused on meeting the needs of special population groups and the aging. Consideration given to teaching methodology and program planning for individuals and groups. Health information protection and client privacy is stressed as it relates to professional ethics and liability.

PE 399. Topics:. 3 Credits.

PE 406. Readings in Physical Education. 3 Credits.
This course examines the current literature on issues facing future professional educators of an ethical, legal or pedagogical nature. Students are expected to think, read, write and speak critically about these professional issues in the physical education discipline. The submission of a professional portfolio is required. Seminar 3 hours.

PE 426. Internship. 6,12 Credits.
A course designed to provide the Physical Education students with an intern-type experience in a professional setting appropriate to their career goals. Prerequisite: satisfactory completion of all courses in the major through the sixth semester. Cross listed as PE/SM. A student may not receive credit for both.

PE 432. Organization and Administration in Physical Education. 3 Credits.
A course that emphasizes the study of administrative principles, functional organization, and supervision in relation to the total physical education program in grades K-12 and to managing sports facilities and sports programs. Major topics include personnel, curriculum, legal liability, intramurals, evaluation, budgeting and risk management.

PE 441. Advanced Exercise Physiology and Prescription. 4 Credits.
This course prepares and qualifies students to work as personal trainers and fitness specialists in corporate fitness and health club facilities. The course bridges the gap between exercise physiology and the practical application skills of personal training. Advanced exercise physiology knowledge is presented to assure new knowledge and exercise techniques are acquired. Students will learn how to design and implement exercise prescriptions for multiple populations and as well as successful goal attainment. Students will be prepared to sit for certification examinations. Three lecture hours per week and two hour laboratory component. Prerequisites: PE 365, 371, or permission of instructor. Offered Fall semesters.

PE 450. Exercise Testing and Electrocardiography. 4 Credits.
This course focuses on the theory and methods of administering exercise stress tests using different modes of exercise and consideration of different populations. Further analysis of information gained from exercise testing, studying deviations from normal, and applications of exercise test information in adult fitness and cardiac rehabilitation programs will be highlighted. Emphasis will be placed on the recognition and interpretation of normal and abnormal resting and exercise ECG monitoring. Three lecture hours per week and two hour laboratory component. Prerequisites: BI 215, 216 and PE 371 or permission of instructor. Offered fall semester.

PE 499. TEST COURSE. 12 Credits.

Physics (PS)

Courses

PS 100. Elementary Physics. 4 Credits.
A study of topics from kinematics, dynamics, fluids, energy, acoustics, electricity, optics, and modern physics chosen for applicability to physical education and health. Classroom 3 hours, Laboratory 2 hours. Prerequisite: MA103 or equivalent.

PS 107. Introductory Solar System Astronomy. 4 Credits.
A descriptive study of the solar system, including the sun, planets, asteroids, comets and interplanetary space. The role of observation in the evolution of astronomy is emphasized. Lecture 3 hours, laboratory 2 hours. Does not count as a lab science if taken for 3 credits.

PS 108. Stellar and Galactic Astronomy. 4 Credits.
A descriptive introduction to the universe, including stars, galaxies, and recent deep space discoveries. Discussions survey the techniques used by astronomers to interpret the wide variety of observed phenomena in the cosmos. Lecture 3 hours, laboratory 2 hours. Does not count as a lab science if taken for 3 credits.

PS 110. Physics of Continuous Media. 3 Credits.

PS 201. General Physics I. 4 Credits.
An algebra-based study of mechanics, sound and heat, with correlated laboratory experiments. Classroom 3 hours, laboratory 2 hours. Prerequisite: MA107 or the equivalent.

PS 202. General Physics II. 4 Credits.
An algebra-based study of magnetism, electricity, light, and atomic physics, with correlated laboratory experiments. Classroom 3 hours, laboratory 2 hours. Prerequisite: PS201.

PS 205. Basic Instrumentation in the Natural Sciences. 4 Credits.
An introductory course in electricity and electronics including A.C. and D.C. bridge circuits, diodes and transistors, linear and digital integrated circuits. Emphasis is placed on the use of these devices in typical research equipment such as spectrophotometers, radiation counters, turbidity and conductivity meters, electronic thermometers, etc.. Lecture 3 hours, laboratory 3 hours. Prerequisites PS201, PS202.

PS 207. Meteorology and Climatology. 3,4 Credits.
A first study of atmospheric processes, elementary forecasting, and the major climatic classes. Particular emphasis is placed on the effects of these phenomena on human activities. Laboratory practice includes elementary forecasting techniques, observations, calculations, and theoretical analysis of weather and climate patterns. Classroom 3 hours, Laboratory 2 hours. Prerequisite: PS201 or PS202 or permission of the instructor. Does not count as a lab science if taken for 3 credits.

PS 211. University Physics I. 4 Credits.
A calculus-based study of vectors; Newton's laws; uniform, accelerated, rotational and harmonic motion; conservation laws; fluid mechanics; elasticity. Classroom 3 hours, laboratory 2 hours. Required in chemistry, mathematics and engineering curricula. Prerequisite: MA121.

PS 212. University Physics II. 4 Credits.
A calculus-based study of topics in electricity, magnetism, waves and optics. Classroom 3 hours, laboratory 2 hours. Prerequisite: PS122, Co-requisite: MA122.

PS 232. University Physics III. 3 Credits.
A study of topics from quantum phenomena, spectroscopy, relativity, nuclear and solid state physics. Classroom 3 hours. Prerequisite: PS202 or PS212, MA223 or permission of the instructor.

PS 331. Mechanics. 4 Credits.
Newtonian Mechanics applied to a particle including rectilinear and general motion, linear oscillations, non-inertial reference frames, gravitation, and central forces. Non-linear oscillators and chaos. Classroom: 3 hours; laboratory: 3 hours. Prerequisites: PS202 or PS212; MA224 offered odd numbered fall semesters.

PS 332. Mechanics II. 4 Credits.
Newtonian Mechanics applied to a system of particles including planar and general motion of rigid bodies, and oscillating systems. Lagrangian and Hamiltonian dynamical formulations. Introduction to relativistic dynamics. Classroom: 3 hours; laboratory: 3 hours. Prerequisite: PS331. Offered even numbered spring semesters.

PS 354. Thermodynamics. 4 Credits.
A study of first and second laws of thermodynamics with applications; thermodynamic potentials and applications to systems in equilibrium; introduction to statistical mechanics including Boltzmann statistics, quantum statistics, and statistical interpretation of entropy. Classroom 3 hours, laboratory 3 hours. Prerequisites: PS202 or PS212; MA224.

PS 363. Optics. 4 Credits.
A study of the nature and propagation of light; reflection and refraction, thick lenses, lens aberrations, and optical instruments. Interference, dispersion, diffraction, polarization, and color phenomena. Classroom 3 hours, laboratory 3 hours. Prerequisites: PS202 or PS212; MA224.

PS 421. Advanced Laboratory I. 1-4 Credit.
A laboratory investigation in a specific area of experimental physics designed in consultation with physics faculty. Prerequisite: Permission of the instructor. Offered fall semesters only.

PS 422. Advanced Laboratory II. 1-4 Credit.
A laboratory investigation in a specific area of experimental physics designed in consultation with physics faculty. Prerequisite: Permission of the instructor. Offered spring semesters only.

PS 423. Electricity and Magnetism I. 4 Credits.
A study of electrical circuits, electrostatic fields, application of Gauss' Law and Laplace's equation; dielectric theory; magnetic fields, induced electric fields and currents; theory of magnetic materials; Maxwell's equations and electromagnetic waves. Classroom 3 hours, laboratory 3 hours. Prerequisites: MA224 and PS205 or permission of instructor. Offered even numbered fall semesters.

PS 424. Electricity and Magnetism II. 4 Credits.
A continuation of PS423, studying electrical circuits, electrostatic fields, application of Gauss' Law and Laplace's equation; dielectric theory; magnetic fields, induced electric fields and currents; theory of magnetic materials; Maxwell's equations and electromagnetic waves. Classroom 3 hours, laboratory 3 hours. Prerequisites: PS423. Offered odd numbered spring semesters.

PS 441. Modern Physics I. 4 Credits.
An introduction to special relativity, quantum mechanics, structure and spectra of atoms and molecules, nuclear models, and nuclear interactions. Classroom 3 hours, laboratory 3 hours. Prerequisites: PS212 and MA224 or permission of instructor. Offered odd numbered fall semesters.

PS 442. Modern Physics II. 4 Credits.
A continuation of PS441, introducing special relativity, quantum mechanics, structure and spectra of atoms and molecules, nuclear models, and nuclear interactions. Classroom 3 hours, laboratory 3 hours. Prerequisite: PS441. Offered even numbered spring semesters.

PS 451. Seminar I. 1 Credit.
A study of special topics of current interest. This capstone course integrates reading, writing, speaking and critical thinking skills. Classroom 1 hour. Prerequisite: permission of the instructor. Offered fall semesters only.

PS 452. Seminar II. 1 Credit.
A continuation of PS451, investigating special topics of current interest. This capstone course integrates reading, writing, speaking, and critical thinking skills. Classroom 1 hour. Prerequisite: permission of the instructor. Offered spring semesters only.

PS 461. Senior Project I. 1 Credit.
A project-oriented capstone experience that integrates reading, writing, speaking and critical thinking. The senior student chooses a project with faculty advice and takes charge of its execution to a satisfying conclusion. The course requires oral and written presentations of the project results. Prerequisites: senior class standing and permission of the instructor. Offered fall semesters only.

PS 462. Senior Project II. 1 Credit.
A project-oriented capstone experience that integrates reading, writing, speaking and critical thinking. The senior student chooses a project with faculty advice and takes charge of its execution to a satisfying conclusion. The course requires an oral and written presentation of the completed project. Prerequisites: senior class standing and permission of the instructor. Offered spring semesters only.

Political Science (PO)

Courses

PO 105. American Politics. 3 Credits.
A study of the theoretical, institutional, and behavioral elements of the U.S. political system. Offered both semesters. Open freshman only, except by permission of department chair or unless a major requirement for another program or major.

PO 106. Introduction to Public Policy and Administration. 3 Credits.
An introductory examinatin of theoretical and practical approaches to policymaking and administration, the essential steps in the proces, and the roles of key actors at all levels. This course prepares students for more in-depth study of all other facets of the political realm. 3 lecture hours. Open freshman only, except by permission of department chair or unless a major requirement for another program or major.

PO 202. Introduction to Comparative Politics. 3 Credits.
An introductory course that acquaints students with the comparative study of politics. The course will compare executive and legislative relationships, electoral systems, ideologies, and political parties. Various countries from around the world will be used to illustrate the application and consequences of different institutions and ideas. Not open to freshman without instructor¿s permission.

PO 215. International Relations. 3 Credits.
An inquiry in assumptions, theories, and dogmas of the modern state system. Examination and evaluation of such topics as realist theory; conflict resolution; game theory; decision-making theory; and ecopolitics. Not open to freshman without instructor¿s permission.

PO 220. Research Methods. 3 Credits.
An introduction to the methods of political analysis, standard nomenclature, and basic research methods relied upon in the study of politics. Emphasis is placed on quantitative methods and ethical issues in conducting research. Not open to freshman without instructor¿s permission.

PO 300. Special Topics in Politics. 3 Credits.
Select topics offered on occasion. Open to upperclassmen, otherwise by permission of the instructor.

PO 301. Special Topics in International Relations. 3 Credits.
Select topics in the area of international Relations offered on occasion. Topics courses may be repeated for credit as long as a different topic is offered. 3 lecture hours. Open to upperclassmen, otherwise by permission of the instructor.

PO 303. Political Philosophy. 3 Credits.
After introducing the political philosophies of Socrates, Plato and Aristotle, this course explores the ideas of major Western thinkers from the Renaissance through the Industrial Revolution. The course not only examines each philosopher’s understandings of power, justice, equality and freedom, but also contemporary applications and implications of these ideas. Open to upperclassmen, otherwise by permission of the instructor.

PO 305. Geopolitics. 3 Credits.
Geopolitics will give students an increased appreciation of the influence of geography on political decision-making. This course will help students "visualize" world politics and understand how geography affects both national and transnational political behaviors. Students will learn to think and write critically about such issues and forces as globalization, development, and conflict. Students will develop an understanding of how interests and perceptions are shaped by geography. Offered alternate years. Open to upperclassmen, otherwise by permission of the instructor.

PO 310. European Politics. 3 Credits.
A study of the political systems, cultures, and issues of selected countries from western, northern and southern Europe as well as Russia and the European Union. This course will also consider the relationship between domestic and foreign policies and the relationship between the United States and Europe. Offered alternate years. Open to upperclassmen, otherwise by permission of the instructor.

PO 312. The Presidency. 3 Credits.
A study of the presidential office and its relationship with the major American political institutions. Offered alternate years. Open to upperclassmen, otherwise by permission of the instructor.

PO 313. Political Parties and Interest Groups. 3 Credits.
A study of political parties and interest groups as they influence the decision making process, the formulation of government policy, and the selection of official personnel. Open to upperclassmen, otherwise by permission of the instructor.

PO 314. The Legislative Process. 3 Credits.
A study of the national and state legislatures in the United States through a combination of lectures, readings, contact with legislators, and actual investigations on the state legislative scene itself. Offered alternate years. Open to upperclassmen, otherwise by permission of the instructor.

PO 315. Public Opinion and Political Behavior. 3 Credits.
A study of the development of political attitudes and the formation of public opinion; the influence of public opinion on governmental policy through its relationship to political participation representation and leadership. Offered alternate years. Open to upperclassmen, otherwise by permission of the instructor.

PO 320. Topics in Area Studies. 3 Credits.
Selected topics in area studies will be offered on occasion. This course will be used to cover subjects not included in the regular offerings in comparative politics. Topics may include the politics of a particular country or region such as Latin America, Africa, Eastern Europe, or the Middle East. A topics course may also be offered on a particular issue area such as foreign and defense policy, healthcare policy, welfare policy, or environmental policy. Open to upperclassmen, otherwise by permission of the instructor.

PO 321. U.S. Constitutional Law. 3 Credits.
Introduction to the evolution and structure of the American constitutional system, focusing on the federal relationship, the separation of powers, and judicial review, relying primarily upon the case method of analysis. Open to upperclassmen, otherwise by permission of the instructor.

PO 324. Civil Liberties. 3 Credits.
An examination of the relationship of individuals to government, relying primarily upon the case method of study, with specific consideration of problems of equal protection, due process, privacy, and freedoms of speech and religion. Open to upperclassmen, otherwise by permission of the instructor.

PO 330. American Citizenship. 3 Credits.
Using the Declaration of Independence, the Constitution and the Bill of Rights as a foundation, this course examines what it means to be a citizen of the United States. The course addresses such questions as: What are citizens entitled to and what do they owe the state and each other? Is there an obligation to obey political authority? Is there ever an obligation to disobey authority? An important consideration is the role of the military in American political life and in particular, the relationship between the military ethic and republican values. Offered alternate years.

PO 331. State and Local Politics. 3 Credits.
The primary objective of this course is to gain an understanding of the role of the state and local political institutions within the context of American federalism. Emphasis is placed on procedural and policy differences as well as political issues in state, regional, and local governments. 3 lecture hours. Open to upperclassmen, otherwise by permission of the instructor.

PO 333. American Foreign Policy. 3 Credits.
Through studies of the three "levels of analysis" personal political psychology, bureaucratic politics, and international relations-this course examines the processes of American foreign policy formulation and execution; it explores the objectives, methods, and consequences of major U.S. foreign and military policies. If practicable, students will take part in role-playing simulations. Open to upperclassmen, otherwise by permission of the instructor.

PO 340. Revolution and Forces of Change. 3 Credits.
A critical analysis of several revolutions that will examine causes, outcomes, and accepted explanations in an attempt to discern generalities applicable to all revolutions. Offered alternate years. Open to upperclassmen, otherwise by permission of the instructor.

PO 348. Asian Politics. 3 Credits.
A study of the political systems, cultures, and issues of the People’s Republic of China, Taiwan, Japan, North and South Korea, Vietnam, Indonesia, Pakistan, and India. This course will pay particular attention to the relationship between the West and Asia, the processes of "modernization," and the role of Asia in contemporary international relations. Offered alternate years. Open to upperclassmen, otherwise by permission of the instructor.

PO 400. Independent Study. 3 Credits.
An opportunity for qualified upperclass students to engage in an intensive reading or research program in fields of interest not satisfactorily covered by regular course offerings. Periodic conferences will be required. Prerequisite: written consent of the instructor to a specific project presented by the applicant. Offered as occasion demands. Open to upperclassmen, otherwise by permission of the instructor.

PO 403. Internship. 3-15 Credit.
Direct participation in the practical workings of state, municipal, and Federal government. Ordinarily open only to seniors. Offered on availability to internships. Credits to be determined by instructor. Prerequisite: permission of the instructor. Not open to freshmen. Open to upperclassmen, otherwise by permission of the instructor.

PO 405. International Organizations. 3 Credits.
This course focuses on the increasingly influential and varied roles international organizations play in the world today from peace and security to international development, human rights, and environmental protection. It traces the evolution of the thinking behind, and efforts to establish international organizations, and analyzes not only their promise and challenges, but also their successes and failures to date. Although particular attention is paid to the United Nations and its many affiliated bodies, regional organizations (e.g. European Union, Organization of American States, African Union, NATO), international non-governmental organizations (NGOs), and multi-national corporations are also assessed. Offered alternate years. Open to upperclassmen, otherwise by permission of the instructor.

PO 410. Capstone Seminar in Political Science. 3 Credits.
A research and writing course designed to introduce students to graduate standards of original research and critical writing in political science. Open to upperclassmen, otherwise by permission of the instructor.

PO 412. War and Peace. 3 Credits.
An inquiry into the ostensible causes of war-- biological, economic, psychological, strategic, and theological; and an examination of the purported causes of war -- personal probity, military counterpoise, political utopia, and world government. Preparation of a substantial paper is required. Open to upperclassmen, otherwise by permission of the instructor.

PO 415. International Law. 3 Credits.
This course examines the development of international law, and assesses its effectiveness in governing the relations among nation-states. The course examines early as well as more recent efforts to build a body of such law. It compares international law with domestic law, and explores the principal sources of international law. The course uses cases to analyze the development of international law in areas such as extraterritorial jurisdiction, the range of sovereignty, diplomatic relations, the treaty system, arbitration and adjudication, the use of force, human rights, the environment, and economic relations. Offered alternate years. Open to upperclassmen, otherwise by permission of the instructor.

PO 490. Honors in Political Science. 3 Credits.
A substantial, sequential, research and writing project. See description of department honors program. Offered as occasion demands. Students must take this course for two successive semesters. Open to upperclassmen, otherwise by permission of the instructor.

PO 491. Honors in Political Science. 3 Credits.
The second semester of honors in political science. Devoted to writing and defending the honors thesis. 3 lecture hours. Open to upperclassmen, otherwise by permission of the instructor.

Psychology (PY)

Courses

PY 210. Psychology of Leadership. 3 Credits.
This course is designed to introduce students to the theoretical aspects of leadership, and to help them understand how theory applies to real situations. Topics include leadership models, leader behavior, leadership skills, followership, teams and motivation. Students will be expected to analyze cases, current situations and their own leader style. Prerequisite: PY211, Introduction to Psychology.

PY 211. Introduction to Psychology. 3 Credits.
An introduction to psychology as the science of behavior. Topics to be discussed will include learning, motivation, emotions, perception, personality, tests and measurements, and additional selected topics.

PY 212. Abnormal Psychology. 3 Credits.
A course on the origin and development of psychopathology with emphasis on the biological, social, and psychological determinants. Prerequisite: PY211 or permission of the instructor.

PY 220. Developmental Psychology. 3 Credits.
A lifespan study of normal development with emphasis on physical, intellectual, social, and emotional growth. Prerequisite: PY211 or permission of the instructor. This course is taken concurrently with ED102 by Teacher Education/Licensure Students.

PY 230. Biopsychology. 3 Credits.
This course is a survey of the neurophysiological bases of human behavior. Topics include basic brain anatomy and physiology, neurotransmitters and drugs, sensation and perception, learning and memory, sleep, and neurological disorders.

PY 232. Engineering Psychology. 3 Credits.
The objective of this course is to expose students to the theoretical foundations of research in human factors. Students will be introduced to basic concepts in psychology such as perception, attention, decision making, and motor control. Knowledge of these concepts is critical for the intelligent design of human-technological systems.

PY 234. Forensic Psychology. 3 Credits.
A survey of psychological research and theory dealing with criminal behavior and the legal system. Topics include prediction of violent behavior, sexual assault, victimization, juvenile delinquency, scientific jury selection, criminal investigation and profiling, eyewitness testimony, assessment of mental competency, lie detection, DNA testing, and forensic science.

PY 236. Cross-Cultural Psychology. 3 Credits.
This course will expose students to the influence of culture on human behavior, and will illustrate differences and commonalities in behavior (verbal and non-verbal), attitudes, and values across a range of cultures around the world. Issues concerning cultural contact and inter-cultural relations will be considered to enhance a student¿s ability to deal with and understand variations in human behavior across cultures and ethnic groups. Methodological issues of particular importance to cross-cultural research will be discussed.

PY 238. Political Psychology. 3 Credits.
This course will examine key research in political psychology which includes the interactions of political and psychological processes and their impact on behavior in personal, local and global communities.

PY 240. Introduction to Social Psychology. 3 Credits.
A general survey of theories, methods and research on individual behavior in a social context. Among topics to be considered are: aggression, interpersonal attraction, a ffiliation, person perception, attitudes, group processes, and social influence. Prerequisite: PY211.

PY 241. Introduction to Personality Theory. 3 Credits.
An overview of selected influential statements regarding the structure, dynamics, and development of the human personality. Included are the theories of the Freudians (Freud, Jung, Adler), the Environmentalists (Dollard and Miller, Skinner), and the Existentialists and Humanists (Rogers, Maslow, Frankl). Comparisons among theorists are organized around philosophical and historical themes. Prerequisite: PY211.

PY 263. Perception. 3 Credits.
Coverage of the major themes and research in perception. Topics include perception of color, form, motion, depth, illusions, perceptual learning, development, and the physiology of perception. Prerequisite: PY211 or permission of the instructor.

PY 299. Leadership at Norwich Univ.. 3 Credits.

PY 313. Experimental Psychology I. 3 Credits.
A course on the principles and skills required to plan, execute, and interpret psychological research. Topics include the nature of science, the value of empirical evidence, psychology viewed as a science, the logic of experiments, and the ethics of using human subjects. Students are taught to develop a testable idea, to write and read research reports, and to design, conduct, and analyze univariate and correlational studies. Prerequisite: PY211 or permission of the instructor.

PY 314. Experimental Psychology II. 3 Credits.
This course will teach students how to design, conduct, and report psychological experiments. The purpose of the course is to link the academic subject matter of psychology to the conduct of research in the laboratory and the field. Topics include the nature of science, formulation of hypotheses, measurement and reliability, researchmethods (including experimental, correlational, and observational techniques), research design, and ethics of using human subjects. Issues of experimental control, its relation to confounding and research design, and internal and external validity will be included. The course will also focus on the teaching of library research and scientific writing skills. Students will design, implement, analyze, and report results of several research projects. Prerequisite: PY313, or MA232, or permission of instructor.

PY 315. Exceptional Child I. 3 Credits.
An introduction to the developmental, emotional, behavioral, and learning characteristics of the special child. Topic areas include learning disabilities, retardation, emotional disorders, physical handicaps. Also included are federal and state laws, regulations, curricular adaptations and integration strategies. Required and only for elementary and secondary Teacher/Education Licensure Candidates. Prerequisite: PY211 or permission of the instructor.

PY 321. Organizational Psychology. 3 Credits.
An analysis of organizational behavior including motivation, climate, leadership, and the use of such techniques as behavior modification in changing human behavior. Theoretical consideration will be followed by application experiences through role playing and case analysis. Prerequisite: PY211 or permission of the instructor.

PY 324. Adolescent Psychology. 3,4 Credits.
This course examines the physical, emotional, social, cognitive aspects of adolescence from a developmental perspective. Identity, autonomy, sexuality, achievement, and intimacy are examined within the context of the school, the peer group, and the family. Students will have the opportunity to work with adolescents in schools, recreational centers, counseling centers, or through youth service agencies. Required for secondary teacher licensure candidates (Formerly ED324, Educational Psychology). Prerequisite: PY211 or permission of the instructor.

PY 344. Cognition. 4 Credits.
Overview of research and theory on human cognitive processes emphasizing the acquisition, storage, representation, retrieval and use of knowledge. Topics include memory, concept formation, language and thought, problem solving and creativity, and cognitive development. Laboratory will include hands-on experiments in cognitive research paradigms.

PY 350. Environmental Psychology. 3 Credits.
A study of the relationship between people and the environment, the use of space as a means of regulating social interaction, and human responses to environmental stressors such as overcrowding, toxic agents, noise, air, and water pollution. Also a brief look at ecological psychology in which setting-specific rather than person-specific determinants of a person's reaction to the environment are analyzed. Prerequisites: minimum junior standing, PY211, and permission of the instructor.

PY 352. Learning and Memory. 4 Credits.
This course provides an overview of historical and current research findings in the area of learning and memory. The subject will be approached from various theoretical approaches, including behaviorist, cognitive, and neurobiological paradigms. Laboratory will include hands-on experiments using research paradigms from the field of learning and memory.

PY 355. Psychology and the Law. 3 Credits.
A course that examines the research of psychology as it relates to the judicial process; the nature, source, and development of antisocial behavior; and forensic psychology relative to the development of law and policy at the national and international levels. Prerequisites: PY211, junior standing and permission of the instructor.

PY 360. History and Systems of Psychology. 3 Credits.
An overview of significant movements, theories and individuals in the development of contemporary psychology. The course is organized around significant themes and includes discussion of the philosophy of scientific growth, structuralism, functionalism, behaviorism, Gestalt psychology and psychoanalysis. Included will be examples, cases, and discussions of the APA ethics code that governs the performance of professionals in the field of psychology. This course satisfies the university's General Education Ethics requirement. Prerequisite PY 211 and permission of the instructor. 3 lecture hours.

PY 398. Thesis Preparation. 3 Credits.
The students will prepare a senior thesis prospectus in accordance with the ethical standards of the Human Subjects Committee. This course precedes PY498. Prerequisites: junior standing, permission of the instructor, PY211, PY313, PY314.

PY 401. Senior Seminar. 3 Credits.
This course is the capstone experience marking the end of a student's undergraduate studies. Students both majoring and minoring in psychology will be provided the experience of synthesizing their learning across their courses in the context of a liberal arts education. Prerequisite: senior status or permission of the instructor, PY211, PY313, PY314.

PY 402. Conference. 0 Credits.
Each Psychology major, must during his/her tenure at Norwich attend at least one professional Psychology meeting.

PY 403. Presentation. 0 Credits.
In order to complete the process of psychological inquiry and communication, each psychology major must present his/her senior research at an appropriate professional forum, spring semester, senior year.

PY 451. Theory and Practice of Psychoanalysis. 3 Credits.
A seminar course which deals with particular theories or areas of psychology not elsewhere covered in depth or within present course offerings. Prerequisite: PY211 and permission of the instructor.

PY 452. Thematic Seminar. 3 Credits.
A seminar course which deals with particular theories or areas of psychology not elsewhere covered in depth or within present course offerings. Prerequisite: PY211 and permission of the instructor.

PY 453. Internship. 3-9 Credit.
Assignments will include work and observation in local, state, and federal institutions or agencies concerned with the education, health, or the protection of society. Written and oral reports. Prerequisites: PY211 and permission of the instructor.

PY 471. Directed Readings. 3 Credits.
A course in which there is an opportunity to select and read in a specific area of interest that is not available through regular course offerings. Prerequisites: three psychology courses and permission of the instructor.

PY 498. Senior Thesis. 3 Credits.
A research course designed to enable a student to experience all phases of the experiment from literature research, experimental design, data collection and analysis, and written and oral reports. The student will learn all of the procedures, considerations, and standards necessary to ensure the ethical treatment of human participants. Prerequisites: PY211, PY313, PY314, PY398, senior standing and permission of the instructor.

Quantitative Methods (QM)

Courses

QM 213. Business and Economic Statistics I. 3 Credits.
A course emphasizing the development and presentation of statistical data for business and economic decision-making. Topics will include survey methods, statistical description measures, sampling distributions, statisical inference procedures, simple regression and time series analysis, and construction and use of index numbers. Prerequisite or corequisite: MA212.

QM 317. Business and Economic Statistics II. 3 Credits.
A course in which the statistical concepts developed in QM213 are continued. New topics developed are multiple correlation and regression theory and analysis, the assumptions of regression analysis and econometric problems, and an introduction to simultaneous models and advanced topics. Prerequisite: QM213. Offered in the fall-even years.

QM 370. Quantitative Methods for Marketing & Finance. 3 Credits.
A course in which the statistical concepts developed in QM 213 are continued. The focus of the course will be the application of statistical techniques to real world issues in Finance and Marketing. Emphasis will be placed on problem solving, class participation, computer applications and completion of a term paper. Prerequisite QM213. 3 lecture hours.

Sociology (SO)

Courses

SO 201. Introduction to Sociology. 3 Credits.
An analysis of the order and change in social life, both at the micro (interactional) and macro (societal) levels. An examination of fundamental concepts and research methods applied to understanding culture and socialization; social groups and organizations; social stratification; and social change.

SO 202. Problems of Modern Society. 3 Credits.
This course examines the problems of American social institutions such as the family, the economy, and education, using basic sociological principles and paradigms. The course also covers problems of inequality, deviance, and problems of change and modernization.

SO 209. Methods of Social Science Research. 4 Credits.
An examination of the methodological foundations of the social sciences; the logic and technique of empirical inquiry; the nature of social facts, the operationalization of concepts, and the construction of hypotheses; research designs including surveys, interviews, experiments, observation, and evaluation; the organization and analysis of data; graph and table construction and interpretation; the common problems of empirical social research; and research ethics. Emphasis given to criminal justice applications. The lab part of the course instructs students how to use and apply SPSS and other relevant software. Cross-listed with CJ209. Offered fall semester. Classroom and Laboratory 4 hours.

SO 212. Cultural Anthropology. 3 Credits.
Principles and methods in the comparative study of cultures. An examination of the concepts and theories in terms of which cultural anthropology is pursued. Offered in fall semesters.

SO 214. Racial and Cultural Minorities. 3 Credits.
A study of relations between racial and ethnic groups in modern America. Attention is also given to selected subordinate groups in the U.S. and other countries.

SO 216. Soc of Health, Wellness & Med. 3 Credits.
Introduction to the sociology of health, wellness and medicine. Examines the cultural and institutional aspects of health, wellness, and healthcare systems through basic sociological principles, paradigms and methods. Explores inequality in health outcomes, access to resources, and within the medical field. Includes an international comparative approach. Offered annually in the fall semester. Open only to Nursing majors in their third semester of the degree program, students with a Sociology minor, or by permission of the Instructor and the Department Chairperson (3 credits).

SO 300. Topics in Criminal Sociology. 3 Credits.
Selected topics offered on occasion.

SO 316. Aging in Society. 3 Credits.
Introduction to the sociological study of aging in society. This course examines the cultural, relational and institutional interpretations of aging through the life course using basic sociological principles, paradigms and methods. Students will explore inequality as it relates to aging and diverse populations in terms of health outcomes, in access to resources, and within the medical field. Offered annually in the fall semester. Prerequisites: SO216 or S0201, or by permission of the instructor. 3 lecture hours.

SO 320. Drugs and Society. 3 Credits.
This course focuses on the interrelationships between drugs and the social order. Issues considered include: the nature and effects of legal and illegal drugs; the determinants of drug effects, especially the social determinants; the history of drug prohibition; drug addiction and drug treatment; and drug policy. Cross-listed with CJ320. Offered every other year.

SO 330. Military Sociology. 3 Credits.
This course provides a sociological perspective of the military as both an institution as an occupation. It examines the social structure and functions of the military and the social factors that influence behavior in and of the military. In terms of function, it examines the changing purposes of the military in view of changing national and international conditions; and in terms of structure, it examines the norms, values, traditions, organizations, and culture of the military. It is designed to provide greater insight into the routine life within the military and into contemporary issues confronting the military. Course taught in spring every other year.

SO 400. Independent Study. 3 Credits.
An opportunity for qualified upper class students to engage in an intensive research program in fields of interest not satisfactorily covered by regular course offerings. Periodic conferences will be required. Prerequisite: written consent of the instructor to a specific project presented by the applicant. Open only to students with a cumulative quality point average of 2.5. Offered on occasion. Prerequisite: Sociology minor and SO201. 3 lecture hours.

SO 402. Law and Society. 3 Credits.
An analysis of various theoretical perspectives on the nature, courses, organization and operation of law and legal systems. Emphasis will be placed on law creation, conflict resolution, the legal profession, and the role of law in social change. Cross listed with CJ402. Offered every other year.

Spanish (SP)

Courses

SP 111. Beginning Spanish I. 6 Credits.
An intensive course providing an introduction to the Spanish language, in which speaking proficiency, aural comprehension, vocabulary acquisition, reading, and writing are brought to a level enabling students to use the language actively in everyday situations. Classroom: 6 hours, laboratory: 2 hours. Not open to students who have successfully completed SP205 or higher.

SP 112. Beginning Spanish II. 6 Credits.
A continuation of SP111, in which language skills are brought to a level enabling students to participate more fully in general conversation, to read more sophisticated passages, and to write with a firmer command of syntactical structures. Classroom: 6 hours, laboratory: 2 hours. Prerequisite: SP111 or equivalent, NU placement. Not open to students who have successfully completed SP205 or higher.

SP 150. Topics Course. 3 Credits.
Specialized topics offered relating to culture, literature, business practices, language or linguistics. Topic will be indicated in the schedule of classes. May be repeated for credit, as topics vary. May be taught in Spanish or English; see schedule of classes. (When taught in English, this course may not count towards fulfilling the foreign language requirement.) Classroom: 3 hours.

SP 205. Intermediate Spanish I. 3 Credits.
A course that provides aural-oral practice in Spanish, in which students are enabled to enter into full discussion of topics that include abstract themes; review and expanded use of syntactical structures; intensive and extensive reading; and composition. Classroom 3 hours, laboratory 1 hour. Prerequisite: SP112, NU placement, a score of 500 on the CEEB Spanish Reading Test, or permission of instructor.

SP 206. Intermediate Spanish II. 3 Credits.
A course that provides aural-oral practice in Spanish, in which students are enabled to enter into full discussion of topics that include abstract themes; review and expanded use of syntactical structures; intensive and extensive reading; and composition. Classroom 3 hours, laboratory 1 hour. Prerequisite: SP205 or the equivalent, NU placement, a score of 500 on the CEEB Spanish Reading Test, or permission of the instructor.

SP 250. Topics Course. 3 Credits.
Specialized topics offered relating to culture, literature, business practices, language, or linguistics. Topic will be indicated in the schedule of classes. May be repeated for credit, as topics vary. The number ascribed to the course will reflect the level of the material under study as well as the level of proficiency expected of the student. May be taught in Spanish or English; see schedule of classes. Classroom 3 hours. (When taught in English, this course may not count towards fulfilling the foreign language requirement.).

SP 301. Advanced Spanish I. 3 Credits.
Oral and written practice of the language through class discussions of selected Hispanic authors. Selective review of grammar, especially of the more difficult and subtle aspects, designed to facilitate an idiomatic and fluent use of the language. Classroom 3 hours. Prerequisite: SP206 or permission of instructor.

SP 302. Advanced Spanish II. 3 Credits.
Oral and written practice of the language through class discussions of selected Hispanic authors. Selective review of grammar, especially of the more difficult and subtle aspects, designed to facilitate an idiomatic and fluent use of the language. Classroom: 3 hours. Prerequisite: SP206 or permission of instructor.

SP 321. Introduction to the Literature of Spain I. 3 Credits.
A survey of peninsular Spanish literature from prehistoric Spain to the Modern Age. Lectures, readings, discussion, and written reports in Spanish. Prerequisite: SP206 or a 300-level course (may be taken concurrently), NU placement, or permission of the instructor.

SP 322. Introduction to the Literature of Spain II. 3 Credits.
A survey of peninsular Spanish literature from the Modern Age up through the 20th Century. Lectures, readings, discussion, and written reports in Spanish. Prerequisite: SP206 or a 300-level course (may be taken concurrently), NU placement, or permission of the instructor.

SP 327. Hispano-American Literature I. 3 Credits.
A survey of Hispano-American literature from the pre-Columbian period up through the 19th Century. Lectures, readings, discussion, and written reports in Spanish. Prerequisite: SP206 or a 300-level course (may be taken concurrently), NU placement, or permission of the instructor.

SP 328. Hispano-American Literature II. 3 Credits.
A survey of Hispano-American literature from the end of the 19th Century up through the 20th Century. Lectures, readings, discussion, and written reports in Spanish. Prerequisite: SP206 or a 300-level course (may be taken concurrently), NU placement, or permission of the instructor.

SP 331. Advanced Spanish Composition and Conversation I. 3 Credits.
A study of Spanish stylistics, translation into Spanish from modem English texts, oral reports, and discussion in Spanish. Prerequisite: SP206 or a 300-level course (may be taken concurrently), NU placement, or permission of the instructor.

SP 332. Advanced Spanish Composition and Conversation II. 3 Credits.
A study of Spanish stylistics, translation into Spanish from modem English texts, oral reports, and discussion in Spanish. Prerequisite: SP206 or a 300-level course (may be taken concurrently), NU placement, or permission of the instructor.

SP 350. Topics Course. 3 Credits.
Specialized topics offered relating to culture, literature, business practices, language, or linguistics. Topic will be indicated in the schedule of classes. May be repeated for credit, as topics vary. May be taught in Spanish or English; see schedule of classes. Classroom: 3 hours. (When taught in English, this course may not count towards fulfilling the foreign language requirement.).

SP 415. Seminar: Topics in Spanish or Latin-American Literature and Culture. 3 Credits.
A study of a particular author, theme, genre, or literary movement including cultural themes. Topic varies each year these courses are offered. Prerequisite: SP300-level course.

SP 421. Reading and Research in Spanish or Latin-American Literature and Culture. 3 Credits.
A report on an approved project of original research in Spanish or Latin-American literature or civilization under the direction of a department member. Limited to students who have demonstrated aptitude for independent work. May be scheduled either or both semesters. Prerequisite: SP300-level course and permission of the department chair and course instructor.

Sports Medicine (SM)

Courses

SM 128. Clinical Anatomy I. 3 Credits.
This course is part one of a two part series of anatomy courses in a modular format aligned with clinical practice. It provides an introduction to human anatomy with a basic survey of the body and pathological processes. Students will learn basic concepts related to anatomy, pathology and medical assessment of the head, eyes, ears, nose, throat, neck, back, and upper extremities. Classroom 2 hours, laboratory 2 hours. Offered fall semesters.

SM 129. Clinical Anatomy II. 3 Credits.
This course is part two of a two part series of anatomy courses in a modular format aligned with clinical practice. It provides an introduction to human anatomy with a basic survey of the body and pathological processes. Students will learn basic concepts related to anatomy, pathology and medical assessment of the thorax, abdomen, pelvis, cranial nerves, and lower extremities. Classroom 2 hours, laboratory 2 hours. Offered spring semesters.

SM 136. Emergency Care, Injury/Illness. 3 Credits.

SM 138. Introduction to Sports Medicine. 3 Credits.
This course provides students with an introduction to the principles of pharmacology, medical terminology, and documentation used in the care of physically active individuals.

SM 139. Health Science Research Methods. 2 Credits.

SM 199. New Course. 3 Credits.

SM 200. Clinical Education in Athletic Training I. 1 Credit.
This course provides students the opportunity to integrate clinical proficiencies introduced in prerequisite courses during a supervised practicum in an athletic training setting. Clinical rotation(s) (3 hours/week) and clinical proficiency evaluations. Prerequisites: SM 136, 138, and 220.

SM 201. Clinical Education in Athletic Training II. 2 Credits.
This course provides students the opportunity to integrate clinical proficiencies introduced in prerequisite courses during a supervised practicum in an athletic training setting. Clinical rotation(s) (6 hours/week) and clinical proficiency evaluations. Prerequisites: SM 212 and 231, MA 235.

SM 210. Assessment of Injury and Illness. 4 Credits.
Building on the assessment principles acquired in SM138 and 220; this course focuses on the techniques necessary to evaluate body systems for injury/illness. Classroom 3 hours, laboratory 3 hours. Prerequisites: SM220. Co-Requisite: BI216.

SM 212. Health Promotion. 3 Credits.
This course provides students with the knowledge and skills essential for understanding the etiology and prevention of common injuries and illness. Special emphasis is placed on acute and chronic conditions of the musculoskeletal system and chronic conditions of the cardiovascular, endocrine and respiratory systems. Classroom 3 hours. Offered fall semesters.

SM 220. Care and Prevention of Athletic Injuries. 4 Credits.
Course provides students with the knowledge and skills essential for the proper prevention, evaluation, and treatment of common athletic injuries. Risk management and professional ethics are stressed. Classroom 3 hours, laboratory 3 hours. Prerequisite: SM138.

SM 226. Clinical Education in Sports Medicine. 2 Credits.
Emphasis will be placed on the application of knowledge and skills introduced in SM135, 138, 210 and BI215. This course provides students the opportunity to develop clinical proficiencies introduced in preceding courses. Supervised practicum in athletic train setting. Class meets for 2 hours/week utilizing lecture, demonstrations and hands-on instructional techniques, plus Clinical Rotation (average 4 hours/week). Prerequisites: SM135 and 138.

SM 227. Clinical Anatomy&Biomechanics. 3 Credits.
This course is designed to explore clinical anatomy and biomechanical principles, exposing students to the structural interrelationships that serve to form the basis for normal function and as a means to understanding structural and functional pathology. Classroom 3 hours. Co-requisite: SM 220.

SM 228. Clinical Physiology I. 4 Credits.
This course is part one of a series of two physiology courses in a modular format aligned with clinical practice. It provides an introduction to human physiology with a basic survey of the physiologic and pathological processes. Students will learn concepts related to cellular, neuromuscular, renal, and cardiovascular physiology. Classroom 3 hours, laboratory 3 hours. Offered fall semesters.

SM 229. Clinical Physiology II. 4 Credits.
This course is part two of a series of two physiology courses in a modular format aligned with clinical practice. It provides an introduction to human physiology with a basic survey of the physiologic pathological processes. Students will learn concepts related to respiratory, gastrointestinal, endocrine, and reproductive physiology and temperature regulation. Classroom 3 hours, laboratory 3 hours. Prerequisite: SM 228. Offered spring semesters.

SM 230. Fundamentals of Evidence-Based Practice. 2 Credits.
This course prepares students to make independent judgments about the validity of clinical research and implement evidence-based clinical practice in their careers. Focus is on concepts of evidence-based practice with emphasis on forming answerable clinical questions, effective literature search strategies, and structured evaluation of the strength and relevance of clinical evidence. Classroom 2 hours. Offered spring semesters.

SM 231. Management of Spine and Pelvic Conditions. 3 Credits.
This course will focus on a critical analysis of injuries and conditions that may affect the spine and pelvis in physically active individuals. The application of joint and musculoskeletal anatomy will be utilized to assess the various joints and body regions of the spine and pelvis to determine the appropriate management of these conditions. Classroom 2 hours, Laboratory 2 hours. Offered fall semesters.

SM 232. Lower Extremity Injuries. 3 Credits.
This course will focus on a critical analysis of injuries and conditions that may affect the lower extremity in physically active individuals. The application of joint and musculoskeletal anatomy will be utilized to assess the various joints and body regions of the lower extremity to determine the appropriate management of these conditions. Classroom 2 hours, Laboratory 2 hours. Offered spring semesters.

SM 233. Upper Extremity Injuries. 3 Credits.
This course will focus on a critical analysis of injuries and conditions that may affect the upper extremity in physically active individuals. The application of joint and musculoskeletal anatomy will be utilized to assess the various joints and body regions of the upper extremity to determine the appropriate management of these conditions. Classroom 2 hours, Laboratory 2 hours. Offered fall semesters.

SM 299. Topics. 1-3 Credit.

SM 300. Clinical Education in Athletic Training III. 4 Credits.
This course provides students the opportunity to integrate clinical proficiencies introduced in prerequisite courses during a supervised practicum in an athletic training setting. Clinical rotation(s) including non-traditional seasons (12 hours/week) and clinical proficiency evaluations. Prerequisites: SM 228, 229, and 232.

SM 301. Clinical Education in Athletic Training IV. 4 Credits.
This course provides students the opportunity to integrate clinical proficiencies introduced in prerequisite courses during a supervised practicum in an athletic training setting. Clinical rotation(s) (12 hours/week) and clinical proficiency evaluations. Prerequisites: SM 233 and 420.

SM 400. Clinical Education in Athletic Training V. 4 Credits.
This course provides students the opportunity to integrate clinical proficiencies introduced in prerequisite courses during a supervised practicum in an athletic training setting. Clinical rotation(s) including non-traditional seasons (12 hours/week) and clinical proficiency evaluations. Prerequisites: SM 212, 420, 422; BI 253 and PE 371.

SM 401. Clinical Education in Athletic Training VI. 4 Credits.
This course provides students the opportunity to integrate clinical proficiencies introduced in prerequisite courses during a supervised practicum in an athletic training setting. Clinical rotation(s) (12 hours/week) and clinical proficiency evaluations. Prerequisites: SM 400 and 439.

SM 420. Therapeutic Modalities. 4 Credits.
Investigation of the physiological response of selected human body tissues to trauma and inactivity as well as the implications of said responses for the selection, use, and application of therapeutic modalities. Classroom 3 hours, laboratory 3 hours. Prerequisites: SM220.

SM 422. Therapeutic Exercise. 4 Credits.
Investigation of principles, objectives, indications, contraindications and progression of various modes of conditioning and reconditioning exercises. Methods for evaluation, progress assessment and development of criteria for return to activity. Classroom 3 hours, laboratory 3 hours. Prerequisite: SM420.

SM 426. Internship. 12 Credits.
A course designed to provide the Sports Medicine students with an intern-type experience in a professional setting appropriate to their career goals. Prerequisite: satisfactory completion of all courses in the major through the sixth semester. Cross listed as PE/SM. A student may not receive credit for both.

SM 439. Leadership & Management in Sports Medicine. 3 Credits.

SM 440. Evidence-Based Sports Med. 3 Credits.
Part of a two-semester capstone experience in sports medicine/athletic training. This course focuses on the development and utilization of evidence-based practice research as it is applied to sports medicine. Prerequisites: SM439 and MA232.

SM 450. Capstone Expericence I. 1 Credit.
This course will focus on the development of two evidence-based practice projects that have direct application to clinical practice. Classroom 1 hour. Offered fall semesters.

SM 451. Capstone Experience II. 1 Credit.
This course will focus the presentation and evaluation of two evidence-based practice projects from SM 450. Classroom 1 hour. Offered spring semesters.

SM 460. Emerging Practice Skills. 3 Credits.
This course will focus on emerging topics in sports medicine practice. Included in the course will be advanced airway management, advanced wound closure techniques, IV therapy, advanced cardiac examination and advanced immobilization techniques. Classroom 2 hour, Laboratory 2 hours. Offered spring semesters.

Studio Arts (SA)

Courses

SA 103. Introduction to Drawing. 3 Credits.
An introduction to drawing, emphasizing articulation of space and pictorial syntax while developing abilities of perception and ways of seeing. Class work is primarily based on observational study. Assigned projects address fundamental and conceptual problems through historical and contemporary artistic practice. Three-hour studio, one-hour lecture per week.

SA 104. Introduction to Visual Design. 3 Credits.
An introduction to the language of visual expression, using studio projects to explore the basic principles of visual art and design as a fundamental component of visual communication. Students acquire a working knowledge of visual syntax applicable to the study of art history, popular culture, and the art of composition. Three-hour studio, one-hour lecture per week.

SA 105. Introduction to Painting. 3 Credits.
An introduction to the issues of contemporary painting, stressing a beginning command of the conventions of pictorial space, narrative, and the language of color. Students explore painting as a means of communicating ideas through visual symbols and metaphors. Class assignments and individual projects explore technical, conceptual, and historical issues central to the language of painting. Three-hour studio, one-hour lecture per week.

SA 106. Introduction to Printmaking. 3 Credits.
An introduction to a diverse range of printmaking media: linocut, woodcut, and screen-printing process. Both color and black-and-white printing methods are explored. Class assignments and individual projects explore technical, conceptual, and historical issues central to the language of printmaking and its connections to contemporary culture. Three-hour studio, one-hour lecture per week.

SA 107. Introduction to Photography. 3 Credits.
An introduction to photographic principles as a means of visual communication and its relationship to history and contemporary issues. The class examines the invention and history of photography. A single-lens reflex manual 35mm film camera is required. Three-hour studio, one-hour lecture per week.

SA 200. Intermediate Studio. 3 Credits.
This course level is for students pursuing further study in one of the following areas: drawing, design, painting, photography, and printmaking. The focus is on developing more complex levels of thought more thorough incorporation of theory and individual initiative in project content and completion. Only one area of study will be pursued each semester. Can be repeated for credit. Six hours of studio per week. Prerequisite: SA100-level studio in area of study or permission of the instructor.

SA 205. Water Media. 3 Credits.
This course examines water media, stressing an advanced command of the conventions of pictorial space, narrative, and the language of color and design. Class assignments and individual projects explore technical, conceptual, contemporary, and historical issues central to water media. Attention is given to each student’s unique and expressive handling of the media. Six hours of studio per week. Prerequisite: SA103 or instructor¿s permission.

SA 210. The Portrait. 3 Credits.
This course explores the perceptual and conceptual means to construct the human face as a way to explore, understand, and portray the human condition. The structure of the head is examined as anatomy and as form. Historical examples are presented and examined as well as contemporary theory of the portrait and self-portrait. Six hours of studio per week. Prerequisite: SA103, or instructor¿s permission.

SA 265. Life Drawing. 3 Credits.
The course focuses on study and exploration of the human figure using a range of approaches, with emphasis on observation, anatomy, spatial structure, and the use of life drawing as a means to analyze and explore the nature of the human condition. Historical examples ranging from cave painting to contemporary art are presented, researched, and discussed. Six hours of studio per week. Prerequisite: SA103, or instructor’s permission.

SA 299. Life Drawing. 3 Credits.

SA 299L. Inter Studio: Sketching. 0 Credits.

SA 300. Advanced Studio. 3 Credits.
This course is for students who have completed SA100 and SA200 level courses in their area of study and have a demonstrated ability to be self-directed and self motivated in their purposes and goals. Prior to registration, the student must have an approved outline for their individual course of study. Can be repeated for credit. Six hours of studio per week. Prior to registration, the student must submit in writing, and the instructor must accept, a proposed course of study.

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