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# Residential Programs Catalog

Welcome to Norwich University!



I am pleased you have chosen to join the Norwich family. Norwich holds a distinctive place in the landscape of higher education: Its mission is defined by timeless values, and its programs reflect our proud history. Few schools will challenge you as much as Norwich; fewer yet will offer you the academic and leadership experience you need to achieve distinction in a competitive world.

As we look ahead to our bicentennial in 2019, we do so grounded in a legacy of educational innovation, proud of our graduates' achievements, and committed to forging leaders who will go on to serve our great nation and the global community. As a member of the Norwich community, know that you have become part of something very old, very deep, and very proud.

Cordially,

Richard W. Schneider, PhD  
 RADM, USCGR (Ret.) President

## Vision, Mission, Guiding Values

### Founded in 1819

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.

### 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, US 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.

### Two Lifestyles. One University

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. 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.

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.

### 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 and a Master of Architecture that follows the completion of a four-year Bachelor of Science in Architectural Studies for its on-campus students. Norwich also offers online Master degrees and two degree completion Bachelor of Science programs 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.

## Accreditations and Force of Publication Statement

### University Accreditation

Norwich University is accredited by the Commission on Institutions of Higher Education of the New England Association of Schools and Colleges, Inc. Inquiries regarding the accreditation status by the Commission 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  
3 Burlington Woods Drive, Suite 100  
Burlington, MA 01803-4514  
(781) 425-7785  
E-Mail: cihe@neasc.org

### Program Accreditations

#### College of Liberal Arts:

The Education Teacher Licensure program--available in secondary and elementary tracks--are accepted for teaching licenses in Vermont and several other New England and Middle Atlantic states where the State of Vermont has interstate licensure agreements.

#### College of Professional Schools:

- The Bachelor of Science in Nursing program is accredited by the Commission on Collegiate Nursing Education (CCNE) and the Vermont State Board of Nursing (VSBN).
- The Civil Engineering, Electrical & Computer Engineering, and Mechanical Engineering programs are accredited by the Engineering Accreditation Commission (EAC) of the Accreditation Board for Engineering and Technology (ABET).
- The Bachelor of Science in Construction Management is designed to be accredited by the Applied Science Accreditation Commissions (ASAC) of ABET
  - Additionally, the University is a member of the American Society for Engineering Education (ASEE).
- The Architecture program is accredited by the National Architecture Accreditation Board (NAAB).
  - Additionally the University is a member of the Associate of Collegiate Schools of Architecture (ACS) and the Architectural Research Centers Consortium (ARCC)
- The Bachelor of Science in Accounting and Management programs are accredited by the Accreditation Council for Business Schools and Programs (ACBSP)
- The Master of Architecture degree is accredited by the National Architecture Accreditation Board (NAAB).

#### College of Science & Math:

- The Physical Education Teacher Licensure program--available in secondary and elementary tracks--is accepted for teaching licenses in Vermont and several other New England and Middle Atlantic states where the State of Vermont has interstate licensure agreements.
- The Athletic Training Program is accredited by The Commission on Accreditation of Athletic Training Education (CAATE).

#### College of Graduate & Continuing Studies:

- The Master of Business Administration program is accredited by the Accreditation Council for Business Schools and Programs (ACBSP)
  - The Master of Business Administration, Project Management concentration is accredited by the Project Management Institute Global Accreditation Center for Project Management Education Programs (GAC)
- The Master of Science in Nursing Administration programs are accredited by the the Commission on Collegiate Nursing Education (CCNE) and the Vermont State Board of Nursing (VSBN).

- The Master of Science in Nursing Education program is approved by the Vermont State Board of Nursing and accredited by the Commission on Collegiate Nursing Education (CCNE).
- The Master of Business Administration degree is accredited by the Project Management Institute.

### Force of Publication

The statements set forth in this catalog are for informational purposes only and should not be construed as the basis of a contract between a student and Norwich University.

While the provisions of this catalog will ordinarily be applied as stated, Norwich University reserves the right to change any provision listed in this catalog, including but not limited to, academic requirements for graduation and schedules for course offerings; without actual notice to individual students. Every effort will be made to keep students advised of any such changes. Information on changes will be made available in the Academic Colleges and the Registrar's Office.

It is especially important that students note it is their responsibility to keep themselves apprised of current graduation requirements for their particular degree, major, and minor degree program(s). Degree Audits are available electronically through BannerWeb to help students stay current with degree/major/minor requirements.

This catalog is prepared to enable prospective and enrolled students, and others, to learn about Norwich University. It is also intended to explain policies, requirements, regulations and procedures in a manner that will help the student progress through the University. Faculty, advisers and staff at the Norwich University will provide assistance, but ultimately the responsibility for compliance rests with the student.

### Academic Advising

Each student has an academic advisor assigned. The academic advising system 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 successful, there must be open and candid communication between the adviser and the advisee.

**Advisee responsibilities** include working with the advisor in formulating an academic plan, and a career plan, developing class schedules each semester; informing the advisor of problems or illness that may affect academic performance; responding to adviser messages in a timely fashion; and reviewing their own degree evaluation so as to know which courses are required to meet graduation requirements.

**Adviser responsibilities** include facilitating the student's academic transition from high school to college; working with the student in formulating an academic plan, and a career plan, guiding the student in developing a class schedule each semester; reviewing the degree evaluation with the advisee; assisting the advisee with petitions and/or forms; and referring students to other university services - as needed.

### Academic Policies

Academic Policies affect all students. If a student believes s/he has extenuating circumstances why a policy should be waived s/he must submit an Academic Petition (<http://www.norwich.edu/registrar/wp-content/uploads/sites/3/2014/04/Academic-Petition.pdf>) to the Committee on Academic Standards and Degrees (CASD) requesting waiver of such policy.

- Academic Dishonesty & the Honor Code
- Academic Honors
- Academic Standing, Re-admission, Class Level
- American with Disabilities (ADA)
- Attendance & Cancellation of Classes
- Credits, Course Substitutions, Prerequisites
- Data Privacy (FERPA)
- English Language Academic Accommodations
- English Placement for International Undergraduate Students
- Exams
- Grades
- Graduation Requirements
- Independent Learning (Prior Learning) and Overload

- Military Accommodation
- Petitions/Grievances
- Registration Changes (Add, Drop, Withdraw, Leave of Absence)
- Transfer Credit

## Academic Dishonesty, The Honor Code and The Academic Integrity Committee

### Academic Dishonesty

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 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.

Acts of academic dishonesty include, but are not limited to, the following:

- Submitting work done by another as your own.
- 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.
- Giving or receiving unauthorized aid on any assignment or examination.
- Altering any University form, record, or document, or forging the signature of any University instructor or official.
- 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
- Exercising plagiarism, which 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.

### 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.

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: "I have neither given

nor received unauthorized aid on this assignment." Signed/"I certify that this is my own original work, prepared for this assignment only, without any form of unauthorized aid."

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

### The Academic Integrity Committee (AIC)

AIC is comprised of members of the faculty and chaired by the Senior Vice President of Academic Affairs' designee. Hearings of the AIC are held jointly with the Honor Committee. The AIC is responsible to the Faculty Senate for the implementation of University regulations involving violations of academic integrity. All suspected acts of academic dishonesty, including plagiarism, must be referred promptly to the Academic Integrity Committee for a hearing. The AIC will review all available facts and authorize an appropriate academic penalty if its review confirms that an act of academic dishonesty, or plagiarism, occurred. If the student is found guilty of academic dishonesty and an academic penalty is authorized, the hearing is continued by the Honor Committee. Decisions of the Academic Integrity Committee may be appealed to the Senior Vice President of Academic Affairs. The Procedures of the Academic Integrity Committee describing the procedures of hearings are provided to all students charged with academic dishonesty.

## Academic Honors

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

### University Scholars

Full-time undergraduate students, who for both the Fall and Spring Semester of the previous academic year earned not only placement on the Dean's List, but also a current cumulative grade point average of no less than 3.50.

### Dean's List Recipients

Full-time undergraduate students, who earned a semester grade point average of at least 3.0 and had no failures in the previous Fall or Spring semester are awarded Dean's List honors. These students cannot have any pending Incomplete (I) or No Grade (NG) grades for the respective semester. Dean's List honors are noted on the official transcript each term earned.

### Latin Honors

Undergraduate degree candidates whose final cumulative grade point average (GPA), when the degree is conferred, meets the qualifications listed below:

- Summa Cum Laude, 4.0 to 3.60
- Magna Cum Laude, 3.59 to 3.30
- Cum Laude, 3.29 to 3.0
- Latin Honors posted on the official transcript after the final term of enrollment
- Latin Honors printed on the diploma are based on the final cumulative GPA for Fall and Summer graduates.
- Latin Honors printed on the diploma for Spring graduates are based on the cumulative GPA from the previous Fall semester.

### Valedictorian

A full-time bachelor's degree program graduate, who has the highest cumulative GPA (at the beginning of Spring Semester,) based on a minimum of 90 Norwich credits, and enrolled in courses that will complete all degree requirements.

## Academic Standing, Re-Admission, Class Level

**Academic Standing, as determined by the Registrar's office, is separate from Satisfactory Academic Progress (SAP), as determined by the Financial Planning Office.**

### Good Academic Standing

To maintain good standing, degree-seeking students must maintain a minimum cumulative GPA, for the credit range shown in the first column equal to, but not less than that in the second column, based the sum of

Norwich *attempted* credits, PLUS credits accepted in transfer. A student in good standing is allowed to enroll without restriction.

| (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  |

### 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.
- Restricted to 14 credits, plus one ROTC course, per semester.
- Repeat courses where previous grades of C- or below were earned (when possible)
- Not participate in extracurricular activities.
- Hold no rank in the Corps of Cadets and 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.

### Academic Dismissal

Students who fail to achieve Good Standing will be Academically Dismissed (AD) 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 are Dismissed for an **unsatisfactory academic or disciplinary** record may apply for readmission after a six-month period of separation has been completed by submitting a Re-Admission Application (<http://www.norwich.edu/registrar/wp-content/uploads/sites/3/Readmission-Application.pdf>) to the Registrar, accompanied by an Academic Petition (<http://www.norwich.edu/registrar/wp-content/uploads/sites/3/Academic-Petition.pdf>) for submission to the CASD. These documents must be received no later than 4:30 p.m. on the first day of the term. The readmission decision of the CASD will be based on evidence that the student can academically succeed. Appeals of CASD decisions may be made to the Senior Vice President for Academic Affairs (SVPAA) whose decision is final.

Students who have been Dismissed for academic reasons and have returned themselves to Good Standing may, provided there are no financial or disciplinary barriers, return to the University.

### Re-Admission

Whenever possible, Re-Admission Applications should be processed by the Registrar's Office within two weeks. If there is a hold on the application from the Bursar's Office, the Registrar's Office will notify the student of that hold and allow a two week extension for resolution. If at the end of the two week period the Bursar's hold is not resolved further processing of the Re-Admission Application will cease and the student will need to submit a new Re-Admission Application should they clear the hold and wish to re-admit later.

Re-Admission Applications are accepted up to 4:30 p.m. on the first day of classes. Students should be aware that Re-Admission Applications are routed to several offices for review. Students who wait until the first day of classes to submit a Re-Admission Application may not receive notice prior the last day to register for classes (the sixth class day for Fall & Spring classes); if this occurs, the student cannot enroll in classes without successfully petitioning the Committee on Academic Standards & Degrees (CASD) to allow the student to enroll late for the respective semester.

All students who do not attend for one semester or more must submit a Re-Admission Application for review.

This policy pertains to Re-Admission for the following:

1. Students who have stopped attending Norwich University for at least one semester
2. Students who have been Dismissed for academic reasons
3. Students who have been Suspended for disciplinary ([http://about.norwich.edu/wp-content/uploads/student\\_rules\\_regs.pdf](http://about.norwich.edu/wp-content/uploads/student_rules_regs.pdf)) reasons

Re-Admission Applications are reviewed by the director or chair of the major the student intends to readmit to, the Bursar's Office, either the commandant for CORP students or the Dean of Students for civilian students and the Center for Student Success. Students who are readmitting after academic dismissal are reviewed by the Committee on Academic Standing and Degrees (CASD).

### Re-Admission after non-attendance for at least one semester (not due to Academic or Discipline Suspension/Dismissal):

Students who have not attended Norwich University for at least one (spring or fall) semester must be re-admitted to return to a fall or spring semester. Students do not have to be re-admitted to take summer courses at Norwich.

### Re-Admission after Academic Dismissal:

Students who are Academically Dismissed (academic standing is AD) at the close of a spring or fall semester may either:

- Petition to re-admit while academically dismissed (either immediately in the subsequent spring or fall term or after the required six-month period of separation) or
- Attend summer classes at Norwich to attempt to improve their cumulative grade point average (GPA) to Good Academic Standing

### Petition for Re-Admission while Academically Dismissed:

Students who are AD must submit a Re-Admission Application to the Registrar's Office accompanied by an Academic Petition.

- The Academic Petition must include
  - A letter to the Committee on Academic Standards & Degrees (CASD) requesting Re-Admission after Academic Dismissal.
  - A letter of support from the Academic Achievement Center.
- The Re-Admission decision of the CASD is based on evidence that the student can academically succeed.

### Students in Good Academic Standing (Achieved via Summer School) Re-Admitted after Dismissal:

Students are eligible to enroll in summer classes at Norwich while on academic dismissal. Grades earned for summer classes attended at Norwich are used in calculating the student's cumulative GPA and can positively impact the student's academic standing.

- Students dismissed at the close of a **spring semester** who do well enough in summer classes to raise their cumulative GPA to good standing (see Good Academic Standing) do not need to submit a Re-Admission Application because they were not out for a spring or fall semester. These students' academic standing is updated at the close of the summer term and they can register for upcoming fall term classes after consultation with their Academic Advisor using a PIN in Banner Web.
- Students dismissed at the close of a **fall semester** who do well enough in summer classes to raise their cumulative GPA to good standing (see Good Academic Standing) need to submit a Re-Admission Application because they were out the previous spring semester. These students **do not** need to submit an Academic Petition as their standing would be changed to Good Standing at the close of the summer semester.

### Re-Admission Following Disciplinary Suspension CORPS Students: CORPS of Cadet Students suspended for disciplinary reasons must:

- Submit a Re-Admission Application to the Registrar's Office no later than 4:30 on the first day of the semester.
- The Commandant's Office reviews the student's application, supporting documentation and the disciplinary record and makes a determination on Re-Admission to the CORP.
- If Re-Admission to the CORPS is approved, the Re-Admission Application will move forward for processing.
- If Re-Admission to the CORPS is denied, the Registrar's Office will forward the application to the Dean of Students for Re-Admission as

a civilian student and if the Dean of Students approves Re-Admission as a civilian student, the student will need to accept that condition for the Re-Admission Application to be processed

**Re-Admission Following Disciplinary Suspension Civilian Students:**  
Civilian students suspended or dismissed for discipline reasons must:

- Submit a Re-Admission Application to the Registrar’s Office no later than 4:30 on the first day of the semester.
- The Dean of Students will review the Re-Admission Application and any supporting documents, as well as the student’s disciplinary record, and make a recommendation to move the Re-Admission Application forward for processing.

**Re-Admission Following Disciplinary Dismissal:**

If a student is Disciplinary Dismissed and barred from Re-Admission any Re-Admission Applications will be denied without further review.

**Re-Admission Processing:**

Students must indicate, on the Re-Admission Application, what catalog year they wish to return under. The catalog year must be within ten years of the students expected graduation date and is subject to approval by the Department Chair/School Director of the student’s major. If the student does not indicate a catalog year, the catalog year they were previously enrolled in will be used so long as it is within ten years from the student’s expected graduation date. If the student’s previous catalog year is not within ten years of the student’s expected graduation date the catalog year during which the student is readmitted is used.

Students must indicate on the Re-Admission Application what major they wish to readmit to. If the student requests Re-Admission to a major, other than the last major enrolled in, the reviewing Director/Chair is that of the new major. For Re-Admission to the previous major, the Director/Chair of that major will review the application and any supporting documentation.

The Dean of Students/Commandant’s Office, Director/Chair of the major, Bursar’s office and Center for Student Success review Re-Admission Applications within one week of receiving them.

Students Re-Admit to the same class level as they left unless they transferred additional credits to Norwich University.

Upon determination on the Re-Admission Application, the Registrar’s Office will mail/email a letter of notification to the student. If the date is near the beginning of a semester, the Registrar’s Office will notify the student via phone, with a letter to follow.

**Student Actions upon Approval:**

Students must follow all instruction in the Re-Admission Approval Letter which include:

- Contact academic advisor to discuss courses and obtain PIN for registration
- If the end of the add/drop period has not passed (for the Re-Admission term) the student may register for classes for the Re-Admission term
- If applicable contact housing
  - Civilian Housing Contact: Iphagainia M. Tanguay, itanguay@norwich.edu, (802) 485-2660
  - CORPS Maj. Kristine Seipel, seipelk@norwich.edu, (802) 485-2035
- If the student cannot access Banner Web, or Norwich email account, contact the help desk at (802) 485-2456
- Students re-admitted after Academic Dismissal, who have not earned Good Standing, will be enrolled under the same conditions as students enrolled on Academic Probation.
- Such students must contact the Academic Achievement Center to sign an Academic Contract before the end of the add/drop period.

**Class Year Assignment**

| Class Year | First Semester Earned Credits | Second Semester Earned 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 re-admission. 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.

**Americans with Disabilities Act (ADA)**

**Section 504 of the Rehabilitation Act of 1973 and/or the Americans with Disabilities Act provides:**

- That no student may be excluded from any program or any course solely on the basis of disability;
- That modifications in degree or course requirements may be necessary to meet the requirements of some disabled students;
- 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;
- 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);
- That classes may have to be relocated to permit access for students with mobility impairments;
- 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
- 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.

**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.

**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.

**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:

- 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).
- Explanation of diagnostic criteria and/or evaluation measures used with all test scores included;
- Explanation of current/future functional impact of the condition;
- Services, accommodations, treatment, medication, and/or assistive devices currently in use or prescribed;
- Credentials of diagnosing professional(s) [all reports must be on standard-size letterhead, signed by the evaluator(s)].

**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 is the procedure.

1. 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.
2. 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.)
3. 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.
4. 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.)
5. 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.

**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.

**Appeal:**

1. Any student dissatisfied with the adjustments made to accommodate a disability will have the right to appeal. The appeal process will be as follows:
2. 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.
3. Based on this statement, the Coordinator will either:
  - a. Reactivate the individual planning process, or determine that the plan as developed is appropriate.
  - b. Reject the appeal; it may be resubmitted to the Committee on Academic Standing and Degrees (CASD)
4. CASD will conduct an informal hearing on the issue, and either change the individual plan or sustain the original decision.
5. The final level of appeal will be the Senior Vice President of Academic Affairs of the University or a designee. This decision will be final.

## Attendance

**Discipline**

The faculty member shall have jurisdiction over the classroom and shall take measures to maintain discipline in conformity with the regulations of the University.

**Cancellation of Class Meeting**

If the faculty member is not present ten minutes after the scheduled beginning of a class, the class is cancelled. The class will select one class member to report the cancellation to the Department Chair/School Director of the appropriate academic department/school or the Dean of the College.

**Class Attendance**

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.

Faculty are responsible for clearly stating the course attendance policy on the syllabus. Unless stated otherwise, the maximum number of permitted absences is the number of times the course meets per week. Faculty members may assign a grade of F to students whose total absences, excused, or unexcused, 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.

If a student has reached the maximum number of permitted absences, the faculty member may send an email warning to the student of impending dismissal from class with a grade of F. If a student continues to be absent from class, following the warning email notice, the faculty member will send an email to the student that s/he has been removed from the class with a grade of F.

Attendance is taken on the first day of each class. Students who are absent on the first class day will be reported, by the faculty, to the Registrar. The Registrar will drop students from classes in which they did not attend the first day. There is no record of dropped courses on transcripts. Exceptions may be granted to students who are unavoidably absent as defined by the excused absence section of this policy.

Attendance is taken before the last day to withdraw from classes (60% day of the term). Faculty must submit names of students who stop attending to the Registrar by the deadline established by the Registrar, which shall be no later than the last day to withdraw. Students who have stopped attending a class, for which they are registered, will be withdrawn from the class with a grade of W on the official transcript.

Faculty should contact students who stop attending to encourage these students to Withdraw from class prior to the Withdraw deadline, so that these students are not assigned an F grade. Faculty should also contact the Center for Student Success at extension 2355, or email [success@norwich.edu](mailto:success@norwich.edu), when students stop attending.

Faculty must enter the last day of academic activity when they assign an F grade at the end of a term. Based on the date entered, students may be subject to financial aid re-payment.

**Excused Absences**

The following will be considered excused absences, by the Office of the Senior Vice President of Academic Affairs, who is the authority on academic policy.

- Documented debilitating illness
- Emergency leave, as approved by the Commandant or Dean of Students
- 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, students are required to submit a formal notice of their expected absence to their instructors at least six calendar days in advance. Faculty may deny an excused absence for students currently achieving a D+ or lower grade in their course if the faculty member believes that additional absences will be a serious detriment to the student. Faculty members must promptly notify the coach, or appropriate official, of their denial.

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.

Students are responsible for all missed coursework.

## Credits, Course Substitutions, Prerequisites, Overload

**Award of Credit**

- Credits and grade points shall be awarded only for those University courses for which a student is properly registered.
- Credits, 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 higher.
- Federal regulation defines a credit hour as an amount of work represented in intended learning outcomes and verified by evidence of student achievement that is an institutional established equivalence that reasonably approximates
  - a. Not less than – one hour of classroom, or direct faculty instruction, and a minimum of two hours of out of class student

work each week, for approximately fifteen weeks for one semester, or the equivalent amount of work over a different amount of time; or

- b. At least an equivalent amount of work as required in paragraph (1) above for other academic activities as established by the institution including laboratory work, internships, practica, studio work, and other academic work leading to the award of credit hours.

- Whether the delivery of the course is traditional, hybrid, or distance learning, each credit hour awarded should represent approximately 45 hours of student effort.

Norwich ensures that courses and programs offered for credit off campus, through distance or through continuing education, evenings or week-ends are consistent with the educational objectives of the institution. This maintains the same academic standards as courses and programs offered on campus. Programs offered through Distance Learning receive sufficient support for instructional and student services. Online students have ready access to support for using appropriate learning resources.

Students enrolled in Distance Learning courses, and/or Hybrid courses have sufficient opportunities to interact with faculty regarding course content and related academic matters. Norwich has procedures that establish students who register for a Distance Learning or Hybrid course are the same students who participate in and complete the course requirements and receive academic credit.

**Norwich defines an online, or Distance Learning course as** one that is conducted entirely and exclusively via the course management system assessable from the Internet. The online format is the primary method to deliver the course materials. Communication and interaction occur online between faculty and students. All assessment of student work is conducted online

- On-campus Distance Learning courses are designated with a code of DL preceding the section designation in the Class Schedule.

**Norwich defines a Hybrid course as** a course that combines 30% to 70% traditional, face-to-face weekly class time with online, out-of-class course work. Hybrid instructors determine what instructional activities are offered online or face-to-face depending on the learning goals, course objectives, content, and available resources.

- Hybrid classes are designated with a code of HB preceding the section designation in the Class Schedule.

## Credits for Graduation

- Graduation requirements are measured in courses and credits. Courses and credits required for graduation are specified within each Major or Minor Curriculum Map.
- Major and minor curriculum maps are structured to deepen NU graduates knowledge in their chosen field of study. Free electives are designed to broaden student knowledge to meet specific career goals. A Free Elective is any course taken that is not specifically required by the major or minor field of study. Any non-ROTC course can be used as a Free Elective. Any six ROTC credits can be used toward Free Electives for any active student. 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 one or two credit courses in the same discipline are combined. A student is limited to one such course, except for ROTC courses. Courses numbered below 100 may not be used.
- See the Graduation Requirements policy for further graduation requirements.

## Requests for Course Equivalency or Exemption

1. To waive a prerequisite course requirement students must present the adviser'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.
2. To waive a degree course requirement on the basis of an exemption, examination, or other documented extra institutional learning; a student must present the affirmative recommendations of major and course department chairs and academic adviser on a Degree Program Waiver /Substitutions form (<http://www.norwich.edu/registrar/wp-content/uploads/sites/3/2014/02/degreeWaiverSubstitution.pdf>). The credits for the waived course must be replaced by free electives.
3. To obtain credits and grade points for a course on the basis of an equivalency examination, a student must present the affirmative

recommendations of the major and course department chair and the academic adviser on the form. Second semester seniors are not eligible for an equivalency examination unless an Academic Petition is approved not later than one week after mid-semester grades are due. The repeat grade policy does not apply to credits earned by way of an equivalency examination.

4. Course equivalency by examination is treated as transfer credit and is subject to the limits described below.c. If the examination is for credits and grade points, a grade will be assigned and appropriate grade points awarded, unless the Pass/Fail option is selected prior to the administering of the examination
  - 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.
  - Before administering an exemption or an equivalency examination, Department Chairs/Directors should determine whether the student wishes to waive the course requirement, or wishes to obtain credits and grade points for the course.
    - 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.
  - An extra tuition charge may be assessed by the Bursar's office for examinations.
  - 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, CLEP, International Baccalaureate (<http://www.norwich.edu/registrar/prior-learning>) examinations.

## 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 Course Descriptions.

## Co-requisites

Students shall not register for courses having co-requisites without registering for the co-requisite course. Students must drop, or withdraw, from all co-requisite courses simultaneously. Co-requisites are identified in Course Descriptions.

## 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 College Deans.

## Extra Credit Charges (Course Load & Overload)

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, LD 101 and MU 260.

- MU 200 Applied Music is subject to the extra credit charge.
- Students should be familiar with published Fees & Financial Policy as published on the Bursar's website. (<http://www.norwich.edu/bursar/undergraduate/policies/#overloadcharge>)
- There will be no charge for extra courses if they are dropped before the Add/Drop deadline.

Students no longer are limited to a certain number of credits per term (unless they are on academic probation or not fully admitted).

## Data Privacy (FERPA)

**The Family Educational Rights and Privacy Act of 1974 (FERPA) as amended:** Sets forth requirements regarding the privacy of student records. Specifically, FERPA governs:

- The disclosure of education records maintained by an educational institution; and
- Access to these records
- Notification by the institution to students of their FERPA rights

Further information can be found on the US Department of Education Family Policy Compliance Office website at <http://www2.ed.gov/policy/gen/guid/fpco/index.html>

**Education Records:** Records, handwritten or in any media, (including conduct records) that are directly related to a student and maintained by Norwich University, or by a party acting for the institution.

Records NOT protected by FERPA include:

- records of instructional, administrative, and educational personnel which are the sole possession of the maker and are not accessible or revealed to any individual except a temporary substitute
- records maintained by Norwich University security/law enforcement unit
- records of employment which relate exclusively to individuals in their capacity as employees (records of students employed by Norwich University as a result of their status as students are education records, e.g. work-study)
- records created, or maintained by a physician, psychiatrist or other recognized professional acting in his or her professional capacity (including counseling and health records)
- alumni records which contain information about a student after s/he is no longer in attendance at Norwich University and which do not relate to the person as a student.

**Student:** A person, who is enrolled in a Norwich University credit or non-credit course, regardless of age.

### Directory Information

Norwich University considers the following Directory Information and WILL release this information WITHOUT the written consent of the student.

- Full Name
- Anticipated Graduation Date
- Athletic Achievements
- Athletic Height & Weight
- Awards and Honors Including Cadet Promotions
- Class Level (Freshman, Sophomore, Junior, Senior)
- Dates/Terms Attended
- Degrees/Certificates Awarded & Date Conferred
- Graduation Status
- Email Address
- Full or Part-Time Status
- Home Town
- Lifestyle
- Major or Program
- Norwich Mailbox Number
- Participation in Official Recognized Activities & Sports
- Photographs
- Previous Colleges Attended
- Withdrawal Date

### The Solomon Amendment:

This law requires universities to release the information listed below regarding enrolled students to the military for recruitment purposes. Students may restrict this disclosure to the military *only by restricting all disclosure of Directory Information.*

- Name
- Academic Major

- Address
- Date & Place of Birth
- Degrees Received
- Level of Education
- Most Recent Education Institution Enrolled in By the Student
- Telephone Listing

### Non-Directory Information

Norwich University considers Non-Directory Information to include, but not to be limited to, the following and therefore will NOT release this personally identifiable information without the student's written consent, or as specified in this policy.

- Academic Standing
- Advisor
- Age
- Citizenship
- Class Schedule/Roster
- Credits Earned
- County of Origin
- Date of Birth
- Entrance Exam Results
- Financial Aid Information
- Gender
- Grade Point Average (Semester & Cumulative)
- Grades
- Parent Address(es) & Phone Number(s)
- Race/Ethnicity
- Social Security Number
- Student Financial Account Information
- Student Identification Number
- Student Local & Permanent Address & Phone Number
- Transcript

Upon request, Norwich University discloses education records, without consent, to officials of another institution that a student seeks or intends to enroll, or where the student is already enrolled so long as the disclosure is for the purposes related to the student's enrollment or transfer.

### Student Restriction of Directory & Non-Directory Information:

Students may submit a "FERPA Hold" form to the Registrar's Office to prevent directory and non-directory information from being released. This means that NO information regarding this student will be released to any person or placed in any publications (this includes the Commencement program and Dean's list recipients to local newspapers). This form is valid until it is rescinded in writing by the student.

### Student Release of Non-Directory Information:

Students may allow the release of non-directory information to anyone they so choose by electronically entering the person's name and relationship to the student via the electronic Enrollment Verification form.

Students are allowed to add names throughout the term. The releasee names are valid until rescinded in writing by the student. In most cases, it should be the Registrar's Office that releases non-directory information.

### Disclosure of Non-Directory Information:

Norwich University *may* disclose non-directory information from students' education records, without student's written consent, to school officials who have a legitimate educational interest in the records, or to certain other individuals or organizations, as specified below. The release of information to those described below does not constitute authorization to those individuals or organizations to share that information with a third party without the student's written consent.

### A school official is:

A person, organization, or company who is employed by, contracting with, or properly authorized by Norwich University, to perform administrative, supervisory, academic, research, or support functions for the University.

- This definition includes, but is not limited to:
  - law enforcement personnel;
  - health staff;

- certain appropriate students;
  - field supervisors;
  - contractors, such as attorneys, auditors, or collection agents;
  - those properly authorized to serve as official board or committee members; or
  - any others (such as volunteers) properly authorized to assist another school officials in performing his or her professional responsibilities for Norwich University.
- A school official must abide by all applicable policies and procedures regarding confidentiality of education records.

**A school official has a legitimate educational interest if:**

The official needs to review an education record to fulfill his or her professional responsibility. Those professional responsibilities may include, but are not limited to:

- Performing a task that is specified in his/her position description or by a contract agreement
- Performing a task related to a students' education
- Performing a task related to the academic or behavioral conduct of a student
- Conducting research that benefits students and/or the University.

**Other permissible recipients of such disclosures are:**

- The US Department of Education, the Comptroller General, state or local educational authorities
- Organizations conducting certain studies for, or on behalf of Norwich University
- Organizations conducting research for educational agencies or institutions for developing, validating or administering predictive tests; administering student aid programs; and improving instruction.
- Accrediting organizations
- Comply with a judicial order or lawfully issued subpoena, including ex parte orders under the US Patriot Act.
- Appropriate parties in a health or safety emergency
- A victim of a crime of violence or nonforcible sex offense when the information is related to the final results of the disciplinary proceeding conducted by Norwich University
- Those who seek sex offender registry information from those required to register as sex offenders under state or federal law
- Officials at other institutions in which the student has already enrolled or seeks to enroll in
- International sponsors
- State and local officials to whom information is specifically required to be reported by a state law as permitted by FERPA.
- Parents of a dependent student, as identified on federal tax forms
- Parents of students, under the age of 18 at the time of the disclosure, who have violated any law or any institutional policy governing the use or possession of alcohol or a controlled substance.

*The Registrar shall decide the legitimacy of requests for permissible disclosures of student information.*

**Valid Subpoenas:**

If the Registrar is served with a valid subpoena requesting student information, the Registrar *must* comply with the request. Before doing so, the Registrar shall attempt to notify the student of the subpoena in advance of compliance so the student may seek protective action, unless the disclosure is in compliance with a subpoena issued by an agency that has ordered the contents of the subpoena, or the information furnished in response to the subpoena, not be disclosed.

**Deceased Students:**

Information on deceased students *may* be made available to survivors or third parties via a request to the Registrar. An individual student's rights under FERPA are no longer valid upon death of that student.

**Record of Requests for Disclosure**

Norwich University must maintain a record of each request, with the exceptions listed below, for access to, and disclosure of, personally identifiable information from education records. The record of each request for access and each disclosure must contain the name of the parties who have requested or receive information and the legitimate interest the parties had in requesting or obtaining the information.

A record *does not have to be kept* if the request was made by or disclosure was made to:

- An eligible student
- A school official who has been determined to have a legitimate educational interest
- A party with written consent from the eligible student
- A party seeking directory information only
- A student serving on an official committee or assisting another school official

Thus requests for, or disclosure of education record information without a student's written consent, which Norwich University is *required to record*, would include, but is not limited to:

- Disclosure to the parent (either custodial or noncustodial) of an eligible student
- Disclosure in response to a lawfully issued court order or subpoena
- Disclosure for external research purposes where individual students have been identified
- Disclosure in response to an emergency

These records must be maintained with the education records of the student as long as the records are maintained by Norwich University.

**Student Rights Under FERPA**

FERPA affords students certain rights with respect to their education records. These rights include:

- The right to inspect and review educational records; requests will be complied with no later than 45 days from the date of the student's written request, which is to be directed to the Registrar's Office. Students do not have the right to receive a copy of their record unless failure to do so would prevent them from inspecting and reviewing their record, such as when the student no longer lives within commuting distance. The Registrar may arrange for these students to inspect the requested records at a college or university located closer to the student.
- The right to request the amendment of education records, which the student believes are inaccurate, misleading or otherwise in violation of the student's rights of privacy. If the Registrar does not agree with the student's request to amend his/her education records, the student may submit a written request to the Dean of Students Office asking for a formal hearing on his/her request. The Dean shall make the final decision regarding the student's request. If the student disagrees with the decision of the Dean, he/she may submit a written statement which will be placed in his/her official record commenting on the disputed information.
- The right to give or to withhold consent to disclosure of personally identifiable information contained in the student's education records, except to the extent that FERPA authorizes disclosure without consent;
- The right to file with the US Department of Education a complaint regarding Norwich University's compliance with the requirements of FERPA;
- Records relating to individuals who apply for admission but are not admitted or do not enroll are not protected by FERPA; and
- The right to receive notification of rights granted by FERPA.

**Student Notification**

1. New and continuing students are notified of their FERPA rights each semester via the electronic Enrollment Verification process prior to each term.
2. Students are further notified of FERPA rights on the Registrar's website <http://www.norwich.edu/registrar/>
3. Everyone can access Norwich's Student Data Privacy (FERPA) policy at <http://www.norwich.edu/registrar/>

**The Office of the Registrar is the primary contact for all student information inquiries.**

## English as a Second Language Accommodations

### Purpose

This policy establishes the eligibility requirements and the allowable academic accommodations for students who have functional difficulty with the English language.

### Responsibility

The Department of English & Communications, in coordination with the Academic Achievement Center (AAC) and the International Center, is responsible for ensuring compliance with this policy.

### Eligibility Requirements

Students must place into EN 005, EN 105 or EN 106\* AND

- Be an international student OR
- Be a US citizen for whom English is not the primary language spoken in the home OR
- US lawful permanent resident for whom English is not the primary language spoken in the home

*\*Students who are not placed into EN 005, EN 105, or EN 106 may still be eligible for academic accommodations as determined on a case-by-case basis by the Chair of the Department of English & Communications, in consultation with the AAC.*

Eligibility will expire at the end of the first semester of accommodation, but may be continued on a semester-to-semester basis as determined by the Chair of the Department of English & Communications, in consultation with the AAC.

### Allowable Academic Accommodations

- Reasonable extensions of time on assignments if appropriate tutorial assistance is in process.
- Reasonable extensions of time for examinations, with or without a reader, that is administered by the AAC.
- Reduction of credit penalty for misspellings; errors in word usage, sentence structure, and punctuation; errors characteristic of EFL/ESL students, except in coursework where those skills are being assessed directly.
- Alternative assignments to gain credit for credit for class participation when spoken language productivity is a problem, except where those skills are being assessed directly.
- Use of a recording device for course lectures and/or discussions, if a student is deficit in receptive language.

*Professors and instructors are encouraged to customize any approved academic accommodations to align with class requirements and expectations, with the goal to maximize student learning.*

### Student Responsibilities

- Eligible students must process an accommodations letter at the AAC to gain final approval.
- Eligible students must complete a release form each semester to authorize the AAC to send the eligibility letter to all course professors to notify them of the approved academic accommodations.

## English Placement for International Undergraduate Students

### Purpose

This policy establishes requirements for all international undergraduate student to take NU's English placement exam prior to the start of their first semester.

### Policy

All international students are required to take NU's English placement exam, administered on campus by the Academic Achievement Center (AAC), prior to the start of their first semester. The exam tests students' reading, writing, listening, and speaking abilities. Based on the results of the placement exam, combined with a review of other relevant test scores and documentation (e.g. TOEFL, or IELTS scores, SAT or ACT scores, academic transcripts), the Chair of the Department of English and Communications, in consultation with the AAC, will:

- Place students in EN 105, which is a sheltered course that is credit-bearing, but does not meet a General Education requirement and does not otherwise count towards graduation; or
- Place the student EN 101, which is a traditional credit-bearing course that does meet a General Education requirement and counts toward graduation.

*If a student's performance on NU's English placement exam is inconsistent with the test scores or other proof of English proficiency that was initially reviewed for admissions purposes, NU reserves the right to defer enrollment of the student.*

### Responsibility

The Department of English & Communications, in coordination with the Academic Achievement Center (AAC) and the International Center, is responsible for ensuring compliance with this policy.

### Exceptions

Exceptions to this policy may occur in special circumstances involving international inter-institutional agreements with partner universities, new pathway programs and/or other international agreements that would warrant exceptions. All such exceptions must be codified in a Memorandum of Understanding (MOU) among participating parties and have appropriate approvals in accordance with the agreement. Any MOU must be executed through the International Center, after consultation with the AAC and the Department of English and Communications regarding exceptions set forth in any MOU.

### Exams

Examinations 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.

Attendance at scheduled examinations is mandatory. A student absent without proper authority 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.

#### One-hour Examinations in Multi-Section Courses:

- The use of examinations which are equivalent both quantitatively and qualitatively, but different, is encouraged.
- The same examination may be given to multiple sections, when approved by the Department Chair/ 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.

#### Common-hour Examinations:

- Concurrent identical testing of several sections of a multi-section course (Common-Hour Examination) is permitted.
- 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.

#### Final Examinations:

A culminating assessment shall be administered in every course. For final examinations the following policy applies:

- College Deans shall provide the Registrar with a list of course sections requiring rooms to be scheduled for final examinations.
- A final examination will be administered in every course unless its omission has been approved by the College Dean.
- In-class final examinations are normally expected to be no more than 2.5 hours in length.
- If a substitute procedure is used for the final examination, it will apply to all students in that course section.
- All final exams will be completed during the regular final exam period. Final exams are scheduled by the Registrar according to the Final Examination Scheduling policy.
- 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, instructors will inform students of the weight of the final

examination and the method of grading in the course on the course syllabus.

- Intercollegiate, extracurricular, and intramural activities will not be scheduled during a final examination period or during the Reading Period which precedes it.

#### Special Final Examination For Seniors:

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

#### 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 Dean's Office prior to the last week of the semester.

#### 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. The selection of the examination to be rescheduled and the time of its administration will be the result of coordination between the student and professor(s) concerned.

## Grades

### Minimum Grade Standards

Minimum grade standards are established for various curricula. These minimum standards are shown in various Curriculum Maps in Majors/Concentrations/Minors section of this catalog.

### Grades and grade points shall be awarded as listed below:

| Grade                      | Grade Points  |
|----------------------------|---|
| A                          | 4.0 grade points per credit   |
| A-                         | 3.7 grade points per credit   |
| B+                         | 3.3 grade points per credit   |
| B                          | 3.0 grade points per credit   |
| B-                         | 2.7 grade points per credit   |
| C+                         | 2.3 grade points per credit   |
| C                          | 2.0 grade points per credit   |
| C-                         | 1.7 grade points per credit   |
| D+                         | 1.3 grade points per credit   |
| D                          | 1.0 grade points per credit   |
| D-                         | 0.7 Grade points per credit hour  |
| F                          | 0.0 grade points per credit   |
| P (Pass)                   | no grade points; does not affect GPA  |
| AU (Audit)                 | no grade points   |
| I (Incomplete)             | no grade points   |
| NC (No Credit)             | no grade points; does not affect GPA  |
| NG (No Grade)              | None (Not used for final grade)   |
| S (Satisfactory)           | no grade points; only assigned to zero credit courses   |
| SP (Satisfactory Progress) | no grade points; only assigned to for variable credit courses                                 |
| U (Unsatisfactory)         | no grade points; only assigned for zero credit courses or uncompleted variable credit courses |
| W (Withdrawal from course) | no grade points; does not affect GPA  |

### Grade Point Average (GPA)

- GPA is computed by dividing grade points earned by GPA credits, after applying the repeat grade policy.
- Only grade points earned and credits attempted in courses at Norwich are included in computing the student's grade point average. (See the Repeat Courses policy below).

- 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.

### Repeat Courses/Repeat Grade Policy

- A student shall not receive credit twice for any course, except for where course descriptions note allowance for repetition of credit.
- If a previously graded course is repeated, and a grade other than W is earned, only the last grade earned in the course is calculated in the GPA.
- All grades previously earned in the course are removed from 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 is lost. Credit by examination does not constitute a repetition under this provision.
  - Any time a course is taken (and then repeated); it is Excluded from cumulative GPA calculations and it is designated with an E to the right of the course on the transcript.
  - The repeated course is Included in cumulative GPA calculations and is designated with an I to the right of course on the transcript, except when a W (withdraw) grade is earned.
- 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.

### Pass/Fail Option (P/F)

- 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.
- 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.
- To receive P grade student's work in the designated course must be of at least D- quality. A failing grade of F will be entered on the student's academic record and will be included in all grade point computations, if the student's work was below D- quality. P grades earn credit, but are not be included in grade point computations.
- Students seeking to take a course under the Pass/Fail option shall complete and submit a Pass/Fail Grading Request form (<http://www.norwich.edu/registrar/wp-content/uploads/sites/3/2014/02/passfail.pdf>) to the Registrar's Office prior to the course withdrawal deadline.

### Incomplete Grades (I)

- 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).
- I grades may not be assigned for simple failure to submit required work or not attending class, regular leave, or detached service.
- I grades are only assigned at the end of the semester; not at mid-semester.
- Faculty determine the deadline by which the student must submit Incomplete work. However, the deadline shall be no later than:
  - Monday of the eighth week of Spring semester for Fall Incomplete grades
  - Monday of the eight week of Fall semester for Spring and Summer Incomplete grades
- If faculty do not submit a Change of Grade form to the Registrar's Office prior to the dates lists above, the Registrar's Office will lapse the I grade to a Failing (F) grade and notify the student.
- Exception to the dates listed above is students who were ill during the semester, or those who are deployed.
  - Students who have documented medical reasons for not completing coursework prior to the end of the semester are allowed up to the end of next full semester to complete the work. If faculty do not submit a Change of Grade form to the Registrar's Office prior to Final Exams for Fall and Spring semesters, or the end of Summer, the Registrar's Office will lapse the I to a Failing (F) grade and notify the student.

- See the Military Accommodation Policy for deployment related circumstances.
- A course carrying the grade of I is excluded from the computation of total credits and grade point averages.
- A student with a grade of I is ineligible for consideration for the Dean's List honors. Dean's List eligibility is determined at the end of Fall and Spring terms.

## Grading Practices Notification For Students

Course syllabi must designate the method of grading in the course and of the weight that is attached to all course requirements.

## Grade Reporting By the Faculty

- Faculty enter grades for all on-campus courses twice during the semester.
- Mid-semester grades are entered on, or before, Monday of the eighth week of Fall and Spring semesters, 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 entered. 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.
- Final grades are entered at the conclusion of the semester. These grades are posted on the permanent academic record.
- Final grades must be entered within seventy-two hours after the last day of final examinations. Spring Semester grades for graduating Seniors must be entered in less than seventy-two hours. The time for submittal of these grades will be as directed by the Registrar's Office.
- Faculty will maintain course grade records for a minimum of one year. Faculty leaving the employment of the University will submit these grade records to their respective department.

## Grade Notification

- Mid-semester grades appear on student's Banner Web. Mid-semester grades for first semester freshman are sent to the eligible parent or guardian.
- After grades have been entered, students may view their grades on Banner Web. After a period of about one week the students will be able to review their grades and term and cumulative GPA, and Academic Standing on their unofficial Academic Transcript (also on Banner Web).
- Parents wanting to see the grades of their student must have the student access Banner Web. Norwich University does not mail grades, or provide grades over the phone, in compliance with Data Privacy (FERPA) policy.

## Academic Warning at Mid-Semester

- Students who are failing two or more courses at mid-semester will be issued an academic warning and must report to the Academic Achievement Center.
- The Registrar's Office will notify the eligible parents or guardians of all first semester freshmen receiving Academic Warnings if the student has allowed for this information to be released to his/her parents or guardians.

## Changes In Final Grades

- Assignment of final grades in each course is the responsibility of the faculty of record. Students are urged to meet promptly with the faculty member if they have questions regarding the assigned grade.
- Faculty assign 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 as determined by the faculty and will require the recommendation of the Department Chair/Director and must be accomplished PRIOR to a degree being posted on a student record.
- The SVPAA will normally not allow 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.

## Course Audit

- 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.

- Students taking courses as auditors will receive a grade of AU (Audit) on their permanent academic record.
- Auditing students are expected to participate in class discussion and laboratory activities
- Students must declare audit status at the time of registration. If not declared at the time of registration, students must secure faculty approval to change from graded status to audit status prior to first day of final exams.
- 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.
- Once a student has requested, and been approved for an Audit grade, s/he is not allowed to subsequently change grading status back to a regular letter grade.

## Graduation Requirements

If seeking a baccalaureate degree, see the Degree section of this catalog. Other sections of the catalog, such as the General Education and Majors/Minors/Concentrations should be reviewed as well.

Specific information regarding graduation checks, graduation requirements, diploma printing and mailing are listed below.

1. Submit a Graduation Application to the Registrar's Office by:
  - October 1<sup>st</sup>, if graduating at the end of Spring Semester or Summer Session
  - March 1<sup>st</sup>, if graduating at the end of Fall Semester
2. Students who do not submit a Graduation Application by the dates listed in #1 above, but have an expected graduation date in Banner of December, May or August, will have a hold placed on his/her academic record.
  - This hold will prevent these students from enrolling in future classes until they have submitted a Graduation Application and the initial graduation check has been conducted.
3. Complete overall requirements.
  - A minimum of 120 or more distinct total undergraduate credits in courses numbered 100-499.
  - A resident grade point average of 2.0 or above for all undergraduate credits.
  - Complete a minimum of 30 credits from Norwich University
  - Complete 20 of the last 30 credits for the degree, from Norwich University.
4. Students graduating under the 2015-2016 catalog, or later, must successfully complete Leadership 101.
5. Complete General Education requirements (See the General Education section of the catalog.)
  - Core courses: EN 102, Math, Humanities, Social Sciences, Lab Sciences, Ethics, Capstone.
6. Allowed to count NO more than 12 credits of Math credits in courses numbered below 200.
7. Complete requirements for major, minor, concentration and/or comprehensive major programs in different disciplines.
8. Double counting credits
  - Students may use the same course to satisfy more than one requirement within one degree. If one or more courses satisfy requirements in more than one major and/or minor program, additional credits are not required; however students must earn the minimum number of credits for the degree, major and minor.
9. Undergraduate graduation honors are calculated using only Norwich University credits (there are no honors for Graduate students).
  - Commencement Latin Honors posted in the Commencement Program and announced at Commencement are based on all credits earned at Norwich, and calculated using the cumulative GPA following Fall semester grades.
    - Summa Cum Laude honors = cumulative GPA of 4.0 to 3.6
    - Magna Cum Laude honors = cumulative GPA of 3.59 to 3.3
    - Cum Laude honors = cumulative GPA of 3.29 to 3.0
10. Diplomas are printed with the degree, major and Latin honor earned based on the cumulative GPA following Fall semester.
  - Honors printed on the diploma are based on the cumulative GPA following Fall semester. Students, who wish to have a diploma

reprinted with final honors earned, will have to submit a Duplicate Diploma form to the Registrar's Office.

- Honors posted on the official transcript are based on the final cumulative GPA.
  - Students must state the name they wish to have printed on their diploma, which is also the name that will be announced at Commencement.
11. Students who, **with the courses they are enrolled in after the mid-point of Spring Semester**, have a maximum of two courses (up to eight credits) remaining to meet graduation requirements, may participate in the May Commencement ceremony, unless notice is given to the Registrar to attend the following May Commencement ceremony.
    - Students who graduate after Fall Semester, but wish to participate in the following May Commencement, must notify the Registrar via email prior to the end of November. The student must state if s/he wishes to have her/his diploma mailed in December, or held to receive at May Commencement.
  12. The Registrar, in conjunction with the President and the approval of the Board of Trustees, awards degrees to students who have completed degree requirements.
  13. No degree shall be conferred, or diploma awarded, until the Registrar's Office verifies all degree requirements are met.
  14. No degree is conferred, or diploma awarded, until the recipient has paid all University bills, or arranged for payment to the satisfaction of the Chief Financial Officer.
  15. No undergraduate degree is conferred, or diploma awarded, until the Vice President for Student Affairs has cleared the student's record.
  16. Students are allowed 14 working days beyond the last day of final exams, (last day of semester/session) for Fall, Spring or Summer terms to submit all transfer coursework or to have final grades submitted, for the degree to be posted for the respective term.
  17. The degree awarded date is posted using the last day of final exams for Fall semester, the day of Commencement for Spring semester and the last day of the last Summer Session for Summer.

## Independent Learning

### 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, 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 this section of the catalog.

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

### 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. Enrollment for internships 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.

## 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/Director and College Dean must be present on an Independent Study form (<http://www.norwich.edu/registrar/wp-content/uploads/sites/3/2014/02/independentStudyForm.pdf>).

## Use of Military Courses to Satisfy Curricular Requirements

Up to six degree credits may be used as Free Electives toward the baccalaureate degree.

## Military Accommodation

This policy is designed to be flexible to allow students to complete as much academic coursework as possible.

The Bursar's Office reviews and determines if military orders are applicable for any refunds associated with this policy.

### Leave Before End of Term

Students requesting to leave classes, based on a military activation or deployment, must submit a copy of their military orders confirming the date of activation/deployment was during an academic term.

This section of the policy is for:

1. Students serving in the military, who are notified after the first day of the term in which they are currently enrolled, they have been activated or deployed to a combat zone, or in direct support of or proximity to a combat zone, or:
2. Students who are member of the National Guard or reserve forces of the United States and who have been ordered to state military service or federal service or duty.
3. Students, who are spouses of an activated, or deployed military member, and have a dependent child

Students, who meet the requirements listed above, have options listed below when leaving prior to the end of a term, in which they are currently enrolled. Although students may request Incompletes or grades, the decision is made by the instructor of the course.

1. Request a Total Withdrawal from all classes and receive a full refund of tuition and mandatory fees.
2. Make arrangements with instructors to complete some or all courses:
  - Request instructors to assign Incomplete grades.
    - On-campus students have until the end of the next term to complete the incomplete work. Students enrolled in the College of Graduate & Continuing Studies (CGCS) are allowed 90 days from the end of the term to complete incomplete work.
    - Students will agree to a study plan outlining how the work will be completed
    - Student's registration for courses receiving an Incomplete will remain intact and tuition and mandatory fees assessed in full
  - Request courses for which arrangements cannot be made for Incomplete grades, to be Withdrawn (W grade on transcript). Refund of tuition and mandatory fees will be granted for Withdrawn courses, if the student drops below full-time. Room and board will be refunded on a per-day basis.
  - Request a grade assigned at the time of leave, if 80% of the course days (on campus students), or 60% of seminar days (CGCS), have been completed, and the instructor believes the cumulative grade represents sufficient knowledge of the material for the course or seminar.
3. On-campus students may be granted Military Leave for the period away from Norwich University, regardless of Academic Standing at the time of departure.
4. Upon return, students submit a Re-Admission Application to the Registrar's Office; the Registrar's Office shall notify the student s/ he has been re-admitted regardless of Academic Standing, since re-admission is automatic in this situation.
5. Waiver of re-admission fee.

Upon future re-matriculation to Norwich University, students are charged tuition and fees at the rate in force at the time of re-matriculation.

## Late Start of a Term (On-Campus Students Only)

Students requesting a late start, based on a military activation or deployment, must submit a copy of their military orders confirming the date of release was during an academic term.

This section of the policy is for:

1. Students who return from active duty in the military (state or federal), National Guard or reserve forces of the United States.
2. Students, who are spouses of a military member, and have a dependent child.

Students who meet the requirements listed above, are allowed the following when arriving not more than 7 calendar days from the first day of a term:

1. Late fees will not be charged to the student, or spouse
2. The Registrar will send email notices to the following, notifying them of the first day the veteran student, or spouse, plans on attending classes for the respective term:
  - Dean of Students/Commandant
  - Bursar's Office
  - Financial Aid Office
  - Advisor
  - Faculty for all classes in which the veteran student, or spouse, is currently enrolled
3. Faculty will make every attempt to accommodate students for whom this policy applies.
4. Students are responsible for completing all course requirements (including any portion missed).

Students may submit an Academic Petition form (<http://www.norwich.edu/registrar/wp-content/uploads/sites/3/Academic-Petition1.pdf>) requesting to begin later than 7 calendar days from the first day of a term.

## Academic Petitions

### Right of Petition and Appeal

- All academic petitions (<http://www.norwich.edu/registrar/wp-content/uploads/sites/3/Academic-Petition.pdf>) are to be submitted to the Registrar's Office for action by the Committee on Academic Standing & Degrees (CASD) prior to 12:00 noon on Wednesdays to be reviewed at CASD meetings on Thursdays.
- At a minimum the petition must include a clear written statement attached by the student of the request, the student's signature and the recommendations of the individuals who are identified by role, on the petition form. Required signatures must be on the petition form and on all attachments.
- If the petition is for an waiver to Academic Policies, the student must specify the issues to be considered by the CASD to determine if a policy waiver should be granted. Any petition that lacks justification will not be considered. Submission of a petition does not guarantee approval. Students will be notified via email, results of a petition appeal.
- 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.
- CASD considers petitions on a case-by-case basis on the merit of the request.
- Petition requests that are denied by the CASD may be appealed, within ten business days of receipt of CASD action, to the Senior Vice President for Academic Affairs/Dean of Faculty (SVPAA). The SVPAA's decision is final.

### 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 resolution is a discussion with the course instructor.
- If no mutually agreeable solution is reached, the student must next take the matter to the faculty member's Department Chair/Director.
- If the Department Chair/Director is unable to resolve the problem, the student should present a written request for relief to the instructor's

College Dean. The statement should include a full description of the problem and a request for specific 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 SVPAA for final review.
- The SVPAA will analyze the material, arrange additional discussion as necessary, and resolve the issue.

## Registration Changes (Add, Drop, Withdraw, Leave of Absence)

### Course Drop/Add and Withdrawal

- A student may drop or add a course within one week after classes start. The permanent academic record (transcript) will not reflect courses Dropped during the first six class days of Fall or Spring Semesters.
- Students are responsible for dropping/adding courses prior to the deadline, via BannerWeb.
- From the end of the Drop/Add period through the last day to Withdraw, a grade of W will be entered on the Permanent Academic Record for any course withdrawal by a student, or the administration. The student is responsible for submitting a complete Drop/Add (<http://www.norwich.edu/registrar/wp-content/uploads/sites/3/2014/02/adddrop.pdf>) or Withdrawal form (<http://www.norwich.edu/registrar/wp-content/uploads/sites/3/2014/02/withdrawal.pdf>), to the Registrar's Office prior to the deadline. Students must meet with the faculty member prior to withdrawal to obtain his/her signature on the Withdrawal form .
- Students who Totally Withdraw from the University (Withdrawing from all courses in the term) for any reason after the Drop/Add period and prior to the Withdraw deadline will receive a grade of W for each class on the permanent record.
- After the Withdrawal deadline, faculty assign the grade earned.

### Course Schedule Administrative Adjustment

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 at the individual Colleges.

### Waitlisting

Waitlisting is a service provided to students in BannerWeb. When a class section has met the capacity allowed, students may place their name on a Waitlist (WL) for the section.

- Colleges will determine and create Waitlists for courses within their respective schools/departments.
- All WL will have a minimum capacity of 10.
- Students place their names on a WL via BannerWeb. If an opening occurs in a section, the student receives an email notification that s/he has 24 hours to register for the open seat. If the student does not register within 24 hours, s/he is dropped from the WL, and the next student on the WL receives an email to register, and so forth.
- Waitlists will close on the first day of Fall & Spring semesters. Students will not be able to place their names on a WL after this day; however, students who are on a WL will remain, so that if an opening occurs they can register for the section.
- The Colleges may override a WL to allow another student, with a higher priority, to enroll in a section that has a WL.

### University Leave

Norwich has three types of "Leave of Absence" (LOA). There is a general LOA, a military LOA and an emergency LOA. A LOA may not be considered an approved LOA for Title IV Federal Student Aid Program purposes. Students should consult with the Director of Student Financial Planning to determine the effect of any LOA on financial aid.

- **General Leave of Absence** is 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 policies 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
  - Complete the LOA form
  - Students who submit a LOA form will be classified as inactive.
- **Military Leave of Absence** is to allow active reservists and guardsmen who are called up for active duty, a LOA. In the event of military activation, on-campus undergraduate and Master of Architecture students are eligible for a Military Leave
    - A student taking a military LOA must complete the LOA form.
    - The leave is for a maximum of three years
    - The student will be classified as an inactive student
    - The student will be returned to the same academic status that they held at the time of their leave.

Also see the See the Military Accommodation policy

- **Emergency Leave of Absence** allows a student, due to exceptional circumstance, as approved by the College Dean, to voluntarily withdraw from the University during a current semester and to return to the University within two years.
  - A student who experiences an exceptional circumstance can apply for an emergency leave of absence, which will allow the student to withdraw from all classes, if prior to the twelfth week of classes. If it is after the twelfth week, students may seek their instructors' approval to make arrangements to complete classes or receive Incompletes.
  - A student taking an emergency LOA must notify the Center for Student Success.
  - Grading policies concerning Incomplete grade deadlines still apply.

Regardless of the type of Leave of Absence Policy, all students are required to secure and submit a Total Withdrawal form to the Center for Student Success. To subsequently be re-admitted, students are required to submit a Readmission form (<http://www.norwich.edu/registrar/wp-content/uploads/sites/3/Readmission-Application2.pdf>).

## Transfer Credit Policy

1. Students transferring from other institutions are governed by this transfer credit policy, unless the credit is transferred from an institution with an approved Norwich articulation agreement.
2. The posting of transfer credit for approved courses will be completed 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 Norwich Admissions or Registrar's office.
3. International transfer students are required to submit original grade reports/transcripts for all post-secondary institutions attended. Official records must be submitted in their native language and must be accompanied by an official English translation recognized by an approved academic credential evaluation service such as WES, SpanTran and AACRAO. This does not apply to records in Chinese, French, German, or Spanish. Official records should be sent directly from the institution. Transfer credit evaluation may require submission of course syllabi from the international institution.
4. Credit is normally accepted for college-level course work completed at institutions accredited by a regional or national accredited organization recognized by the Council for Higher Education Accreditation (CHEA) and recognized by the Department of Education. (Foreign institutions must be recognized by the Ministry of Education in that country.)
  - a. Military training, in accordance with the Guide to the Evaluation of Educational Experiences in the Armed Forces, published by the American Council on Education (ACE), will be accepted if it applies to courses required for a student's major or minor.
  - b. Norwich University complies with Veterans Administration regulations and guidelines as they pertain to transfer credits.
5. Grade points are not transferred. Grades earned at another institution(s) are not calculated into a Norwich cumulative grade point average. Grades received for transfer work will not replace a grade for a course taken at Norwich.
6. Courses with a grade of less than C, or equivalent to less than a C, are not transferable.
7. Norwich General Education and elective requirements are considered satisfied for students who have earned a bachelor's degree, or an associate of arts (AA), associate of science (AS), or associate of arts and science (AA&S) degree from a regionally, or nationally accredited institution recognized by the Council for Higher Education Accreditation (CHEA) and recognized by the Department of Education.
 

Specific degree requirements may not be satisfied with a bachelor or an associate degree, for example:

  - a. Courses might not substitute for required courses specified in the catalog.
  - b. Courses that are prerequisites for particular program or major and are required of continuing students (e.g., micro and macroeconomics for management majors).
  - c. Requirements mandated by external professional accrediting associations or program approving agencies (e.g., Department of Public Instruction, Accreditation Board for Engineering and Technology, Accreditation Council for Business Schools and Programs).
8. Other extra-institutional (prior) learning, such as Advanced Placement (AP), College Level Exam Program (CLEP), Defense Activity for Non-Traditional Education (DANTES), International Baccalaureate Diploma Programme (IB), Norwich challenge exams, etc., as reviewed and approved will be accepted, for undergraduate students, if the appropriate score was earned and if it applies toward a student's requirements.
9. Courses that are remedial (usually numbered below 100); technical, vocational, or doctrinal in nature are not transferable (but may be used to meet Norwich prerequisites). Transfer courses that are not equivalent to Norwich courses are assigned the appropriate number (1XX, 2XX, 3XX, 4XX, 5XX) that represents the academic level of the transfer course.
10. A course that carries more credit than the corresponding Norwich course is transferred to meet the credit hours of the Norwich course; the additional hours are counted as free elective credit.
11. Students should receive preapproval for Education (Study) Abroad courses to determine if these credits will apply to their chosen degree. Education Abroad courses will be equated according to a pre-approved Transfer Credit Request form. After grades are posted at the Education Abroad institution, an official transcript must be sent to the Norwich Registrar's Office, from the international institution, before courses and credits will be posted to a student's degree program.
12. Students wishing to attend another regional or national accredited organization recognized by CHEA for the purpose of obtaining semester credits 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 Transfer Credit Request (<http://www.norwich.edu/registrar/wp-content/uploads/sites/3/Transfer-Credit-Request.pdf>) Form. No transfer of semester credit hours can be assured for courses for which prior approval was not been obtained.
13. An admitted *Graduate student* (except for on-campus Graduate Architecture) may transfer up to one-third of the credits required for his/her Norwich graduate program. Credits must be a grade of B or higher to transfer.
  - a. No credit will be accepted for graduate work completed more than 10 years before the expected degree date.
  - b. If a request for transfer is not granted, the student may appeal the Program Director's decision to the chair of the division whose decision is final.
14. Graduate credits (500 and higher) may not count toward a baccalaureate degree.
  - a. Graduate students requesting transfer of credit after admission to the program must petition the Program Director.
  - b. Credit for non-college sponsored learning may be awarded if it is demonstrated as meeting graduate level work; such credit will be limited to no more than six graduate credit hours.
15. Transfer credit received from an institution that offers quarter credits will be converted from quarter credits/units to semester credits. A quarter credit is equated to 2/3 of a semester credit. Semester credits equating to a ½ credit or more will be rounded to the next whole credit. Thus, four quarter credits would equate to three semester credits.
16. Students, who subsequently enroll in a Norwich course, where they have already earned transfer credit, will have the transfer course

removed from their record (since duplicate credit for a course is not allowed).

## Articulation Agreements

Articulation agreements will be unified agreements for on campus and online programs. Articulation agreements might state that AA, AS, and A&AS degree students will have 60 credits completed toward their 4 year degree at Norwich University, facilitating a 2 + 2 academic partnership between institutions. General education and elective requirements may be met through the articulation between Norwich and the partner institution.

Language will make clear that some majors require foundation courses to progress in a particular major, especially if the associate level major is not related to the Norwich major. Language will state that every effort will be made to maximize credits earned at the two year degree granting institution.

## Residence Requirement

**(Limits the amount of undergraduate degree credit which may be transferred to Norwich University.)**

1. At least 30 degree credits must be earned at Norwich, including not less than 20 of the last 30 degree credits earned.
2. Transfer credit from Norwich approved programs of international, or other off-campus study, are considered as Norwich credit for purposes of determining the 20 of the last 30 credits applied to an undergraduate program.
3. Limits to transfer credits for undergraduate majors, minors, and concentrations.
  - Major: No more than 40% of credits required in courses specified in the discipline of the major.
  - Minor and Concentration: No more than three of the six required courses specified in the discipline of the minor or concentration (subject to Articulation agreements).

## Degrees

Norwich University awards the following degrees: Bachelor of Arts; Bachelor of Science; Master of Arts, Master in Science, Master of Architecture; Master of Business Administration; Master of Civil Engineering.

Degree candidates are subject to the degree/Major requirements of the class year to which they are assigned at the time of their admission, or readmission, to the degree program.

## Bachelor of Arts

The Bachelor of Arts degree is awarded with Majors in Chinese, Criminal Justice, Chinese, English, History, International Studies, Political Science, Psychology, Spanish, and Studies in War and Peace.

### BA Requirements:

- World Literature I EN 201 and World Literature II EN 202
- Knowledge of a modern language as indicated by passing an achievement test administered by the Department of Modern Languages; or by
  - passing a 6 credit Modern Language course taught in the target language at the 112 level; or by passing a 3 credit Modern Language course taught in the target language at the 206 level or higher. Modern Language Topics courses taught in English do not satisfy this requirement. Students may not obtain credit for courses taken at a level lower than that for which they have already demonstrated proficiency.
- The Foreign Language Placement Test is used for placement in Norwich language courses only. No credits toward graduation are awarded based on the student's score on the test.
- 12 credits are allocated in each BA program for the fulfillment of the foreign language requirement. Students who satisfy the BA language requirement with less than 12 credits will have a corresponding number of additional free electives to complete in order to earn the BA degree.
- Students may choose to audit a lower-level course but may not receive credit for it. |
- Normally this requirement is completed prior to the start of the Junior year.

- Six credits in two of the following areas (students must complete an additional course to meet the Arts and Humanities General Education requirement):
  - Communications: CM 109, CM 261, CM 335, CM 436
  - English: All EN courses above EN 204 except EN 240, EN 241 EN 204, EN 242
  - Fine Arts: FA 221, FA 222, FA 240, FA 250
  - Music: MU 101, MU 271
  - Philosophy: All PH courses
  - Modern Language: all CN, FR, GR, SP courses 205 and above. These cannot be the same modern language courses used to meet the requirements listed in number 4 above
- Nine credits in two of the following areas (students must complete an additional course to meet Social Science General Education requirement):
  - Criminal Justice: All CJ courses EXCEPT CJ 102 and CJ 301
  - Economics: All EC courses
  - History: All HI courses
  - Psychology: All PY courses
  - Political Science: All PO courses
  - Sociology: All SO courses

## Bachelor of Science

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, Construction Management, Education, Electrical and Computer Engineering, Environmental Science, Geology, Health Science, Management, Mathematics, Mechanical Engineering, Nursing, Physical Education, Physics.

### BS Requirements:

For BS requirements, refer to the specific major section of this catalog.

## 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.

## Two Majors

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

## General Education

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 Composition and Literature 1 and EN 102 Composition and Literature II; and 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, MA 103 College Algebra I and MA 160 Mathematics for Elementary School Teachers 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.
  - Any History (HI) course, except for HI 209 will meet the General Education history requirement
  - English (EN) courses chosen to meet the General Education Literature requirement are listed below
  - BA students who must take EN 201 and EN 202 to meet the Bachelor of Arts requirement may not use these courses to satisfy either the General Education Literature or the General Education Arts & Humanities requirements listed below
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 must develop a sound foundation in an area of major concentration by meeting curriculum requirements specified for each program in the catalog. Integration of reading, writing, speaking, and critical thinking skills within the area of expertise culminates in a capstone course in each major.
8. Students are encouraged to develop leadership skills through participation in leadership classes and activities.

## Specific Courses that Fulfill the General Education Requirements

### English Requirement

EN 101 and EN 102. or equivalents, must be completed by the end of the second year.

### Mathematics Requirement

Complete two 100 level or above Math courses (MA 005, MA 103 and MA 160 do NOT count)

MA 005 Preparatory Mathematics (If required, must be finished by the end of the first year.)

100 level Math courses must be finished by the end of the second year.

### History Requirement

Complete One History course (HI). Any History course except HI 209

### Literature Requirement

Complete one Literature course from the courses listed below:

BA Students may not use EN 201 or EN 202 to meet both this requirement and the Bachelor of Arts requirement.

|        |                                  |   |
|--------|----------------------------------|---|
| EN 201 | World Literature I               | 3 |
| EN 202 | World Literature 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 245 | Science Fiction Literature       | 3 |
| EN 250 | Crime in Literature              | 3 |
| EN 251 | Literature of the Sea            | 3 |

|          |  |   |
|----------|--|---|
| EN 253   | Approaches to Shakespeare  | 3 |
| EN 270   | Military Literature  | 3 |
| EN 272   | Veterans' Literature and Writing   | 3 |
| EN 278   | Writing for the Web  | 3 |
| EN 282   | Literary Methods   | 3 |
| EN 292   | American Ethnic Literature & Cultural Literature                         | 3 |
| EN 299   | Topics in English Studies  | 3 |
| EN 320   | Literature of the Developing World                                       | 3 |
| EN 322   | Topics in World Literatures  | 3 |
| EN 420   | Thematic Seminar-Literature  | 3 |
| EN 370   | Topics in British Literature   | 3 |
| EN 390   | Topics in American Literature  | 3 |
| EN 399   | Topics in English Studies  | 3 |
| EN 425   | Directed Study In 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 since 1900 I   | 3 |
| FR 328   | French Literature since 1900 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 |
| 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 |
| SP 318   | Spanish American Short Stories   | 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 350   | Topics Course (if literature topic)                                      | 3 |
| SP 354EN | El Narco   |   |
| 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

Complete One of the following:

English courses above EN 200 (except EN 204)

BA Students may not use EN 201 or EN 202 to meet both this requirement and the Bachelor of Arts requirement.

MU 101 Music Appreciation 3

MU 271 History of Jazz 3

All Philosophy (PH) courses

All modern language courses Chinese (CN), French (FR), German (GR), and Spanish (SP) numbered 205 and above

All Fine Arts (FA) courses

All Studio Arts (SA) courses

CM 109 Introduction to Mass Media 3

CM 261 Interpersonal Communications 3

CM 335 Television Criticism 3

CM 436 Communications Law and Ethics 3

SP 354EN El narco 3

SP 356 Cinema of Spain 3

### Science (with laboratory) Requirement

Complete two Lab Science courses from Biology (BI), Chemistry (CH), Geology (GL), Physics (PS), ID 110 or ES 270

### Social Science Requirement

Complete One course from the following disciplines:

Psychology PY

|                           |  |   |
|---------------------------|--|---|
| Sociology                 | SO   |   |
| Economics                 | EC   |   |
| Political Science         | PO   |   |
| <b>Ethics Requirement</b> |  |   |
| Complete One course:      |  |   |
| AP 436                    | Project Delivery and Documentation         | 4 |
| CM 436                    | Communications Law and Ethics              | 3 |
| EG 043                    | Conference                                 | 0 |
| EG 450                    | Professional Issues                        | 3 |
| EN 450                    | Senior Seminar                             | 3 |
| MG 341                    | Business Law I                             | 3 |
| NS 422                    | Leadership and Ethics                      | 3 |
| PE 355                    | Coaching:Leadership in Sports              | 3 |
| PE 406                    | Readings in Physical Education             | 3 |
| PH 303                    | Survey of Ethics                           | 3 |
| PH 322                    | Business Ethics                            | 3 |
| PH 323                    | Environmental Ethics                       | 3 |
| PH 324                    | Criminal Justice Ethics                    | 3 |
| PH 340                    | Philosophy of Non-Violence                 | 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 |

**Capstone Requirement**

|  |  |    |
|--|--|----|
| Complete one Capstone course (as listed in Major requirements) |  |    |
| AP 412   | Architectural Design VI                | 5  |
| BI 401   | Senior Seminar                         | 3  |
| CE 480   | Senior Design                          | 3  |
| CH 422   | Chemical Synthesis and Examination II  | 3  |
| CJ 410   | Senior Seminar                         | 3  |
| CM 407   | Senior Communications Seminar          | 3  |
| CN 399   | Topics                                 | 3  |
| CS 421   | Computer Science Capstone II           | 3  |
| EE 491   | Electrical System Design I             | 3  |
| ED 425   | Student Teaching                       | 12 |
| EM 402   | Construction Management Practices      | 3  |
| EN 450   | Senior Seminar                         |    |
| ES 451   | Environmental Science Seminar          | 3  |
| GL 451   | Geology Seminar                        | 3  |
| HI 432   | Capstone Seminar in Pre-Modern History | 3  |
| HI 491   | Honors in History II                   | 3  |
| IA 456   | Cyber Defense Practicum                | 3  |
| IN 410   | Seminar in International Studies       | 3  |
| MG 449   | Administrative Policy and Strategy     | 3  |
| SM 451   | Capstone Experience II                 | 1  |
| MA 411   | Senior Seminars                        | 3  |
| ME 467   | Mechanical Engineering Design I ( AND) | 3  |
| ME 468   | Mechanical Engineering Design II       | 3  |
| NR 441   | Nursing Capstone                       | 4  |
| PO 410   | Capstone Seminar in Political Science  | 3  |
| PO 491   | Honors in Political Science            | 3  |
| PS 452   | Seminar II                             | 1  |
| PY 401   | Senior Seminar                         | 3  |

**University Resources**

- Academic Achievement Center
- Admissions
- Athletics
- Bursar's Office
- Career & Internship Center
- Center for Civic Engagement (Service Learning & Volunteer Opportunities)
- Center for Student Success
- Chaplain's Office

- Clubs (Academic & Special Interest)
- Corp of Cadets & ROTC
- Counseling & Psychological Services
- Dining
- Financial Aid
- Honors Program
- Housing
- Information Technology
- International Center
- Kreitzberg Library and Norwich University Archives
- Leadership Program
- Sullivan Museum and History Center

**Academic Achievement Center**

The Academic Achievement Center (AAC) provides individualized assistance with most facets of academic performance and college learning. Its staff helps Norwich students develop strategies, tools, and resources for academic success in a supportive, personalized, and student-centered atmosphere. All AAC services and programs are included in student tuition.

Norwich students enrolled in campus-based programs may voluntarily choose from AAC service options, listed below, to achieve their academic goals:

- time management assistance
- planning, and organizational skills
- instruction in fundamental study skills and learning strategies
- reading, writing and note taking strategies
- memorization and exam preparation strategies
- one-on-one tutorials and review sessions in selected course and subject areas
- academic coaching

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 staff of peer tutors who provide subject-area tutorials in math, lab science, foreign language, and other courses.

The AAC coordinates two peer academic mentoring programs providing academic support and student academic leadership opportunities. The Corps/Civilian Academic Mentoring Program (CAM) provides critical transitional academic support and training for all incoming Freshmen during their first semester. CAM sessions are led by sophomores from the same lifestyle and academic major as their mentees. The sessions focus on academic skills, accessing NU resources, and effectively transitioning to college life. The Peer Tutoring Program recruits, trains, and supervises student tutors who provide course-specific tutoring to fellow students in one-on-one or group tutoring sessions. Both programs are designed to benefit both mentors and mentees.

The AAC provides tutoring, mentoring, and coaching for all international and American students for whom English is not their first language. The English as a Second Language (ESL) Learning Specialist helps ESL students become more fluent in English, understand US academic culture, and improve academic performance in reading, speaking, and writing. Students can meet on an as-needed or regular basis.

Services for students with learning, physical, psychological, or other disabilities are another part of the Center's offerings. AAC staff assists students with disability with:

- determining eligibility for disability support services;
- establishing approved Academic Accommodations;
- communicating and working with faculty regarding accommodation;
- accessing test-taking and other academic accommodations;
- using assistive technology and other resources.

AAC staff meet with students with disabilities on an as-needed or regular basis, and provide academic coaching and tutoring to students upon request. For more information, refer to the "Americans with Disabilities Act" section of the Academic Policies section of this catalog.

The AAC also coordinates two mandatory programs for students at academic risk--students on Academic Probation, and students who

have been Re-admitted to the university after having been Academically Dismissed. Both programs coach and counsel these students to develop educational plans and goals to improve academic performance; to improve time management, organizational, and study skills essential to academic success; and to access academic and other support resources available on campus.

Center personnel work closely with academic advisers, course instructors, and administrators to create a comprehensive support system for students choosing to enhance their academic achievement and excel at Norwich. Services are primarily voluntary and arranged by appointment. Both day and evening hours are maintained to provide access for students in all programs.

For more information, please contact the Academic Achievement Center (<http://academics.norwich.edu/academic-achievement-center>) at 802-485-2130 or [aac@norwich.edu](mailto:aac@norwich.edu).

## Admissions

The admission of students to Norwich University is competitive. Each applicant's file is carefully reviewed by the Office of Admissions. Norwich University is a rolling admissions school, which means that while applications and deposits may be received past the deadlines outlined below, they are accepted only on a space-available basis.

### Application Preferred Deadline:

- Fall Enrollment: February 1
- Spring Enrollment: November 15

### Deposit Deadline:

- Fall Enrollment: May 1
- Spring Enrollment: December 1

### High School Applicants:

Students entering, or during the course of, their senior year are encouraged to submit an application (<http://www.norwich.edu/apply>) to Norwich University. Online and paper applications are accepted. In addition to the application, students must submit the following:

1. High School Transcript (including senior year courses and/or senior year grades)
  - Competitive applicants should have completed:
    - four years of English;
    - four years of mathematics;
    - three years of social sciences/history;
    - three years of lab-based sciences;
    - two years of modern languages.

Each applicant's file is reviewed considering the academic program that the student has applied for; because some programs are more challenging in certain academic areas than others, the courses and grades earned in each course is carefully scrutinized to ensure that the accepted student is ready for the university coursework

2. SAT or ACT Scores (Norwich's SAT Code is 3669; ACT code is 4308)
  - Students applying for the nursing degree must supply SAT or ACT scores. Applicants for other majors are encouraged to submit scores, though are not required to. Norwich "super-scores" each test, and records only the best scores that the applicant has received.
3. Applicants are also highly encouraged, though not required, to submit:
  - Letters of Recommendation; two or three letters are preferred. Students should choose teachers, coaches, employers, mentors, etc., who know both their academic abilities and their personality.
  - Essay; a 300-500 word open-topic essay may also be submitted.

### Transfer Applicants:

Students who have completed high school and are enrolled in, or have earned 12 or more college/university credits, are considered transfer applicants. Transfer applicants must submit:

1. An application (<http://www.norwich.edu/apply>) to Norwich
2. Final High School Transcript
3. College Transcripts

- Any/all college transcripts must be received to properly review a student's file. In order to be evaluated for transfer credit, college transcripts must be official.

4. Transfer applicants are also highly encouraged, though not required, to submit:

- Letters of Recommendation; two or three letters are recommended. Students should choose teachers, coaches, employers, mentors, etc., who know both their academic abilities and their personality.
- Essay; a 300-500 word open-topic essay may also be submitted.

### International Applicants:

Applicants who are not United States Citizens, or Permanent Residents of the United States, are considered international applicants. International applicants must submit:

1. an application (<http://www.norwich.edu/apply>) to Norwich
2. Secondary school (high school) transcripts; if the transcript is not in English, the applicant must also submit a translated copy.
3. English Proficiency
  - Students must submit English language proficiency requirements in one of the following ways:
    - The applicant is a citizen of Australia, Canada (except Quebec), Great Britain (England, Scotland, and Wales), or New Zealand.
    - Submitting TOEFL or IELTS scores
    - The applicant has successfully completed an academic English program at an institution approved by Norwich University's International Center.
    - The applicant has graduated, or is on track to graduate, from a foreign institution where the language of instruction for the secondary and/or post-secondary degree(s) was English.
    - The applicant has graduated, or is on track to graduate, from a US accredited school abroad with English as the medium of instruction.
    - The applicant has graduated, or is on track to graduate, from a secondary school in the US that he/she attended for a minimum of one year and that included at least one unit of college preparatory English.
    - The applicant has earned a bachelor's degree from an accredited institution of higher education in the US or has completed at least 12 or more credits at an accredited institution of higher education in the US.

4. International applicants are also encouraged to submit:

- Letters of Recommendation; two or three letters are preferred. Students should choose teachers, coaches, employers, mentors, etc., who know both their academic abilities and their personality.
- Essay; 300-500 word open-topic essay may also be submitted.

### Interested in Admissions:

All students seeking admission to Norwich University are highly encouraged to contact our office. In addition to phone/email contact, students and families should consider visiting our campus to get a better feel of the university and the opportunities offered to prospective students. Day visits (<http://www.norwich.edu/admissions/dayvisit>) can be scheduled during the week, Monday-Friday, and families are asked to kindly schedule with two weeks advance notice.

### Office of Admissions:

Address: Norwich University, 27 I.D. White Avenue, Northfield, VT 05663; Phone: 802.485.2001; Email: [nuadm@norwich.edu](mailto:nuadm@norwich.edu), Web: [www.norwich.edu/admissions](http://www.norwich.edu/admissions)

## Athletics

### Vision:

The Department of Athletics' Vision is to create and support an environment where student-athletes, both in our Corps of Cadets and Civilian lifestyle, can achieve athletic success at the 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 Department of Athletics' Mission is to provide well-rounded and competitive 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 programs 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 and administer our athletic programs in a way that contributes to the personal development of our student-athletes through the whole-person concept by fostering the growth of fair play and amateur competition, sportsmanship, leadership, self-discipline, personal integrity and social responsibility.

#### Facilities:

The 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, locker 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 Goodyear Swimming Pool, weight and fitness rooms, a wrestling room, an indoor track, and four basketball courts. Kreitzberg Arena, home to the men and women's ice hockey teams, is a state of the art arena which seats 1410 and can accommodate 5000 spectators for multipurpose events. Sabine Field, an artificial turf field with lights and a 3-lane recreational track, is used for football, soccer and lacrosse. The Dog River Rugby pitch, Garrity Baseball Field, a softball field and several practice fields for athletics and intramural sports complete our athletic facilities.

#### Varsity Sports:

The University sponsors 20 varsity sports for its students, 11 for men and 9 for women. All of the varsity sports teams, with the exception of men' rugby compete at the NCAA Division III level and are affiliated with one of seven athletic conferences. Norwich is a member of the NCAA, New England Hockey Conference, Great Northeast Athletic Conference, the Eastern Collegiate Football Conference, the New England Wrestling Conference, the New England Collegiate Rugby Conference for men, and the National Intercollegiate Rugby Association for women. In recent years, Norwich teams have been regularly found in the national rankings, have won conference titles, and won national championships in men and women's ice hockey, and women's rugby. Sports that are sponsored by Norwich are:

|                   |                   |
|-------------------|-------------------|
| Men's Sports      | Women's Sports    |
| Cross Country     | Cross Country     |
| Basketball        | Basketball        |
| Baseball          | Softball          |
| Football          |                   |
| Ice Hockey        | Ice Hockey        |
| Lacrosse          | Lacrosse          |
| Tennis            |                   |
| Rugby             | Rugby             |
| Soccer            | Soccer            |
| Swimming & Diving | Swimming & Diving |
| Wrestling         | Volleyball        |

#### Club Sports/Intramurals:

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. Intramural sports allow students to participate in athletic and activities throughout the school year.

## Office of the Bursar

The Office of the Bursar is responsible for:

- generating student tuition statements
- issuing financial clearance for enrollment
- enforcing the university fees and financial policies
- check cashing
- Federal Perkins Loan entrance and exit interviews

The account counselors of the Office of the Bursar assist students and parents with understanding student accounts and ensuring student financial responsibilities are met.

Bursar hours of operation are from 8:00 am to 4:00 pm, Monday – Friday (walk-in or by appointment).

Office of the Bursar's email address is nubursar@norwich.edu. Phone number is 802.485.2055. Location is Jackman Hall room 204.

Visit the Bursar's website (<http://www.norwich.edu/bursar>) for more detailed information regarding Bursar policies, fees and services.

Robert J. Doyon, Bursar

## Career & Internship Center

The Career & Internship Center (<http://careers.norwich.edu>) 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, including assistance with:

- Internships and job searches
- Resume and cover-letter preparation
- Networking
- Mock interviews
- Personal branding
- Job postings
- Class presentations
- Career fairs

...and so much more

Please contact our friendly and experienced staff to get started on your career path!

## Center for Student Success

The Center for Student Success (CSS) provides guidance, support, and advocacy for all students to significantly improve the academic and social integration necessary to enhance the quality of their college experience.

CSS assists students as they matriculate, from year to year, with programs that provide social adjustment, academic and financial support, advising, coaching and mentoring. CSS' focus is on the support, success and satisfaction of all Norwich students while assisting them with all of the necessary resources to successfully graduate.

On an institutional level, CSS explores academic and social trends derived from data to create new initiatives and assist the university to improve the overall student experience.

#### The Center for Student Success has two major areas of focus:

Overall student experience to include:

- Transition from high school to college
- Provide guidance, support, and advocacy for students on various issues; i.e social, personal, and financial well being
- Identifying struggling students and outreaching to create individualized solutions

Overall student Veterans' experience to include:

- Transition from the military to civilian life
- Certification and military educational benefits
- Finances and paying for college
- Transition to collegiate academics
- Counseling services
- Academic success planning

## Chaplain's Office

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 the Eugene L. White Memorial White Chapel throughout the year. Two Roman Catholic masses and at least one Non-denominational Protestant Worship Service are conducted weekly. Three part-time Catholic Clergy (two Monsignors and one Priest) and one full-time Non-Denominational Protestant Chaplain serve the campus. An Islamic prayer room is available in the basement of White Chapel, and Jewish students avail themselves of the local synagogues in Montpelier and Stowe.

Local houses of worship for different faiths and denominations, including addresses, phone numbers, and identification of spiritual leaders, can

be found in a pamphlet located in the literature rack immediately inside the entrance to the Chapel sanctuary. Many religious groups offer free transportation to our students for attendance at services. After the initial week of training, recruits/rooks may leave campus to attend such religious services.

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

- Chaplain's Office Telephone: 802.485.2128
- Chaplain's Home Telephone: 802.485.7877
- Chaplain's Cell Phone 802.272.0585
- Email: [wwick@norwich.edu](mailto:wwick@norwich.edu) ([chaplain@norwich.edu](mailto:chaplain@norwich.edu))

## Clubs (Academic & Special Interest)

### Academic Clubs (AC)

A variety of academically related clubs, societies, and organizations are available for Norwich students. This enables students with similar interests to enjoy and collaborate on academic subjects and take part in professional activities.

### Special Interest Clubs (SI)

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 Student Activities at [studentclubs@norwich.edu](mailto:studentclubs@norwich.edu).

### Club Sports Teams (CST)

Sports teams with the opportunity to compete against other colleges and universities in league and tournament contests on campus and at other institutions.

### Airsoft Division (SI)

The intent of NUAD is to bring students of all grades and skill together and take part in local airsoft scenarios, games, and team training that take place on campus. All that we ask is that participants be prepared to learn. There is no need for prior knowledge or experience; we will teach you the tools for success.

### NU Alliance (SI)

The NU Alliance is a club that is dedicated to serving students of all orientations and lifestyles and specifically catering towards the needs and well-being of Norwich University's LGBTQ individuals and their allies. The meetings of the club are focused on providing a safe and encouraging environment for students to discuss and learn about LGBTQ issues and focus on the role of LGBTQ students and their allies in creating a better campus climate for diversity. Meetings are open, fun, and everyone is welcome.

### Alpha Chi (all disciplines) (AC)

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

### Alpha Nu Omega (AC)

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) (<http://www.alphaphisigma.org>).

### American Chemical Society Student Chapter (ACS) (AC)

The mission of the ACS shall be to afford an opportunity for students of chemistry, biochemistry and allied disciplines to become better acquainted, to secure the intellectual stimulation that arises from professional association, to obtain experience in preparing and presenting technical material before chemical audiences, to foster a professional spirit among the members, to instill a professional pride in the chemical sciences, and to foster an awareness of the responsibilities and challenges of the modern chemist. Official ACS web site: [www.acs.org](http://www.acs.org) (<http://www.acs.org>).

### American Institute of Architecture Students (AIAS) (AC)

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. This is a club for the architecture students of Norwich University. NU AIAS strives to inspire young designers, encourage networking, and display opportunities in the field of architecture. To do this, the students travel to architectural conferences, host lecture and film series, and participate in design charettes. Official AIAS web site: [www.aiasnatl.org](http://www.aiasnatl.org) (<http://www.aiasnatl.org>).

### American Society of Civil Engineers (ASCE) (AC)

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. The objective of the Norwich University American Society of Civil Engineers (NU ASCE) Student Chapter is to provide hands on engineering experience to civil and environmental engineering and construction engineering management students. The club contributes to Norwich University by allowing students to gain engineering experience outside of the classroom. Students who have participated in NU ASCE will be more knowledgeable than their peers after graduation. The club competes in several annual competitions, representing Norwich University on a regional and national level. The club also promotes the NU civil engineering department by hosting a High School Popsicle Stick Bridge competition. This competition allows high school students to design, build, and test a model bridge while interacting with students in Norwich's civil engineering department. Official ASCE web site: [www.asce.org](http://www.asce.org) (<http://www.asce.org>).

### American Society of Mechanical Engineers (ASME) (AC)

The Norwich University student chapter of the American Society of Mechanical Engineers (ASME) is an organization that seeks to promote and explore opportunities in engineering. ASME offers students, faculty, alumni, and community members the ability to interact, network with engineering professionals, and provide civil service to the surrounding area. ASME combines scholastic principles with fundamental real-world applications to enhance engineering knowledge and awareness. 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) (<http://www.asme.org>).

### Anime Society (SI)

This club was founded to foster the interest of anime among Norwich students. The Anime Society participates in conventions throughout the northeast.

### Association for Computing Machinery (ACM) (AC)

ACM members do their best to make Norwich University a better place to study computers and related technology. To promote exploration of the world of computer science and engineering, and the creation and sharing of knowledge with one another and the larger ACM community, the Club regularly hosts events such as LAN parties and guest presentations by industry leaders and faculty.

### Ballroom Dancing Club (SI)

Our goal with the Norwich Ballroom Dance Club is to present students with the opportunity to learn a valuable skill for their future plans while still having fun. We want to extend the opportunities beyond just learning and practicing by providing experience outside of our campus meeting place through ballroom dance competitions. The Ballroom Club allows people to dance with a variety of partners, of which many will become lifelong friends; it is a way for students in different courses of study to meet new people who share a similar interest. Ballroom dancing is also a beneficial skill to learn for the future, whether our members are joining the armed forces or entering the business career field upon graduation.

### Beta Beta Beta (BBB) (AC)

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) (<http://www.tri-beta.org>).

### Chi Epsilon (AC)

This is a national honorary civil engineering fraternity.

### Chinese Cultural and Language Club (SI)

NU Chinese Club is an organization that focuses on Asian and primarily Chinese culture, customs, and language. The members of the Club will learn certain Chinese values and manners that will greatly develop them as global citizens and aid them in case of studying abroad, as well as go through hand-on applications of culture, such as calligraphy, Chinese games, music, movies, and more. The NU Chinese Club also takes an active part in and helps to sponsor University-wide events such as the Moon Festival and Chinese New Year celebration. This year, for active members, the Club is also hoping to sponsor a cultural trip for its members to experience Chinese culture and influence in Montreal, Canada.

### Club Alpine Ski Racing Team (CST)

The Club Alpine Ski Racing Team participates in fun and competitive ski races across the East.

### Club IHSA Equestrian Team (CST)

The Norwich Equestrian Club gives students the opportunity to explore their interest in competitive riding while at NU. While focusing on learning more about riding with our weekly lessons, the team nourishes individuals' desires to grow and acquire skills in horse care and horseback riding. As a cohesive group, we participate in community outreach activities as well as fun horse related events. Fundraising, volunteering, and events are all key aspects of making our club work well. We encourage beginners to advanced level riders. If you have an interest in competitive riding with a great group of students, the club IHSA Team is for you!

#### **Club Golf Team (CST)**

The club golf team hires the Northfield Country Club PGA Pro, and competes in a fall season against other colleges and universities. Our top six golfers can compete in each match during our Fall season. The main goal of the team is to have fun and continue to develop Norwich Golf.

#### **Club Men's Ice Hockey Team (CST)**

The Norwich University ACHA (Club) Hockey team is a Division 1 member of the American Collegiate Hockey Association and North East Collegiate Hockey Association. The team competes with other ACHA and NECHA sanctioned teams and prep schools throughout New England and Eastern New York. The team competes for a NECHA title as well as a spot into the ACHA regional and national tournaments. The team holds tryouts every October and anyone interested is encouraged to contact the club.

#### **Club Women's Ice Hockey Team (CST)**

The purpose of the Women's Club Ice Hockey Team is to establish a team to play a competitive schedule of games against other club hockey teams in the IWCHL. The team will also practice multiple times a week at Kreitzberg Arena. The team holds tryouts each year, and carries a roster of 25 players.

#### **Club Soccer Team (CST)**

The Norwich University Soccer Club is dedicated to allowing anyone to enjoy the sport of soccer. We provide a friendly but competitive environment for anyone that is interested in playing. We compete in local leagues in indoor and outdoor seasons, with practice being optional and every day. Come out and enjoy the music and the game.

#### **Club Track Team (CST)**

The Norwich University Club Track Team was founded many years ago; and was revived in 2012. The events for the club range from running the 50m dash to the 5k race. Also, the only field event as of now is the shot-put (men's and women's). The Track Team is open to any NU students interested and there are no qualification times or distances. We meet three times a week for practice and have several planned races. Currently there are roughly 50 students who are members of NUTF; the NUTF has the goal of becoming a varsity sport for the University. "From many events, one team".

#### **Club Ultimate Frisbee Team (CST)**

The purpose of the Club Ultimate Frisbee Team is to provide students who are interested in playing, or learning to play, Ultimate Frisbee a place to do so. Activities include contest as events and tournaments at other colleges and universities. The team also provides students an outlet to get to know new members of the Norwich Community as well as to hopefully branch out to others schools in the area as well. Ultimate is a noncontact, self-refereed sport and therefore helps with physical health but also helps to build character. Because of its 'Spirit of the Game' rules, players are taught negotiation, leadership, and communication skills. But most importantly, it is about having fun in a safe environment.

#### **Norwich University Competitive Shooting Association (NSA) (CST)**

The Club Shooting Team is comprised of students from all shooting disciplines and abilities, from those who have never shot a firearm before to those can complete at the highest levels in their chosen events. The team currently has a wide variety of fire arms and is always working to find new and different ways to compete. The team shoots at a fifty foot indoor range located 5 miles from the University.

#### **Norwich University Construction Engineering Management (NUCEM) (SI)**

The Norwich University Construction Engineering Club aims to further the knowledge, experience, and professional pursuits of every member at Norwich University. Hands on experience will be promoted for all members through field trips, volunteer projects and internships. The Construction Engineering Club will be open to any and all students regardless of prior experience or skill level. The Club strongly encourages new members, especially those willing to learn about and eventually go into the field of Construction Engineering Management. But most importantly, it is about having fun in a safe environment. Club Membership is open to all current Norwich Students.

#### **Criminal Justice Student Association (CJSA) (AC)**

24 *Clubs (Academic & Special Interest)*

Founded in 1986, the Criminal Justice Student Association was developed as an educational and social organization for all criminal justice majors. Club members share a genuine interest in justice studies and federal law enforcement, encompassing the pursuit of knowledge and career opportunities beyond the classroom. The club consistently work on projects as a team, which allows it to consistently surpass its goals as a club. The CJSA also is involved helping others through community outreach. The CJSA has organized educational trips to forensic labs, participated with the FBI in SWAT simulations, sponsored guest speakers, and organized an annual field trip to Washington, D.C. to meet with top federal law enforcement officials. The networks the organization develops with Norwich alumni provide students with special opportunities in their future criminal justice careers.

#### **Delta Mu Delta (AC)**

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

#### **Education Club (AC)**

A club tailored for education majors, but open to all current Norwich students, and has developed an annual service learning trip to volunteer at an inner city elementary school in New York during spring break.

#### **Entrepreneurship Club (SI)**

The Entrepreneurship Club's goal is to assemble students with multifarious educational backgrounds in a consultative environment through which business concepts are supported and launched. The club will support individuals and teams working on projects, and embrace the idea of continual education by providing students with access to diverse speakers and seminars spanning the spectrum of innovation and entrepreneurship. The club stresses that students should pursue projects outside normal course curriculum, and work with members to develop their projects in a collaborative setting.

#### **Eta Kappa Nu (electrical and computer engineering) (AC)**

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

#### **Equestrian Club (SI)**

The Equestrian Club is open to all current NU students that want to learn more about equine interests and activities. Members will have the opportunity to participate in club events and take lessons to learn how to ride or improve skill. The club is open to all levels of horsemanship and riding ability. Currently the club takes lessons from East Hill Farm in Plainfield VT. Their wonderful, and knowledgeable staff teach both beginners and high level riders mainly in the classical style of dressage, but also do a bit of jumping. To learn more about the farm, trainers and owner visit the link. <http://www.easthillfarm.org/>

#### **Investment Club (SI)**

Greetings from the Norwich University Investment Club! Are you interested in learning how the world of investment works? If so, then the Norwich University Investment Club is right for you. Our members are dedicated in passing their knowledge to others. With dedication, you will learn and can apply it to your future.

#### **French Club (AC)**

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. The goal of this club is to enrich the Norwich student's knowledge of the French language and Francophone culture in a stimulating and supportive environment. The activities of the Club also help address Norwich's goal to internationalize the campus; offer diversity and opportunities to develop a more global perspective. The club encourages the participation of all students, faculty and staff of the Norwich University Community.

#### **Norwich University Gains (NU Gains) (SI)**

Fitness club dedicated to hard training and physical improvement.

#### **Golden Anchor Society (SI)**

The Golden Anchor Society is a highly motivated Norwich University club driven to improve the academic, physical, mental, and moral development of its members, through physical training, team building exercises, Naval information briefs, organization of Naval themed events, and club trips that directly relate to the expansion of naval motivation and knowledge. Members of the Golden Anchor Society club will expand naval knowledge through both the study of Navy and Marine Corps traditions, history, weapon systems, tactics, and study important people in their history through the presentation of their lives and actions that directly furthered the values and mission of both the Navy and Marine Corps. The Club motto Give it All, challenges its members throughout their time in the Golden Anchor society to live the motto in every aspect of their lives.

#### **Grenadiers Jazz Ensemble (SI)**

The Grenadiers is Norwich University's very own Jazz band. The band plays a variety of swing, blues, and more. The band also performs both on and off campus. This includes major balls, dinners, concerts, etc. The Jazz Band is open to both Corps and Civilian students through audition.

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

The *Norwich Guidon* is the student newspaper of Norwich University, it 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.

#### **Hip Hop Dance Club (SI)**

This club is dedicated to learning the basics first, and then advancing in Hip Hop Dancing.

#### **Institute of Electrical and Electronic Engineers (IEEE) (AC)**

The purpose and scope of IEEE and the IEEE Computer Society at NU is to advance the theory, practice, and application of computer and information processing science and technology and the professional standing of its members. The IEEE Computer Society club at NU strives to fulfill these objectives through community service, networking opportunities, distinguished IEEE guest speakers, scholarship, access to technology and cross disciplinary engagement. This club is open to all students and intends to offer fun, professionally enriching and educational opportunities to its members.

#### **Intercultural Students Organization (ISO) (SI)**

The Intercultural Students Organization aims to enrich the cultural experience of students at Norwich University by organizing events in which the international students can interact with the American students and members of the community. The ISO also organizes activities to give students the opportunity of learning about different cultures, meeting new people, sharing experiences and bringing diversity to our campus.

#### **Jui-jitsu Club**

This is a club that focuses on self-defense and an art that requires discipline and dedication. It is a great work out and will test your abilities and mental strength. It is safe and in a stress free environment where everyone is equal with the same goal, to learn. If you feel up to the challenge and the work out then I will see you there and in the end you will be stronger for it mentally and physically. We are here to learn and create a brotherhood where everyone is equal.

#### **Maroon and Gold Key (SI)**

These students assist 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.

#### **Model United Nations (SI)**

The purpose of the Norwich University Model United Nations Club is to prepare and teach Norwich students about the function of the United Nations and other international organizations and issues by training and providing opportunities for Norwich students to participate in Model United Nations conferences and other international simulations across the country and around the world.

#### **Rock Climbing Club (SI)**

Mountaineering Rock Climbing Club is for those who like the outdoors and want to learn a new skill. There are several trips run throughout the year to places all over New England, run by students and faculty alike.

#### **Norwich Christian Fellowship (NCF)(SI)**

Members of Norwich Christian Fellowship strive to create a place where students and faculty can praise and worship God in a non-denominational Christian atmosphere that encourages fellowship and dialogue. NCF answers questions of those seeking God, nurtures young Christians, supports mature Christians and trains world-changers to operate in the military and civilian sector.

#### **Omicron Delta Epsilon (economics) (AC)**

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

#### **Paintball Club (SI)**

The Norwich University Paintball club operates and plays on the campus paintball field as well as traveling to big games, scenarios and tournaments all over the North East. There truly is something for every style of play with our competitive speedball team competing in the NCPA, a pump team competing in the Gravity League and a well known scenario team that travels to big games such as Castle Conquest, and The West Point Combat Classic.

#### **Pegasus Players (SI)**

The Pegasus Players is the resident theater company for Norwich University. It is composed of students, faculty, and community members.

This club provides opportunities to act, design, build sets, and make costumes. Through their work in Pegasus, have the chance to learn the basic skills of theater and earn academic credit (EN 242).

#### **Physical Education Club (AC)**

The main purpose of the Physical Education Club is to educate our members on the importance of a healthy and active lifestyle by teaching lifelong sports and activities. Moreover, the club provides hands on experience in the field of Physical Education and helps build one's resume through conferences and certifications. The club provides a positive learning environment for all its members.

#### **Pi Gamma Mu (AC)**

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/) (<http://www.pigammamu.org/>).

#### **Pi Sigma Alpha (AC)**

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/) (<http://www.apsanet.org/~psa/>).

#### **Pipes and Drums Band (SI)**

The Norwich University Pipe Band is dedicated to learning and performing Highland music to the best of its abilities. In particular, the band is looking for players of the bagpipes, snare, Scottish tenor, and bass drums. Experience is preferred, but not required. The band plays both locally and regionally. MU230 and MU200 are accompanying 1-credit classes that may be taken as humanities electives.

#### **Political Science Club, *Politeia* (AC)**

The Political Science Club is dedicated to promoting the interest of domestic and international politics to our student body. Our goal is to both educate and debate the issues pertaining to our nation. We want to inform our club members of the important decisions being faced in Congress. Most importantly as a senior military college it is our job to remain on top of the politics going on in Washington. As many of our students will go on to serve and be our nations next leaders it is only appropriate that we understand what our nation is fighting for..

#### **Pre-Law Society (AC)**

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](http://www.norwich.edu/voices/jasonjagemann).

#### **Pre-Med Club (AC)**

The Pre-Medical Club serves to educate and prepare Norwich University students who desire to enter medical, dental, or veterinary school after graduation. Some of the opportunities that club members will have are: preparing for graduate entrance exams, exploring career choices, medical professional shadowing opportunities, and networking with alumni. Meetings are typically Sundays at 7pm.

#### **Psi Chi (psychology) (AC)**

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

**Rotaract (SI)**

A service oriented club working in conjunction with the Center for Civic Engagement to raise funds for select projects throughout the year. Some of the larger events include the student leadership of the Penguin Plunge and working with Rotary and Interact to build a residential and vocational center in Pommerin, Tanzania.

**Semper Fidelis Society (SI)**

The Semper Fidelis Society's mission is to assist in the development of future leaders by promoting leadership through professional military education, physical, and mental excellence, community service, fund raising, and observance of the Marine Corps' lasting traditions. The Society will reinforce the Marine Corps' values of honor, courage, and commitment.

**Semper Paratus Society (SI)**

The Semper Paratus Society is built around the ideals of teaching, preserving, and perpetuating the lessons and lifestyle of a coastguardsman. We uphold the standards of the professional rescuer and strive to make greater strides in stature and professional etiquette. We aim to teach the average student the basics and traditions of a professional coastguardsman as well as develop an understanding of what the Coast Guard is as a branch of the Department of Homeland Security. We venture to educate those who join the Society on the Coast Guard missions, opportunities, and traditions so as to better understand the importance of the Coast Guard and its foundations.

**Sigma Iota Rho (AC)**

This is the honor society for international studies. Open to undergraduate and graduate international studies students. Official web site: [www.sigmaiota rho.org](http://www.sigmaiota rho.org) (<http://www.sigmaiota rho.org>).

**Sigma Tau Delta (AC)**

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

**Ski and Snowboard Club (SI)**

The Norwich University Ski and Snowboard Club was founded in 2010 by a group of students dedicated to the sports of skiing and snowboarding. This group of individuals made it their goal to bring all Norwich University skiers and snowboarders together to cultivate a common interest. The club looks to create bonding, fundraisers, and events through this common interest. Visit us on Facebook <http://www.facebook.com/groups/301666149853792/>.

**Student Government Association (SGA) (SI)**

The Norwich University Student Government Association is a group of students representing the entire student body and is responsible for voicing interests 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.

**Society of Women Engineers (SWE) (AC)**

The Norwich chapter of the Society of Women Engineers (<http://societyofwomenengineers.swe.org>) (SWE) brings members together to forge friendships explore the professional world of engineering. While SWE is focused on issues of interest to women specializing in engineering and technical careers, it is not an inclusive group and is not limited to only female engineers. Events for this club include pumpkin carving, engineering day for the areas Girl Scouts, the He and Me Dance, and other team building activities such as professional field trips, apple picking, and ice-cream socials.

**Sports Medicine Society (AC)**

A club for all students with a special interest in Sports Medicine or Athletic Training.

**Student Nurses' Association (SNA) (AC)**

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. Official National Student Nurses' Association web site: [www.nсна.org](http://www.nсна.org) (<http://www.nсна.org>).

**Student Veteran's Council (SI)**

The Norwich Student Veterans Council (SVC), the official local chapter of the national Student Veterans of America (SVA), is an organization of military and veteran students dedicated to living out our motto, "Camaraderie, Excellence, Service." SVC is a diverse advocacy and fellowship organization, and all military and veteran students in any status, including delayed entry enlistees, are welcome.

**NU Tactical Society (NUTS) (SI)**

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.

**Tau Beta Pi (engineering) (AC)**

Tau Beta Pi is the nation's second oldest honor society. Unlike other engineering organizations, Tau Beta Pi is the only engineering society that includes all of the disciplines in the engineering profession. Students that are elected into TBP have brought honor to their Alma Mater through distinguished scholarship and exemplary character. There are collegiate chapters at 241 American colleges and universities, 32 alumni chapters, and an estimated 545,000 initiated members. At Norwich, distinguished engineering students who have demonstrated good character and a strong commitment to the engineering profession are welcomed into Tau Beta Pi. The group meets weekly to discuss upcoming events and plan activities that can help strengthen the David Crawford School of Engineering. Tau Beta Pi plays a crucial role in organizing events that include all of the engineering disciplines at Norwich University. Engineering Week is one of the best examples of the leadership role TBP takes in bringing together all of the engineering disciplines. Members of Tau Beta Pi Engineering Honor Society at Norwich University Strive to become leaders both in and out of the classroom. The society has a long history of producing leaders in the engineering profession, and at Norwich out members work very hard to continue this. Official National Tau Beta Pi website: [www.tbp.org](http://www.tbp.org).

**Triathlon Club (SI)**

Norwich University Triathlon Club's main goal is providing a unique training environment that enables members to be competitive in triathlons while maintaining a safe and fun atmosphere. Overall we support a healthy lifestyle while encouraging others to pursue their goals. The Club strongly encourages new members, especially those willing to learn about and eventually compete in triathlons.

**Upsilon Pi Epsilon (AC)**

UPE (<http://upe.acm.org>) recognizes academic excellence at both the undergraduate and graduate levels in the Computing and Information Disciplines.

**Venture Crew Club (SI)**

Venturing is a continuation of the Boy Scout and Girl Scout Program that offers all Norwich students to continue their scouting career. The crew focuses activities such as camping, hiking, and other outdoor activities.

**Water Polo Club (SI)**

The Norwich University Water Polo Club main goal is to provide students the ability to train and compete in Water Polo games in the area as well as be an outlet to get to know members of the Norwich Community and branch out to other schools and meet other Water Polo athletes in the area. The Club strongly encourages new members, especially those willing to learn about and eventually compete in Water Polo games and tournaments. But most importantly, it is about having fun in a safe environment. Club Membership is open to all current Norwich Students.

**Women and Men Against Sexual Assault (WASA) (SI)**

We are a student run organization dedicated to raise awareness and eliminate sexual aggression at Norwich University and our surrounding communities. We are committed to build a safe house as well as a strong foundation for survivor and those affected by harassment and assault. Students and faculty have the fundamental right to live safely and be free from all forms of violence, abuse and harassment. We as a club will stand and speak out against sexual aggression and empower our fellow students to build a foundation of support for survivors at Norwich University. Through a combination of advocacy training, peer-to-peer support and educational

**WNUB (radio station) (SI)**

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.

**War Whoop (SI)**

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

## Corp of Cadets & ROTC

### Corps of Cadets

For almost 200 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 to the extent allowed by the ROTC unit, is an integral part of the Corps leadership experience. For their first two years in the Corps, cadets must enroll in either Army, Naval or Air Force ROTC to maintain membership in the Corps. To be eligible to receive a Military College of Vermont (MCV) diploma at graduation, a cadet must successfully complete, or receive credit, for four progressive semesters of ROTC courses; two each, at the 100 & 200 levels and pass the PFT within one year of graduation. Cadets seeking commissions are required to complete a third and fourth year of ROTC and meet all other requirements established by the commissioning service.

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.

### ROTC Requirement

Norwich University's ROTC courses are intended for students who are members of the Corps of Cadets, with the exception of nursing students and civilian students who wish to enroll on a space-available basis.

Student veterans 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 individual's 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.

### Cadets contracted for Commission

The Norwich University Board of Trustees has directed that all members of the Corps, 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.

### Non-contracted Cadets

Non-contracted Cadets are required to complete four semesters of ROTC courses and participate in physical training and military lab to the extent allowed by the ROTC unit. The ROTC courses must be progressive. Students remain responsible for all established degree requirements.

Students transferring into the Corps are required to meet the ROTC requirement for membership in the Corps.

## 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 (Food Service)

Some students call the place they eat a dining hall, some a mess hall--either way, it is a focal point on the campus. The dining hall is open continuously on weekdays from 6:45 a.m. to 8:00 p.m. Brunch and dinner are provided on most Saturdays and Sundays with breakfast, lunch and dinner provided on some select Saturdays.

- The residential dining plan for all rooks and freshmen provides 19 meals a week as well snacks any time the dining hall is open.
- The Corps Freshmen (Rooks) and some of their leaders eat separately on the upper deck of the dining hall. All other students (sophomores, juniors, seniors, corps, civilian, and commuter students on a meal plan) eat together on the main floor.

Sophomores, juniors and seniors residing on campus may choose one of the following meal plan options:

- 19 meals per week as described above
- 15 meals per week and \$100 per semester to use in The Mill, Dunkin' Donuts (<http://www.dunkindonuts.com/dunkindonuts/en.html>) or the library café.
- 12 meals per week and \$200 per semester to use in The Mill, Dunkin' Donuts or the library café.

"The Mill" snack bar offers a wide variety of food and beverages to eat in the Snack Bar or "to go". "The Mill" operates with extended hours during the academic year; hours are posted.

The full Dunkin Donuts menu is offered with extended hours during the academic year; hours are posted.

The Library Café provides a wide variety of beverages, smoothies, salads, wraps and other food to eat in the library or "to go".

## Financial Aid

Norwich students receive funding from a variety of government and institutional programs. In addition to University funded grants and scholarships, students may utilize their eligibility for Federal Student Aid Program funding toward their enrollment costs. Norwich students also receive funding based on their own, or their parent's, military service; or from "outside scholarships" available through local community organizations. Norwich University is an approved institution for programs such as the Federal Pell Grant, Stafford Loan, Perkins Loan, Work Study, and Supplemental Education Opportunity Grant.

All US Citizens and Permanent Residents are encouraged to file the Free Application for Federal Student Aid for each year of enrollment. Information about Federal Student Aid Program eligibility for non-citizens may also be found on the FAFSA website. The majority of aid received by our students is the result of FAFSA filing. The FAFSA may be filed online each year at [fafsa.gov](http://fafsa.gov).

Students are encouraged to review our Applying for Financial Aid and Financial Aid Satisfactory Academic Progress sections for additional information about key eligibility topics.

Students with questions about the financial aid application process or available programs may contact the Student Financial Planning Office for assistance via e-mail at [nufinaid@norwich.edu](mailto:nufinaid@norwich.edu), or by phone at (802) 485-3015.

### Programs for Veterans and Military Service Members

Yellow Ribbon Program: Norwich University is a participating member of the Department of Defense Yellow Ribbon program which helps ensure veteran benefit eligible students receive full consideration for funding.

Students utilizing Post 9/11 Veteran Benefits at the 100% qualification level based on years of service receive a combination of VA and Yellow Ribbon resources at a level that covers 100% of their tuition and fee costs. To learn more about education benefit programs for veterans and the Yellow Ribbon Program, visit the US Veteran's Administration website, [va.gov](http://va.gov).

HEROES Act: The Higher Education Relief Opportunities for Students (HEROES) Act of 2003 (Public Law 108-76) is intended to ensure that service members who are receiving Federal Student Aid Program funding are not adversely affected because of their military status and to minimize the administrative burden placed on such individuals. The HEROES Act provides opportunity for colleges and universities to manage Federal aid program requirements differently for service members, their spouses, and

their dependents if their ability to comply with standard requirements is hindered by their active duty military status. Administrative relief may be provided related to income used for eligibility calculations, required documentation, required signatures, student loan collection activities, Satisfactory Academic Progress expectations and others.

Potentially affected individuals are encouraged to contact the Student Financial Planning Office or their Direct Loan service agent if they feel that their individual or family situation may qualify them for administrative relief based on HEROES Act provisions. Affected individuals include the following as well as their spouses and dependents:

1. Active duty military personnel serving during a war, military operation or national emergency declared by the President.
2. Members of the National Guard performing a qualifying duty (i.e., called to active service by the President or Secretary of Defense for a period of more than 30 consecutive days) during a war, military operation or national emergency declared by the President.
3. People who reside or are employed in an area declared a disaster area by any Federal, State or local official in connection with a national emergency declared by the President.
4. People who suffer economic hardship as a result of a war, military operation, or national emergency declared by the President.

## Applying for Financial Aid

### Merit Scholarships:

All new and transfer students accepted for enrollment in programs offered at the Northfield, Vermont residential campus are considered for Norwich University merit scholarships. Scholarship reviews are based on academic information provided through the Admissions application process. The student must provide scores from the SAT or ACT standardized tests to be considered for our highest award, the Presidential Scholarship. Merit awards are provided to both domestic and international students. Awards are only provided to full-time enrollment students.

For 2016-17, merit awards for new students range from \$10,000 to \$24,000 per year. The awards are renewable for up to 4 years of enrollment as long as the student achieves and maintains the required cumulative Grade Point Average (GPA) for renewal based on their scholarship criteria. Below are the merit scholarship renewal requirements for our most common merit awards. Students are notified of their specific cumulative GPA requirements through the annual award notification process.

- Presidential Scholarship, 3.0
- Dean Scholarship, 2.75
- Recognition Scholarship, 2.25

Merit scholarship renewal is based on review of cumulative GPA at the end of Spring Semester each year. Students who do not meet these criteria receive a warning notice when they are below standard at the time of the review. If the scholarship is suspended based on subsequent term grades, the student is notified and provided the opportunity to file a Petition for Reinstatement of their merit awards. The Petition should describe the reason why the student is not meeting the expected standards and what actions they are taking to improve their academic performance as needed to reach and maintain the required GPA for renewal.

### ROTC Scholarships:

Norwich University students receiving ROTC tuition scholarships are provided room and board funding through our I. D. White Scholarship program. For the 2015-16 award year, students with Army or Navy ROTC scholarships also received 100% coverage of tuition and fees.

Marine Corps ROTC awards are housed within the Navy ROTC category. Air Force ROTC scholarship recipients were provided \$18,000 toward their tuition and fee expenses for the 2015-16 award year from ROTC and additional Norwich University Service Award funding toward their tuition expenses. These award levels are expected to remain the same for the 2016-17 award year.

Students who become eligible for ROTC funding after being notified of their initial merit scholarship and grant eligibility will have their Norwich gift aid funding revised. Students do not retain their merit scholarship in addition to their ROTC, I. D. White, Service Award, and Pell Grant funding.

ROTC Scholarship determinations are made by military service branch ROTC administrators, not the Norwich University Student Financial Planning Office. Students seeking more information about ROTC scholarships or details about how to apply for them may contact their

local armed services recruitment office or one of the service branch ROTC offices located on the Norwich University campus. ROTC award values are also determined by the military service branches and may be changed by the service branches without notice to Norwich University.

Norwich University I. D. White Scholarship funding is not provided toward Study Abroad program participation unless the Study Abroad period is an academic degree attainment requirement.

## Federal, State, and Institutional Grants:

**Domestic Students:** All US Citizens and Permanent Residents are encouraged to file the Free Application for Federal Student Aid (FAFSA) for each year of enrollment at Norwich University. A list of alternative statuses for being considered an "eligible non-citizen" for Federal Student Aid Program purposes may be found online at the FAFSA website, [fafsa.gov](http://fafsa.gov).

In addition to determining eligibility for Federal Student Aid Programs such as the Federal Pell Grant and Stafford Loan, the FAFSA is also used to determine eligibility for need-based grants from the student's state of origin and Norwich University. The FAFSA should be filed for each year of enrollment at Norwich University and the student must be in Good Standing based on financial aid Satisfactory Academic Progress policies to remain eligible.

Citizens and eligible non-citizens who do not file the FAFSA may only be considered for loans that are not need-based, such as the Federal PLUS Loan for parents, the unsubsidized Federal Stafford Loan for students, or non-Federal education loans through private lenders. In these cases the student must provide a signed statement of indicating that they do not intend to file the FAFSA and that they understand they are not eligible for need-based Federal Student Aid Program funding without filing the FAFSA. They must also sign a Federal Statement of Educational Purpose and depending on the desired loan program may be asked to provide documentation to confirm citizenship, Selective Service registration status, or other items that are normally confirmed through FAFSA filing.

**International Students:** International students may also apply for need-based grant funding from Norwich University. Students must file our International Student Financial Aid Application for each year of enrollment and the student must be in Good Standing based on financial aid Satisfactory Academic Progress policies to remain eligible.

**Online Graduate Students:** Students are considered for a variety of gift aid awards based on their application to the graduate programs. "Military Scholarships" of up to \$1,200 per year are available to active duty service personnel. The award total is divide by the number of terms in the students program. "Alumni Scholarships" of up to \$2,500 throughout enrollment are available to Norwich University alumni or their spouses. Recent Norwich graduates are also considered for the "Distinguished Scholarship" program. Students selected by the Program Director may also be awarded the "CISSP Scholarship" of up to \$5,000 throughout enrollment.

Online Graduate Students are also encouraged to file the FAFSA for each year that they would like to be considered for unsubsidized Federal Stafford Loan or Federal GradPLUS Loan eligibility. The Federal Stafford Loan Program may provide up to \$20,500 in loan funding for each year of enrollment, and the GradPLUS Loan is available to help cover additional expenses above the level of funding provided by the Stafford Loan Program.

### Outside Scholarships, Veterans Benefits and Employer Reimbursements:

Receipt of funds in excess of \$5,000 from a source such as "Outside Scholarships", Veterans Benefits, or Employee Reimbursement programs may cause your Norwich University gift awards to be adjusted. The first \$5,000 received will be applied toward any remaining unmet need per FAFSA filing data, and then toward reducing the student's loan or work expectation. In some cases, the outside scholarship may reduce eligibility for need-based "self-help" programs aid such as Federal Subsidized Stafford Loans, Federal Work Study or Federal Perkins Loans as expected by Federal Student Aid Program regulations.

### Federal Subsidized Stafford Loan Limit for First Time Borrowers after July 1, 2013:

For first-time borrowers on or after July 1, 2013, there is a limit on the maximum period of time (measured in academic years) that students can receive Federal Subsidized Stafford Loans. This time limit does not apply to Federal Unsubsidized Stafford or Federal PLUS Loans.

In summary, students may not receive Federal Direct Subsidized Stafford Loans for more than 150 percent of the published length of their current academic program. This is called "maximum eligibility period."

Maximum eligibility period is based on the published length of a program of study according to the University's catalog. For example, students enrolled in a four-year Bachelor's degree program, the maximum period Direct Subsidized Stafford Loans is six years (150% of four years = six years).

Because the maximum eligibility period is based on the length of a student's current program of study, the maximum eligibility period can change if a student changes to a program that has a different length. When students receive Direct Subsidized Stafford Loans and then change to another program, the Direct Subsidized Stafford Loans received for the earlier program will generally count toward the new "maximum eligibility period." For example: Students who begin enrollment in a bachelor degree program and complete three years of study before transferring to an associate's degree program will not be eligible for Subsidized Stafford Loans for the remaining period of enrollment toward the associate's degree because they have already been enrolled for 150% of the time needed to receive an associate's degree (150% of a two year associate's degree time-frame equals three years of enrollment)

For additional details, students and their families are encouraged to review the US Department of Education's Entrance Counseling Addendum and other information available at [www.studentloans.gov](http://www.studentloans.gov) (<http://www.studentloans.gov>).

#### **Award Years:**

For programs offered on-campus and for online undergraduate degree completion programs, the FAFSA award year begins with Fall Semester and runs through the following Summer Semester (ex: Fall 2016 through Summer 2017). For online graduate degree programs, the FAFSA award year begins with Summer Semester and runs through the following Spring Semester (ex: Summer 2016 through Spring 2017).

#### **Financial Aid Census Date:**

The Student Financial Planning Office uses the last day of the Add-Drop period for each term as the financial aid Census Date. This description applies to all academic programs and means that all students' financial aid for each term will be finalized to reflect the level of eligibility based on the number of degree required credits the student is enrolled in at the end of the last day of the add/drop period each term.

Students initially awarded at full time status will have their awards adjusted downward if they are confirmed to be in below full time status (12 semester credits), and students will be reviewed for award increases if they have added the credits needed to become full time, at the end of add/drop period.

Because there are different program-specific academic calendars based on type of NU degree program (undergraduate campus-based, online undergraduate degree-completion, or online graduate degree), students are advised to refer to their program specific academic calendar for the specific add/drop dates for their program of study.

#### **Part-time and Summer Funding:**

Norwich University grants and scholarships are provided to support full time enrollment during the Fall and Spring Semesters of programs offered on-campus. These grants are not provided toward part-time enrollment, Summer Session enrollment, or enrollment in online program classes. Part-time and summer students are encouraged to contact the Student Financial Planning Office to discuss eligibility or student loan funds for part-time or Summer enrollment. Students typically apply for Federal PLUS Loan or non-Federal education loan to help meet part-time and Summer Semester costs.

#### **Study Abroad:**

Students may utilize their Federal Student Aid Program (Pell Grant, Stafford Loans, PLUS Loans, etc.) and State Grant program funding to help pay for Study Abroad experiences that fill either required credits or Free Elective credits for their degree program. Study Abroad programs are typically hosted by colleges and universities located outside of the United States.

Norwich University merit scholarships and need-based grants are only provided toward Study Abroad expenses when the experience is required for the student's degree program. As of July 2016, the only two academic programs are International Studies and Chinese. When Study Abroad is necessary to meet a degree requirement for graduation, the student will retain their institutional merit and need-based funding at a level that reflects a proportionate value of funds based on comparison between the Study Abroad program cost and the cost of attending on campus.

Institutional scholarships and gift aid resources are not provided to students in Study Abroad programs that are not required for degree completion. Optional Study Abroad programs, which only meet Free

Elective credit requirements are only eligible for Federal or State aid funding.

ROTC Scholarship students do not receive the I.D. White Scholarship for room and board unless ROTC funding is also approved for the Study Abroad program.

This policy also applies when students are taking courses via "Study Away" scenarios at colleges and universities located within the United States where the student is taking courses that will transfer back to their Norwich degree program. As of July 2016, there are zero academic programs that require students to "Study Away".

#### **Change of Housing Location:**

When students live on campus they are awarded institutional gift aid at a level that considers the total Cost of Attendance including that the student is being directly billed by the college for room and board.

When students who begin enrollment in on-campus housing move to off-campus housing, institutional gift aid is reduced so that the total of their gift aid awards cover a similar proportion of the student's direct charges when compared to the student's on campus gift aid eligibility. This is because students living off-campus are only billed for tuition and fee expenses.

Only the student's need-based awards from the college are adjusted: students remain eligible for their full merit scholarship funding. Students remain eligible for the same level of Federal Pell Grant and State gift aid whether they are living on campus or off campus.

Similarly, when an off-campus housing student moves to on-campus housing, their awards may be reviewed to determine if the student qualifies for an increase in gift aid funding based on their updated financial need including consideration that they will be billed for room and board charges by the University.

Students interested in learning how a change in housing status will impact their financial aid may contact the Student Financial Planning Office for assistance.

#### **Impact of Disciplinary Procedures on Financial Aid Eligibility:**

Students dismissed or suspended from the college due to Student Honor Code or other disciplinary violations may be permanently suspended from receipt of institutional grants and scholarships. This suspension of institutional aid applies regardless of their ability to be re-admitted to the college and regardless of their eligibility to retain Federal or State financial aid funding after re-admission.

#### **Financial Aid Disbursements:**

Federal, State, and institutional grant funds are automatically credited to student billing accounts at the start of each term after student eligibility and planned enrollment is confirmed. Federal Student Loan Program funds cannot be authorized for disbursement until students have accepted the awards and completed all documentation requirements (examples: Federal Income/Household Verification, Federal Direct Stafford and Federal Perkins Loan Promissory Notes, Direct Loan Entrance Counseling).

Financial aid funding will appear as anticipated aid on the billing statement until funds disburse at the start of each semester. Receiving a Financial Aid Award Letter does not mean that a bill is paid in full. It is students' responsibility to compare their financial aid to their Bursar Office billing account and to understand when additional payment will be needed to clear their balance due.

Students who do not begin enrollment in any classes are not eligible for any financial aid that may have shown as anticipated aid on the billing statement. Students who receive a credit balance refund from their financial aid who subsequently do not begin any of their classes will be required to immediately repay the amount of financial aid received either to Norwich University or to the US Department of Education.

#### **Total Withdrawal From All Classes:**

Students are responsible for initiating full withdraw from the University through the formal withdraw process which is managed through the Center for Student Success (on-campus) or through their Academic Services Adviser (CGCS online graduate and degree-completion).

By following the formal process, students receive the best possible information regarding the impact of withdraw on their enrollment services such as ability to re-enroll and how to renew financial aid eligibility. This also provides the college opportunity to work with the student to identify the best information about the students last date of academic activity. Students who do not officially withdraw are subject to the same impacts as those who follow withdraw procedures and the college works to identify the student's last date of academic activity based on the best available information from the student's instructors.

Students who do not begin attendance in any classes are not eligible for any financial aid for the term. If a student receives a credit balance refund from Federal Student Aid Program funding based on anticipated enrollment and never begins academic activity, the student is responsible to repay the credit balance immediately. If they do not repay immediately, they are reported to the US Department of Education and are not eligible to receive Federal Student Aid funding at any college until the overpayment is resolved with the US Department of Education.

Students who begin attending classes then withdraw from all classes are reviewed to determine whether or not financial aid for the term of withdrawal must be re-calculated based on federal, state, or institutional requirements. This determination is fully separate from the Norwich policy that identifies the amount of tuition or other charges the student is responsible to pay for the term of withdraw. The calculated remaining aid will be applied against the separately calculated balance due after withdraw and in some cases the student may still owe a balance due after the amount of aid they are eligible to retain is subtracted from their final charges.

Students who begin attendance and then fully withdraw from all classes remain eligible for their Federal Student Aid Program grants and loans at a level reflective of the length of time they were enrolled for the term of withdrawal. Once the student has attended over 60% of the term based on total calendar days in the term, no adjustments to Federal Student Aid Program funding are required. For example, a student enrolled for 38% of the term may retain only 38% of the Federal Student Aid Program dollars they received for that same term, but if the same student attends for 75% of the term they are eligible to retain 100% of the financial aid they have received. If funds must be returned to the programs, the student's loan obligations are reduced before any reduction to grant funding takes place.

State grant return criteria varies by state while following the same basic concepts described for the Federal Student Aid Programs. Norwich scholarships and need-based grants are also adjusted to reflect the reduced enrollment time frame. Consideration is made to allow a higher percentage of institutional funding to remain on the student's account when compared to the Federal program remaining percentage. This is done to help reduce any post withdraw balance due and is not a commitment in any manner that the student's balance due will be paid in full by the financial aid programs.

Because the student may remain responsible for a portion of their tuition charges depending on their withdraw date, it is not uncommon for students to owe a remaining balance to the college after all account adjustments have been completed.

Total withdrawal from all courses also impacts student eligibility based on Satisfactory Academic Progress (SAP) considerations. Please review our Financial Aid SAP Policy information for details.

## Financial Aid Satisfactory Academic Progress (SAP) Policy

Federal regulations require schools to have a Satisfactory Academic Progress policy to enforce the statutory requirement that a student must be making satisfactory academic progress toward degree completion to be eligible for Federal Student Aid Program funding. The same measurements are used to determine eligibility for institutional grants and funds received through the student's state, although specific rules may vary by state.

The policies described in this section are effective starting with the 2016-17 award year. For CGCS online graduate students, this began with the June Summer 2016 Semester. For all undergraduate and on-campus graduate students, this begins with the Fall/September 2016 Semester.

The policy is based on cumulative outcomes and includes any periods of enrollment during which the student did not receive aid from the Federal Student Aid Programs. Students applying for aid or receiving aid are subject to the regulations. The Norwich University Financial Aid Satisfactory Academic Progress policy includes the following:

- Qualitative measure – the cumulative grade point average (GPA)
- Quantitative measure of progress – the percentage of degree required attempted credit hours which are completed and a maximum time frame in which a student is expected to complete their program.

The Satisfactory Academic Progress policy at Norwich University has been developed to ensure that the financial aid program at Norwich University adheres to the requirements set forth by federal aid regulations. An assessment of the student academic progress will be made after each term of enrollment.

## Qualitative Measures – Required GPA

Course withdrawals, incomplete courses, and pass/fail graded courses are not counted in the student's grade point average and are not counted in the qualitative measure of the Satisfactory Academic Progress policy.

Incomplete grades will be counted as failed grades for financial aid Satisfactory Academic Progress review purposes after 30 days from the end of each term.

**Undergraduate programs** require the following grade point average to be considered in good standing, based on progression of credits earned by the student.

| Number of Credits Earned | Minimum Cumulative GPA |
|--------------------------|------------------------|
| 0-17                     | 1.6                    |
| 18-34                    | 1.8                    |
| 35+                      | 2.0                    |

**Graduate program** students must achieve and maintain a 2.0 cumulative GPA requirement to remain eligible for Federal Student Aid Program funding. Students may be expected to achieve and maintain a higher cumulative GPA (3.0 in most cases) to be considered eligible for continued enrollment in their academic program. Students who become ineligible for enrollment as a degree seeking student also become ineligible for financial aid funding regardless of cumulative GPA.

## Quantitative Measures

The quantitative measurement of Satisfactory Progress is monitored according to the following guidelines:

- **Maximum Time-frame:** Students are eligible for Federal Student Aid Program funding for maximum time-frame lasting 150% of the normal time needed to complete their program of study. This measurement is based on comparison of the number of credit hours completed in relation to number of credits attempted toward degree requirements. The measurements are not based on calendar dates.
  - General examples: Undergraduate students may receive aid for up to six years of enrollment toward attainment of a four year degree and graduate students may receive aid for up to three years toward attainment of a two year degree.
  - Specific example: Undergraduate students in programs requiring 120 credits to graduate are eligible for aid for up to 180 attempted credits.
- **Pace of Progress:** Students must complete at least 67% of their attempt courses throughout enrollment to sustain a proper "pace of progress" toward degree attainment. This measurement is based on review of both cumulative and term-by-term attempted credit information. This measurement indicates whether or not the student's academic outcome trajectory makes it possible for them to complete their degree requirements prior to attempting 150% of the total credits needed for program degree requirements (also see Maximum Time-frame).
  - Undergraduate students must maintain the 67% "Pace of Progress" throughout enrollment.
  - Graduate students must meet the 67% Pace of Progress after attempting 18 credit hours and they must maintain the 67% Pace of Progress throughout the remainder of enrollment beyond 18 attempted credit hours.
  - Students with Pace of Progress trajectories indicating it is no longer mathematically possible to complete their degree within the 150% maximum time-frame requirement become ineligible financial aid regardless of GPA.
    - Example: For a program requiring 124 credits, the student must complete their program by the time they have attempted 186 credits. If a student in this program has completed only 80 credits of the first 150 attempted, they would no longer be eligible for aid because they have 44 required credits remaining (124 minus 80) but only 36 remaining credits of financial aid eligibility.
- Course withdrawals and incomplete courses are counted in the credit hours attempted, but not credits hours earned.
- Transfer-in credit hours are included in the review of quantitative SAP measurements.
- An Attempted Credit is any credit hour that remains on the student's registration transcript at the end of the add/drop time frame for a term.
- A Completed Credit indicates that the student attended the full term and received a grade other than Incomplete. A Completed Credit can be either a pass/fail grade or an A through F letter grade.

- Pass/Fail graded courses count as attempted and/or completed credits for quantitative measurement purposes.

### When Students Fall Below Standards

Students not meeting the qualitative or quantitative measurements receive information describing how their academic status impacts their eligibility for funding. Here are key terms related to our academic progress policy and procedures.

### Good Standing

To be considered in Good Standing for financial aid SAP, students must be meeting both the qualitative and the quantitative SAP requirements for their academic program. Students who withdraw from all classes during a term of enrollment are not considered to be in Good Standing.

### Warning

After the first semester below standard on either qualitative or quantitative measurements, the student receives a "Warning Letter". The purpose of this letter is to remind the student of Satisfactory Academic Progress requirements and to provide information about the campus-based resources available to help them succeed in the classroom. The student is not required to submit any documentation at this stage. Funds for the next term are disbursed at the standard times.

Students in Good Standing at the end of prior term who withdraw from all classes during a current term of enrollment are placed into SAP Warning status regardless of GPA or Pace of Progress considerations.

### Suspension

A student in Warning status that does not return to Good Standing based on both the cumulative qualitative and quantitative measurements after enrollment in a subsequent term is placed into financial aid SAP Suspension status. This may be due to being below either the cumulative or quantitative measurement at that time. Students in Warning status who withdraw from all courses during their next term of enrollment are placed into SAP Suspension status.

Financial Aid SAP Suspensions are effective immediately. For example, if a student is suspended based on the review at the end of Fall Semester, their financial aid for the next term of enrollment (typically Spring) will not be disbursed.

Students placed into Suspension status are notified of the reason for their suspension. The Suspension letter includes information related to academic progress expectations and describes the process for filing a Petition for Reinstatement if unusual circumstances have impacted the student's ability to succeed in class.

Students in suspended financial aid status are considered to be "self pay" students for any period of enrollment they attend prior to receiving approval of their Petition for Reinstatement.

### Petition for Reinstatement

Students placed into Financial Aid SAP Suspension are encouraged to file a Petition for Reinstatement as soon as possible after being notified of their status.

The Petition form directs the student to provide a signed statement indicating the reasons why they feel they are not meeting Good Standing expectations and what they have done to eliminate the barriers to success. The student must meet with their Academic Adviser or the Academic Achievement Center to discuss their academic support needs: an "adviser signature" is required on the form. The student must also obtain and provide a copy of an updated academic plan which describes the remaining required courses and other academic requirements for their degree.

If the student Petition is approved, the approval is effective immediately. This means that the student will be eligible for funding for the term during which the Petition is approved or for their next term of enrollment if they do not attend the very next term.

Not all Petitions are approved and our policy is to approve no more than two Petitions for any student throughout their enrollment. Students may not receive approvals for multiple Petitions which are based on the same rationale.

### Probationary Period

Students with approved Petitions receive financial aid on a probationary basis. They are provided individual outcome requirements that must be met each term in order to remain eligible for aid until returning fully to Good Standing. Students who do not meet the Probationary Period expectations are re-suspended and may submit an additional Petition for Reinstatement. An example of an individual probationary expectation is that a student may be expected to complete all of their attempted credits and receive at least a 2.0 undergraduate, or 3.0 graduate, GPA for each

semester of enrollment until the student returns to "Good Standing" levels.

### Regaining Eligibility

In addition to Petition for Reinstatement reviews, students may request reinstatement of eligibility when they return fully to Good Standing based on attendance as a self-pay student at Norwich University.

Students demonstrating ability to meet Good Standing expectations through completion of courses taken at another school which are transferable to their Norwich University degree may also request a reinstatement review, even if the student has had two prior Petition approvals as allowed by the SAP policy. These students are also encouraged to discuss their remaining eligibility with Student Financial Planning as it relates to maximum eligibility (150% of program) concepts.

## Honors Program

The mission of the Honors Program is to support an enriched university experience for highly motivated students with demonstrated academic abilities and strong interests in research, service, and leadership.

The University Honors Program is a merit-based, highly selective academic track for outstanding undergraduates, comprising less than 5% of the graduating class. It provides a framework for an advanced education experience encompassing the following core elements:

- Customized opportunities for enhanced academic growth
- One-on-one faculty mentorship over the participant's tenure in the Honors Program
- Individualized hands-on research experience
- Learning community of like-minded motivated peers
- Prestigious Honors designation on the diploma and transcript upon graduation

The Norwich University Honors Program is designed with the understanding that most of our students have very tight curriculum maps and do not have many free electives.

The Honors Program has a two-wave admission model.

- First wave. Entering first year students with a 3.5 secondary school GPA are invited to apply. If they choose to pursue this opportunity, the student must submit an Honors Program application that consists of two letters of recommendation from an educator familiar with the student's academic profile; a resume outlining the student's academic achievements, work experience, and service credentials; and, a response essay to a writing prompt. The Norwich University Honors Council considers the credentials of each applicant and makes acceptance decisions on a case-by-case basis.
- Second wave. Students completing their first semester at Norwich with a 3.2 GPA or higher and showing outstanding academic aptitude may be invited to apply. Nominations are solicited from faculty teaching freshmen courses. Second wave students follow an application process that is similar to that of first wave applicants.

## Housing

On-campus housing offers four residential housing areas which include the Upper Parade Ground, Crawford Hall, Dalrymple and South Halls.

The Upper Parade includes eight Corps of 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 additional members of the Corps of Cadets.

Dalrymple and South Halls house residential civilian students in single and double rooms. Currently, one professional staff member resides in South Hall and oversees all residential civilian students under the supervision of the Director of Residence Life. Each hall is additionally supervised by 9-11 trained upper-class student staff. These residential communities offer a residential programming model, Fitness Centers, laundry and vending, themed lounges, and study rooms.

Norwich currently has approximately 2000 residential beds on campus. All Corps of Cadets and residential civilian students currently have a 4 year on-campus living requirement.

## Information Technology

The Norwich University Information Technology department supports all academic and administrative computing and telecommunications. Information Technology is comprised of the User Support Services

Department, the Telecommunications Department, the Academic Computing Department, the Administrative Computing Department and the Systems and Operations Department.

User Support Services operates a Help desk located at 115 Partridge Hall and a Help desk phone line/email. 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 (both wired and wireless), help desk services, and administrative computing.

Public student computing labs are located in Partridge Hall, Cabot Hall, Kreitzberg Library, Dewey Hall and Webb 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 hall phones on each floor in the dorms, with the ability to make on campus and local calls.

The Academic Computing Department provides training for faculty and other development opportunities in addition to assisting faculty with integrating technology into the curriculum.

## International Center

The International Center, under the leadership of the Assistant Vice President for International Education, is responsible for partnering with a wide range of internal and external stakeholders to advance the comprehensive internationalization of the university through the alignment and integration of policies, programs, and initiatives designed to position the university as more globally oriented and internationally connected. The work of comprehensive internationalization takes place over a broad range of domains, including but not limited to the following:

- Education Abroad
- International Students
- International Scholars
- International Partnerships

### Education (Study) Abroad

The International Center provides a wide range of programs and services related to the design, development, implementation, and evaluation of programs for students seeking, engaged in, or who have returned from overseas programs. Programs are offered at a variety of times through the year, at a variety of costs, and in a variety of disciplines and locations in order to suit the full spectrum of Norwich students. In addition to programs through external partners, the International Center also works with Norwich faculty to develop program offerings that are specifically designed with Norwich students in mind. There are also opportunities for Norwich students to participate as an exchange student through one of the many exchange agreements that the university maintains with institutions abroad.

To participate in a Education Abroad/Study Away program for credit toward an undergraduate degree, students must:

- Have a cumulative grade point average of 2.5 or higher at the time of application
- Demonstrate satisfactory 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 Education Abroad program, International University or a domestic Study Away program
- Be approved for their chosen Education Abroad/Study Away program by their Academic Advisor and the NU International Center
- Visit the International Center or attend a scheduled Education Abroad Information Session presented by the International Center, for the most current application procedures
- ROTC contracted students must make specific arrangements with their ROTC Unit to complete their ROTC requirements to continue their contracted status.

A student who receives approval for Study Abroad/Study Away will be considered as an enrolled full-time Norwich student.

## International Students

The International Center provides a wide range of programs and services related to the full life cycle of an international student, including but not limited to issuance of initial immigration documents, pre-arrival outreach and communications, orientation and ongoing social and cultural programming, immigration advising, and general support services and programs to ensure academic success and retention. The International Center coordinates a comprehensive, multi-day orientation for new international students, helps students maintain their immigration status once they are in the US and at the university, offers a variety of programs and activities, and advises students on everything from adjusting to a new culture to applying for work authorization. The International Center also works closely with academic advisers and student services offices to ensure the success of international students.

## International Scholars

The International Center facilitates the process of bringing international visiting scholars to the university to engage in joint teaching and/or research projects with the faculty. The university regards the presence of international visiting scholars as being of strategic importance to fostering international education and the internationalization of the institution.

## International Partnerships

The International Center works closely with academic and administrative units throughout the university to develop and maintain a wide array of sustainable international partnerships designed to enhance the internationalization of teaching and learning at the university and to facilitate the discovery and sharing of knowledge between Norwich University and the world. These partnerships include, but are not limited to, faculty exchange agreements, student exchange agreements, joint research agreements, joint or dual degree programs, etc.

The International Center is also responsible for ensuring university-wide compliance with a wide range of federal regulations relating to the enrollment and/or employment of international students. Staff members in the International Center who work with international students must be certified by and registered with the US Department of Homeland Security and the US Department of State as Designated School Officials (DSO) and Responsible Officers (ROs).

## Office of Leadership and Student Engagement

### Mission

The Office of Leadership and Student Engagement supports the intellectual, personal, and leadership development of all students. The Office offers skill development opportunities to enhance academic success that prepares students for leadership roles in a diverse, dynamic, and global society. The Office of Leadership and Student Engagement remains committed to promoting and practicing the Norwich University guiding values; infusing these ideals into our programs and relationships with students.

### Leader Development at Norwich

To continue the Norwich tradition of producing the best leaders in the nation, students participate in a leader development program, whether Corps or Civilian. Students are required to have a basic understanding of leadership theory and principles which is accomplished through Leadership 101, and will have additional opportunities to engage in challenging leadership positions throughout their time at Norwich. Students may choose to continue their leadership learning through the Advanced Leadership Seminars. Students who complete the Advanced Leadership Certification are recognized at graduation for their efforts and have the opportunity to apply for membership in Omicron Delta Kappa, the National Leadership Honor Society. The Office of Leadership and Student Experience and the proposed Norwich Leadership and Change Institute, in conjunction with the Norwich Master of Science in Organizational Leadership program, offers the following:

- **Leadership 101 1 credit:** An introductory course required for graduation that is delivered online using the NUoodle digital learning platform and offered by the Master of Science in Organizational Leadership faculty within the College of Graduate and Continuing Studies. The course covers leadership theory and concepts and includes assignments such as leadership theory guided discussion, creating a personal leadership philosophy, and a leadership group project. This course is under development and will be reviewed by the University Curriculum Committee.
- **Ascend Seminar (Personal Mastery):** This seminar required for Advanced Leader Certification consists of four 2-hour blocks

of instruction offered several times each semester. The seminar focuses on understanding of self within the context of social and leadership styles. Topics include Refining your Leadership Philosophy, Personal Accountability, Victim vs. Victor thinking, and MBTI.

- **Peak Seminar (Interpersonal Relationships):** This seminar required for Advanced Leader Certification consists of four 2-hour blocks of instruction offered several times each semester. The seminar focuses on recognizing the diversity of thought processes amongst our peers and how to effectively work with others. Topics include Compass of Leadership, Having Difficult Conversations, Emotional Intelligence and HBDI Learning Styles. Prerequisite: Personal Mastery Seminar.
- **Summit Seminar (Leading Others):** This seminar required for Advanced Leader Certification consists of four 2-hour blocks of instruction offered several times each semester. The seminar focuses on leveraging diversity of thought and social styles to create effective, efficient teams. Topics include Creating Exceptional Teams, Character-based Leadership, Leading Change, and an introduction to the E-portfolio process. Prerequisite: Interpersonal Relationships Seminar.
- **Leadership E-Portfolio:** Students who are applying for the Advanced Leadership Certification will be required to submit a digital Leadership E-portfolio two months prior to their projected graduation. The E-Portfolio is required for the Advanced Leadership Certification whether pursued through the Leadership Seminars or an Alternate Path.
- **Alternate Paths to Certification:** At Norwich there are many ways to gain leader development and experience. Students have the option to submit requests for approval of Alternate Path activities. Significant leadership positions on campus, Active or Reserve military service, sports team leadership positions or programs such as Military Amis serve as good examples of Alternate Paths to an Advanced Leader Certification.

## Library (Kreitzberg) & University Archives

The Kreitzberg Library (<http://academics.norwich.edu/library>) is a full-service academic library, open seven days a week during the fall and spring semesters. 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, two library instruction rooms, wireless internet throughout the building, photocopiers, scanners, and media equipment. A café is located on the main floor.

The library collections include print books, e-books, magazines, e-journals, DVDs, streaming videos, and much more. The library is a selective depository for federal government publications. Professional librarians and 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 accessible both on- and off-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.

Norwich University Archives and Special Collections (<http://archives.norwich.edu>) on the 5th floor of the Kreitzberg Library provides access to the library's rare book collection, as well as written records and photographs documenting the history of Norwich and the accomplishments of its alumni, faculty, staff, and students. All are welcome to access these materials in the reading room on the 5th floor of the Kreitzberg Library.

The library building also houses the Academic Achievement Center and the Counseling and Psychological Services on the fourth floor.

## Sullivan Museum & 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.

## Center for Civic Engagement (Service Learning & Volunteer Opportunities)

### Service-Learning Opportunities

Students are encouraged to explore both credit-bearing and co-curricular service-learning opportunities that are tied to their academic interests and learning objectives. Service-learning allows students to apply what they're learning to the real world, in real time, and with real outcomes that affect the community the students are serving. To learn more about potential projects both within and outside the classroom, contact the CCE Director (see below).

### Volunteer Opportunities and Programs

In keeping with the mission and tradition of Norwich University, students, staff, and faculty engage in a variety of public service activities throughout the entire calendar year. All students and student groups are encouraged to participate in a variety of volunteer opportunities during the week (outside of their academic schedule), weekends and even during holiday breaks. In conjunction with the Student Activities Fair at the beginning of each academic year, a Volunteer Fair is held on campus, which allows the University community to learn more about volunteer activities directly by meeting representatives of local community-based organizations.

Students who wish to volunteer with a local nonprofit organization on a one-time or on-going basis are encouraged to register as an NU volunteer by visiting and creating a profile at <http://getconnected.norwich.edu/> or by visiting the Center for Civic Engagement. Leadership and service projects are local, national and international in scope and consist of work with the elderly, youth, homeless, hungry, and economically disadvantaged. All students are encouraged to become active volunteers as part of their college experience, with the aim of developing graduates who are "ready, not reluctant" to serve their community and nation. Student-led service groups include:

- Norwich University Emergency Medical Services (NUEMS)
- Rotaract (Service Leadership team)
- Buddy Up Youth Mentoring Program
- NU Scouting Association (for all Boy Scout and Girl Scout program participants)
- CASA (Community Against Sexual Aggression) - also referred to as VIPA

Additional Programs offered through the CCE include:

- Financial Literacy workshops and special events, such as the Game of Life budgeting simulation event, geared towards personal financial management skill development
- Volunteer Income Tax Assistance (VITA) training and certification through the Internal Revenue Service
- The Legacy March (a fifty-mile march from Norwich to Northfield, Vermont resulting in raised funds for the Vermont Veterans' Place)
- Civic Scholars Program
- Community-based Work-Study

Annual volunteer events include bi-annual blood and bone marrow registration drives, the Penguin Plunge fundraiser benefiting the VT Special Olympics; the Crop Walk for Hunger; various food, book, clothing and supply drives; and annual clothing re-use programs, to include an end-of-the-year "Trash to Treasure" re-use program for unwanted, quality items donated by students leaving campus. Opportunities to help organizations like the VT Food Bank, Habitat for Humanity, the Northfield Veterans' Place, Vermont Cross Trail, Mayo Health Center, the Boys and Girls Club, and many others take place each week!

Additionally, domestic Alternative Break volunteer trips take place over Thanksgiving and Spring Breaks, while the NU VISIONS Abroad program features international trips during summer vacation. In some instances, academic credit can be arranged in advance for students' participation

in these trips, but this must be initiated by the student and supported by their academic advisor.

Services that the CCE offers:

- Free shuttle-service to and from voting polls
- Volunteer Income Tax Assistance to income-eligible individuals and families
- Volunteer referrals
- Community restitution referrals
- Service-learning curriculum development assistant
- Grant funds for faculty and their students who are engaged in service-learning projects
- Charitable giving assistance through an external fundraising account for student groups wishing to fundraise for a particular cause or organization.

Contact Information:

Office: Center for Civic Engagement, Wise Campus Center, Room 230;  
Phone: 802-485-2644; Email: 4achange@norwich.edu; Find us on Facebook!

## College of Liberal Arts

Dean: Andrea Talentino

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

### Mission:

The mission of the College of Liberal Arts is to provide a comprehensive education that prepares students to think critically and creatively, to value and pursue inquiry, to gain knowledge, and to express themselves effectively in oral, written, and visual forms.

Through its Humanities programs the College seeks to bring students to a sophisticated understanding of the stories, histories, and ideologies that inform our collective and personal identities and perspectives, and of the languages that mediate them. Through its Social Sciences programs the College encourages students to engage and illuminate the complexities of social, cultural, and political interactions, past and present, and to seek empirical answers to the ambiguities of human cognition and behavior. Uniting both, the College asks students to develop cross-disciplinary understandings that recognize the complementarity of scholarly disciplines as they reflect a world of diversity and change.

Through intellectual and professional application, students of the College of Liberal Arts are expected to examine and shape their own conceptions of themselves and their roles within communities beyond Norwich University, and develop the skills of thought and expression critical to any career.

### Accreditations:

The Education Teacher Licensure program--available in secondary and elementary tracks--is accepted for teaching licenses in Vermont and several other New England and Middle Atlantic states where the State of Vermont has interstate licensure agreements.

### 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 troupe, 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. The college also houses the Peace and War Center, which offers opportunities for research, internships, and work with scholars and practitioners in the fields of war and peace.

## School of Justice Studies and Sociology

Director: Stanley Shernock

**Mission:** The School of Justice Studies and Sociology provides its students with a liberal arts education, and prepares them to excel in the fields of criminal justice and applied sociology. This education

emphasizes criminology, criminal law, social justice, and the criminal justice system. It cultivates a local and global commitment to the principles of justice, ethics, and public service.

### Majors and Minors Offered:

The School of Justice Studies and Sociology offers a Bachelor of Arts degree with a major in:

- Criminal Justice

The School of Justice Studies and Sociology offers minors in:

- Criminal Justice
- Sociology
- Computer Crime and Forensics
- Transnational Crime

### Program Certification:

The Criminal Justice program is certified by the Massachusetts Department of Higher Education for the Police Career Incentive Pay Program (PCIPP), established through the Quinn Bill.

## Department of English and Communications

Chair: Kathleen McDonald

### English Mission:

The Norwich English program invites students to become strong writers, readers, and speakers; to explore and analyze language, genre, and form; to understand the structure and history of the English language; and to develop an awareness of individual, ethnic, gender, geographic, and cultural diversity through the study of literature, creative and rhetorical writing, and criticism. Our curriculum engages a range of texts across geographical boundaries, cultures, and traditions and encourages creative and critical thinking. We are committed to opportunities that cultivate freedom of expression, personal and professional fulfillment, intellectual development, collaboration, and social growth. Our course offerings include rhetoric and composition; British, American, and World Literatures; creative writing; public speaking; film; theater; and other media. We also offer minors in English and in writing.

The English program also supports:

- Pegasus Players, one of the oldest campus theatre troupes in the country, founded in 1927
- Sigma Tau Delta, the international English language, literature, and writing honor society
- Norwich University Writers Series, which brings creative writers to campus for readings and classroom visits
- Chameleon Literary Journal, Norwich's student literary and arts magazine in publication since 1961 PoemCampus, a month-long celebration that includes poet visits and student readings on campus
- The Peace and War Center Writers Series, which invites creative writers who explore the experiences of conflict and peace to campus.

### Communications Mission:

To enhance students' writing skills in analytical, practical, and creative writing in the areas of journalism, broadcast writing, advertising, and radio production. To increase students' knowledge of the structure, history, and practices of the field of mass media, as well as provide them with the skills necessary to enter the current employment market in the field. To increase students' awareness and appreciation of the aesthetic aspects of television production, radio production, and journalism. To enhance students' exploration of individual, gender, ethnic, and cultural diversity through the study of contemporary media.

The Department also supports the following:

- The Norwich Guidon, the bi-monthly official student newspaper of Norwich University, has earned thirty national awards since it was first published in 1922.
- WNUB-FM, the student radio station, has been in operation since 1967 when the University was granted a non-commercial educational FCC license.
- Our American Journey, the student-produced documentary series, has won more than 100 regional and national awards since 1989. This includes 12 national first place awards and the 1999 College Emmy award in for "Best Documentary."

### Majors & Minors Offered:

The English & Communication Department offers a Bachelor of Science degree with a major in:

- Communications

- Communications-Digital Media Technology Concentration

The English & Communication Department offers a Bachelor of Arts degree with a major in:

- English

The English & Communication Department offers minors in:

- Communications
- English
- Philosophy
- Writing

Both the English major and the Communications major demand that students write and speak clearly and precisely about historical and contemporary ideas. They provide excellent preparation for many professions and occupations, including law, medicine, teaching, communications, business, government, and military service, as well as excellent preparation for post-graduate study in a variety of fields. In addition to these two majors, the department offers strong minors in English, Writing, Communications, and Philosophy, as well as course work in Music.

## Department of History & Political Science

Chair: Michael Andrew

### Mission:

The Department of History and Political Science provides students with the tools necessary to function as responsible and productive members of their communities. Our graduates work with others and appreciate and respect different opinions and beliefs while also thinking independently and critically. The Department encourages the growth of self-discipline, intellectual ability, critical thinking, and the ability to express ideas with clarity and precision. Recognizing the importance of experiential learning, the Department of History and Political Science encourages its students to explore opportunities to learn outside the classroom.

### Majors Offered:

- History
- Political Science
- International Studies
- Studies in War and Peace

### Minors Offered:

- Asian Studies
- History
- Political Science

Each of these Bachelor of Arts degrees prepares students for a life and career after college by emphasizing skills related to critical thinking, effective written and oral communication, synthesizing and drawing conclusions from disparate data, and information literacy.

Special academic opportunities include working with faculty one-on-one on research projects during the summer, in independent studies during the academic year, and in a two-semester senior Honors program. The faculty in the department also encourage off-campus study, whether in the Washington, D.C. area or in another country.

### Honors in History and Political Science

Students with a grade point average of 3.0 or higher, and who meet all university and departmental curricular requirements, and have grades averaging 3.2 or higher 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 credits 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 Faculty Advisor: Jason Jagemann

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 with a curriculum where 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.

## Department of Modern Languages

Chair: Frances Sikola Chevalier

### Mission:

The Department of Modern Languages identifies as its mission foreign language education for the purposes of fostering an understanding and awareness of the international composition of the global community and of preparing students to serve effectively as US and world citizens and as leaders within that community. Thus conceived our departmental mission supports the University's vision, specifically its declaration that "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 department offers a variety of courses in Chinese, French, German, and Spanish, which are conducted primarily in the language of instruction. I

The faculty seek to impart, as well as produce, knowledge of these languages and the cultures, cultural texts, and literatures created in these languages, as well as those of US Latinos. We strive to pursue our mission by providing the highest quality instruction, supporting study abroad, bringing to the University and local community cultural events that foster appreciation for diverse and rich modes of cultural expression, and pursuing original scholarship by our students and faculty.

In recognition of the unique brand of Norwich as the nation's oldest private military college, we support the initiative of the national armed forces to prepare its future officers with competence in foreign languages, two of which—Chinese and French—are recognized by the Department of Defense as category A immediate investment strategic languages.

New students are required to take the Foreign Language Placement Test before they are enrolled for classes.

**Credit earned in the Department of Modern Languages is sequential. Students may not obtain credit for courses taken at a level lower than that for which they have already demonstrated proficiency. Students may choose to audit a lower-level course but may not receive credit for it.** This also applies to students who have earned previous language credit at Norwich through AP or CLEP, or have transferred in upper-division language courses. They may not enroll in, and earn credit for, lower-level language credits for that same language

### Majors Offered:

- Chinese
- Spanish

### Minors Offered:

- Chinese
- French
- German
- Spanish

## Department of Psychology and Education

Chair: Kevin Fleming

### Mission for Psychology:

The Psychology Program provides the student with 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 pursuing a BA in Psychology 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.

#### Mission for Education:

The BS in Education in Education leads to recommendation for licensure for program completers. The BS in Education requires all students to have a double major. Those choosing Elementary Education may major in mathematics, or the majority of liberal arts and science areas that are offered at Norwich University. Those who choose Secondary Education must major in mathematics.

#### Majors Offered:

Bachelor of Arts degree with majors in:

- Psychology
- Psychology with a Neuroscience concentration

Bachelor of Science degree with a major in:

- Education (Elementary or Secondary)

#### Minors Offered:

- Cross-Cultural Psychology
- Engineering Psychology
- Forensic Psychology
- Political Psychology
- Psychology
- Elementary Education
- Secondary Education

#### Accreditation/Licensure:

The Education Teacher Licensure program--available in secondary and elementary tracks--are accepted for teaching licenses in Vermont and several other New England and Middle Atlantic states where the State of Vermont has interstate licensure agreements.

## College of National Services

Dean: Colonel Robert C. Kuckuk

The College is comprised of the Departments of Army Military Science, Naval Science and Aerospace Science; each having a department chair and staff.

### Corp of Cadets & ROTC Requirements

#### Army Military Science

Professor COL Jeremy B Miller, Army Professor of Military Science; Assistant Professors: LTC Ioannis Kiriazis, MAJ Steve Gagner, MAJ Ethan Orr, CPT William Jones III, CPT Keith Schnell (Dartmouth Liaison Officer); Assistant Military Instructors: SGM Michael Wolff (Detachment Sergeant Major), MSG Philip Heil, MSG Darryl Treadmill, SFC James Close, SFC Robert Gamez, SFC Danny Rodriguez, SSG Rundell Logan, SSG Thomas Walker, SSG Thomas York, Mr. Clifford Mullen, Mr. Cory Ryder, Ms. Julie Craig (Army ROTC Recruiting Operations Officer).

The program of Military Science (MS) attracts, motivates, and prepares selected students to serve as commissioned officers in the U. S. Army total force, either on active duty or on reserve duty with the National Guard or Army Reserve. It provides an appreciation and understanding of the history and future efforts of land power in the defense of the United States. It develops the dynamic leadership required in the 21st century and complements the baccalaureate degree, in the chosen course of study.

The MS Leadership Laboratory is a weekly, two-hour period of practical instruction and an integral part of the Military Science curriculum, enhancing leadership, physical fitness, and military skills training. Outside of the regular curriculum, there are three, Practical Military Training companies offering additional training and development: Mountain and Cold Weather Company develops leader skills and attributes while conducting military mountaineering, cold weather survival, and small unit light infantry tactics. Ranger Company offers further leadership development and training in small unit operations and patrolling. The *Bold Leader Challenge Team* competes each fall at Fort Knox, Kentucky, with other senior military colleges demonstrating military skills. The Norwich Artillery Battery offers additional leadership and development by training on Army artillery equipment. The Battery provides all ceremonial cannon fire support for University events.

The Army ROTC Basic Course provides basic military instruction laying the foundation for the Advance course. Cadets may attend Cadet Initial Training (CIET) held at Fort Knox during Cadet Summer Training (CST). To qualify for enrollment in the Army ROTC Advanced Course, MS III and MS IV, requirement of a minimum academic cumulative 2.0 GPA, established physical requirements, a 2.0 or higher GPA in the Army ROTC Basic Course, and demonstrate leadership potential. The Advanced Course requires completing a thirty-day Cadet Leaders Course (CLC) in the summer, normally following the MS III (junior) year.

Additional training opportunities include Army professional schools (Airborne, Air Assault, Mountain Warfare, etc.), Cultural Understanding Language Proficiency, and Project Global Officer (GO).

To qualify for enrollment in the Army ROTC Advanced Course, MS III and MS IV, requirement of a minimum academic cumulative 2.0 GPA, established physical requirements, a 2.0 or higher GPA in the Army ROTC Basic Course (MS I and MS II), and demonstrate leadership potential. The Advanced Course requires completing a thirty-day Cadet Leaders Course (CLC) in the summer, normally following the MS III (junior) year. In addition to the Military Science courses, Cadets are required to complete a military history course: (HI 235 and HI 236 are the preferred courses, however, the following courses also meet the requirement; HI 214, HI 224, HI 326, HI 329, HI 332, HI 334, HI 338, HI 339, HI 355, HI 372 and HI 373). The Army ROTC program is integrated with the Corps of Cadets. Membership in the Corps of Cadets is required to contract and pursue an Army ROTC commission.

### Naval Science

Professor Col Robert C. Kuckuk (Chair) Dean of National Services, Professor of Naval Science; Assistant Professors: CDR August Trotman, Maj Karl Schlegel, Capt Richard Benning JR., LT Seamus O'Brien, LT Matthew Horner, LT Bryan McKniff.

The mission of the Department of Naval Science at Norwich University is to develop future officers **mentally, morally, and physically**, and to instill in them with the highest ideals of duty, loyalty, and with the core values of Honor, Courage and Commitment in order to commission college graduates as Naval officers who possess a basic professional background, are motivated toward careers in the Naval Service, and have a potential for future development in mind and character so as to assume the highest responsibilities of command, citizenship and government.

The primary goals of the Naval ROTC Program are to provide students:

- A strong sense of personal integrity, honor, and individual responsibility;
- Leadership training enabling them to successfully lead others under stressful and demanding conditions;
- An understanding of the fundamental concepts of naval science and a basic level of military aptitude;
- An academic background allowing them to successfully undertake demanding leadership and managerial positions;
- A high state of physical fitness for personal health and performance.

The Naval Science Leadership Laboratory is a weekly two-hour period conducted during each academic semester. Emphasis is placed on non-academic professional training. 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. Enrollment into Naval Science Laboratory is restricted to students contracted to U.S. Navy and U.S. Marine Corps.

### Air Force Aerospace Science

Professor Col Andrew C. Hird Professor of Aerospace Science (Chair); Assistant Professors: Lt Col Jason Zimmermann, Capt Jason P. Rimmelin, Capt Zachariah Kovarik; and NCOs: TSgt Gary DeDominick; SSgt Crystal Barba, and SSgt John Roy.

The Air Force ROTC program provides professional preparation for future Air Force officers. The AFROTC 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. The GMC deals with the structure, doctrine, and function of the Air Force, communication 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), and an Air Force physical examination, meet academic and physical fitness standards, successfully complete the AFROTC field training program, and be selected by a board of Air Force officers. The first year

of the POC is 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 (field training) between the student's sophomore and junior years.

## College of Professional Schools

Dean: Aron Temkin

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

Across these disciplines students and faculty are engaged in teaching and learning processes that combine strong 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:

The College of Professional Schools is committed to educating students in the tradition of university founder Capt. Alden Partridge. By providing our students the means, motivation, confidence and empathy to engage in the problems of today, we educate disciplined and innovative thinkers inspired to create the industries, systems, processes, machines and structures that solve the challenges of tomorrow.

### Accreditations:

The College includes several accredited programs:

- The School of Nursing offers a BSN degree accredited by the Commission on Collegiate Nursing Education (CCNE).
- The School of Business & Management offers degrees in Management and Accounting accredited by the Accreditation Council for Business Schools and Programs (ACBSP).
- The David Crawford School of Engineering offers degrees in Civil Engineering, Mechanical Engineering, and Electrical and Computer Engineering - accredited by the Engineering Accreditation Commission (EAC) of ABET.
- In the Fall of 2015 Norwich University applied to the Applied Science Accreditation Commission (ASAC) of ABET for review of the Construction Management Program. This application was approved and the formal review will occur in the Fall of 2016.
- The School of Architecture & Art offers a Master of Architecture degree accredited by the National Architecture Accreditation Board (NAAB).

## School of Architecture & Art

Director: Cara Armstrong

### Mission:

The Mission of the School of Architecture and Art is:

- To prepare students to excel in the field of Architecture
- To encourage students to explore the meaning of making and the making of meaning
- To offer many opportunities for experiential, hands-on learning and reflection
- To reinforce students' ability to think creatively and independently
- To reflect the University's ideals to develop citizens with integrity conviction and self-respect
- To help create educated and motivated leaders with a commitment to helping their communities and the citizens of our larger world

### Major, Degree and Minors Offered:

The School of Architecture and Art offers the Bachelor of Science with a major in:

- Architectural Studies

The School of Architecture and Art offers the Master of Architecture degree

The School of Architecture and Art offers minors in:

- Architectural Studies
- Art History
- Art.

### Accreditation:

The bachelor and master degrees in Architecture are accredited by the National Architectural Accrediting Board (NAAB). Architecture is the only NAAB accredited architecture school in northern New England.

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 an accredited professional education. However, the pre-professional degree is not, by itself, recognized as an accredited degree.

Next accreditation visit: 2017.

## School of Business & Management

Director: David Blythe

### Mission:

The School of Business and Management provides 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.

### Majors Offered:

- Management
- Accounting
- Computer Science
- Computer Security and Information Assurance

### Concentrations in Majors:

- The Management major requires one of the following concentrations:
  - Leadership
  - Marketing
  - Financial Economics
  - Computer Information Systems
  - Sports Management
- The Computer Security and Information Assurance major has the following concentrations:
  - Forensics
  - Information Assurance Management

### Minors Offered:

- Accounting
- Business Administration
- Computer Crime & Forensics
- Computer Science
- Economics
- Finance
- Entrepreneurship
- Information Assurance
- Leadership
- Marketing
- Sports Management

The Master of Business Administration (MBA) (<http://catalog.norwich.edu/onlineprogramscatalog/mastersdegrees/programsofstudy/masterofbusinessadministration>) and Master of Science in Information Security and Assurance (MSIA) (<http://catalog.norwich.edu/onlineprogramscatalog/mastersdegrees/programsofstudy/masterofscienceininformationassurance>) are offered through the College of Graduate and Continuing Studies.

#### Accreditation:

Norwich University, through its School of Business and Management, is nationally accredited by the Accreditation Council for Business Schools and Programs (ACBSP) for the offering of the B.S. in Management and B.S. in Accounting. ACBSP promotes continuous improvement and recognizes excellence in the accreditation of business education programs around the world.

### The David Crawford School of Engineering

Director: Stephen Fitzhugh

#### 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.

#### Majors Offered:

- Civil Engineering
- Electrical and Computer Engineering
- Mechanical Engineering
- Construction Management.

#### Minor Offered:

- Engineering Science

The David Crawford School of Engineering offers the Master of Civil Engineering (MCE) (<http://catalog.norwich.edu/onlineprogramscatalog/mastersdegrees/programsofstudy/masterofcivilengineering>) degree through the College of Graduate and Continuing studies.

#### Accreditations:

- The Civil Engineering, Electrical and Computer Engineering, and Mechanical Engineering programs are accredited by the Engineering Accreditation Commission (EAC) of ABET.
- In the Fall of 2015 Norwich University applied to the Applied Science Accreditation Commission (ASAC) of ABET for review of the Construction Management Program. That application was approved and the formal review will occur in the Fall of 2016. ABET, <http://www.abet.org>, 415 N. Charles Street, Baltimore, MD 21201, (410) 342-7700.

### School of Nursing

Director: Paulette Thabault

#### Mission:

The Baccalaureate Nursing Program educates 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.

#### Major Offered:

- Nursing (BSN)

The School of Nursing also a Master of Science in Nursing (MSN) (<http://catalog.norwich.edu/onlineprogramscatalog/mastersdegrees/programsofstudy/masterofscienceinnursing>). The MSN program is offered through the College of Graduate and Continuing Studies.

#### Accreditation:

The BSN Program is accredited by the Commission on Collegiate Nursing Education (CCNE) (<http://www.aacn.nche.edu/ccne-accreditation/accredited-programs>) One Dupont Circle, NW, Suite 530, Washington, DC 20036, (202)-887-8476 and approved by the Vermont State Board of Nursing (<http://vtprofessionals.org/opr1/nurses>), Office

of Professional Regulations, 89 Main Street 3rd Floor, Montpelier, VT 05520-2482, (802) 828-2396.

## 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; Chemistry and Biochemistry; Earth and Environmental Science; Health & Human Performance; Mathematics; and Physics. 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.

#### Accreditations:

- The Physical Education Teacher Licensure program--available in secondary and elementary tracks--is accepted for teaching licenses in Vermont and several other New England and Middle Atlantic states where the State of Vermont has interstate licensure agreements.
- The Athletic Training Program is accredited by The Commission on Accreditation of Athletic Training Education (CAATE).

### Department of Biology

Department Chair: Associate Professor Scott Page

#### Mission:

Biology and Neuroscience 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.

#### Majors Offered:

The Department of Biology offers the Bachelor of Science degree with majors in:

- Biology
- Biology--Pre-Medical/Pre-Dental track
- Neuroscience

#### Minors Offered:

- Biology
- Neuroscience

### Department of Chemistry & Biochemistry

Department Chair: Associate Professor Natalia Blank

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 course as prerequisites. All courses listed on the curriculum map 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 a 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.

#### Mission:

The Department of Chemistry & Biochemistry provides students with an introduction to the scientific methods, the correct and the effective

presentation of data, and develops students' critical thinking skills by allowing the analysis and the interpretation of experimental data.

### **Majors Offered:**

- Chemistry
- Biochemistry

### **Minors Offered:**

- Chemistry

## **Department of Earth & Environmental Sciences**

Department Chair: Charles A. Dana Professor Richard Dunn

The Department of Earth and Environmental Sciences takes full advantage of Norwich University's location in the middle of the Green Mountain State, a location ideally situated for field studies of the natural environment. Our programs are guided by a philosophy that emphasizes "learning by doing," leading to degree programs designed with a focus on experiential learning. Our curricula are presented by faculty who are respected teachers as well as active researchers, most notably in New England, Europe, and the western U.S.

### **Mission:**

- To provide a broad background in the physical sciences, with a strong focus on geology and environmental sciences and its pivotal role in understanding our environment.
- To prepare our graduates enter graduate school for continuing education, or move into the workforce prepared to contribute as leaders addressing the many local and global issues facing society.

### **Majors Offered:**

- Geology
- Environmental Science

### **Minors Offered:**

- Geology

## **Department of Health & Human Performance**

Department Chair: Lecturer James Murdock, ATC

### **Mission:**

The Department of Health & Human Performance prepares students for various healthcare professions through classroom and practical application of knowledge acquired.

### **Majors Offered:**

- Athletic Training
- Exercise Science
- Health Sciences
- Physical Education

### **Minors Offered:**

- Health
- Coaching

### **Accreditation:**

Norwich University, through its Athletic Training program is accredited by the Commission on Accreditation of Athletic Training Education (CAATE).

## **Department of Mathematics**

Department Chair: Professor Robert Poodiack

### **Mission:**

- Prepare mathematics majors for graduate work in mathematics or careers in computer science, engineering, industry, business, actuary science, or teaching;
- Support the curricula in all disciplines, and
- Supply the students with the mathematics courses necessary to qualify for teacher licensure.

### **Majors Offered:**

- Mathematics
- Mathematics-Actuarial Science Concentration
- Mathematics-Education Concentration

## **Department of Physics**

Department Chair: Professor Richard Hyde

Norwich University offers the Bachelor of Science in Physics to students desiring a strong education in the fundamentals of physics. Designed to provide a comprehensive undergraduate education, the program's curriculum includes astronomy, classical physics and quantum physics. Norwich students thrive with experiential learning. The Department therefore emphasizes laboratory work; all physics majors join in one of the on-going research endeavors of the physics faculty. A successful physics major will be prepared for advanced study in a graduate school program or for employment in a research facility of industry or government.

### **Mission:**

- The Department of Physics delivers an excellent academic program for physics majors, as well as high-quality support courses for programs requiring basic physics. To this end, the physics faculty will provide all students with lectures and laboratories that develop the analytical skills required of students for their majors, for successful careers, and for responsible citizenship.

### **Major Offered:**

- Physics

### **Minor Offered:**

- Physics

## **Majors/Minors/Concentrations**

### **Major**

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.

### **Second Major**

To declare a second major, students submit a signed Major/Minor Declaration form (<http://www.norwich.edu/registrar/wp-content/uploads/sites/3/2014/02/declareMajorMinor.pdf>) to the Registrar's Office. The form requires the approval of the current adviser, and Department Chair/Director of the second major as well as the second adviser assigned by the Department Chair/School Director of the second major. The student will follow the catalog year of the primary major.

### **Minor**

Consists of six courses of three or more credits as specified in the catalog. No more than two of the six courses may be transfer courses (from another institution). 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.

To declare a minor, students submit a signed Major/Minor Declaration form to the Registrar's Office. The form requires the approval of the student's adviser, the Department Chair/ School Director of the academic department that offers the minor. Minor requirements will follow the catalog year of the student's primary major. Minors can not be added after a Bachelor's Degree is awarded.

### **Concentration**

Consists of six courses of three or more credits 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. No more than two of the six courses may be transfer courses (from another institution). 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.

To declare a concentration, students submit a signed Major/Minor Declaration form to the Registrar's Office. The form requires the approval of the student's adviser, the Department Chair/School Director of the academic department that offers the concentration. Concentration requirements will follow the catalog year of the student's primary major. Concentrations will not be awarded after a Bachelor's Degree is awarded

## Choice of Major

- Students must meet minimal major course and grade requirements, as determined by the Department Chair/School Director, to be accepted into the desired major.

## Change of Major

To change a major requires students to submit a signed Major/Minor Declaration form to the Registrar's Office. The form requires the approval of the Department Head or School Director, the assignment of the new adviser and the old adviser and include the catalog year that the student will follow.

## Dismissal From a Major or Minor

School Directors/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.

## Majors and Concentrations

- Accounting Major
- Actuarial Mathematics Concentration--Mathematics Major
- Architecture (graduate) Major
- Architectural Studies (undergraduate) Major
- Athletic Training Major
- Biology Major
- Biochemistry Major
- Chemistry & Biochemistry Major
- Chinese Major
- Civil Engineering Major
- Climate Science Concentration--Environmental Science Major
- Communications Major
- Computer Information Systems Concentration--Management Major
- Computer Science Major
- Computer Security & Information Assurance Majors
- Construction Management Major
- Criminal Justice Major
- Digital Media Technology Concentration--Communications Major
- Education Majors (Elementary & Secondary)
- Electrical & Computer Engineering Major
- English Major
- Environmental Science Majors
  - Environmental Biology Concentration--Environmental Science Major
  - Environmental Chemistry Concentration--Environmental Science Major
  - Climate Change
  - Environmental Engineering Concentration--Environmental Science Major
  - Environmental Geology Concentration--Environmental Science Major
  - Green Design
  - Environmental Law & Protection Concentration--Environmental Science Major
  - Environmental Policy & Management Concentration--Environmental Science Major
  - Environmental Writing Concentration--Environmental Science Major
- Exercise Science Major
- Financial Economics Concentration--Management Major
- Forensics Concentration--Computer Security & Information Assurance Major
- Green Design Concentration--Environmental Science Major
- Geology Major
- Health Sciences Major
- History Major

- Information Assurance Management--Computer Security & Information Assurance Major
- International Studies Major
- Leadership Concentration--Management Major
- Management Major
  - Computer Information Systems
  - Financial Economics
  - Leadership
  - Marketing
  - Sports Management
- Marketing Concentration--Management Major
- Mathematics Majors
  - Mathematics
  - Actuarial Mathematics Concentration--Mathematics Major
  - Teacher Education Concentration--Mathematics Major
- Mechanical Engineering Major
- Neuroscience Major
- Nursing Major
- Physical Education--Teacher Education
- Physics Major
- Political Science Major
- Pre-Health Professions Concentrations--Biology Major
- Psychology Major
- Spanish Major
- Sports Management Concentration--Management Major
- Studies in War & Peace Major
- Undeclared
- Writing Concentration--English Major

## Minors

- Accounting
- Architectural Studies
- Art
- Art History
- Asian Studies
- Biology
- Business Administration
- Chemistry
- Chinese
- Coaching
- Communications
- Computer Crime & Forensics
- Computer Science
- Construction Management
- Criminal Justice
- Economics
- Elementary Education
- Engineering Science
- English
- Entrepreneurship
- Finance
- French
- German
- Geology
- Health
- History
- Information Assurance
- Leadership
- Marketing
- Mathematics
- Neuroscience
- Philosophy

- Political Science
- Psychology Minors
  - Cross-Cultural Psychology
  - Engineering Psychology
  - Forensic Psychology
  - Political Psychology
  - Psychology
- Physics
- Secondary Education
- Sociology
- Spanish
- Sports Management
- Transnational Crime
- Writing

## Certificates

A certificate may be awarded for a conference, a course, a seminar, or a designated set of courses or seminars focused on a specific topic or theme which students may study separately from or in addition to their degree requirements. The purpose of certificate study is to give students the opportunity to pursue a subject of interest in a prescribed manner and with specific completion requirements. Completion of the requirements will be recognized by the awarding of a certificate document from the university.

Origination of a certificate offering will occur within an academic unit within a College. Certificates may be constructed from existing and/or newly created courses or seminars.

All credit-bearing and non-credit certificates will meet the following quality standards:

- Subject matter will be appropriate to the Norwich University mission;
- Courses will be led by appropriately credentialed instructors;
- Curriculum will address identified learning goals
- Appropriate review and maintenance of the content will be conducted by the sponsoring academic unit.

## Credit and Non-Credit Certificate Definitions:

### Graduate Certificate

This certificate may be comprised of 6-36 credit hours of graduate credit. Origination and planning will occur within the College. Students enrolled in a graduate certificate program will be classified as non-matriculating graduate students.

### Undergraduate Certificate

This certificate may be comprised of 6-36 hours of undergraduate credit or equivalent number of competency units. Students enrolled in an undergraduate certificate program will be classified as non-matriculating students.

### Certificate of Completion

This zero-credit certificate is awarded for participation in a short-term conference, course, set of courses, seminars or other learning event developed around a specific topic or area of knowledge for which degree credit is not awarded. A certificate of completion requires a minimum of four contact hours of study. Students enrolled in a Certificate of Completion program will be classified as students.

## Accounting

Charles A. Dana Professor Michael Puddicombe; Associate Professor Thomas Yandow; Assistant Professor Alex Chung.

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 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.

### Goals:

Build a solid foundation of accounting concepts, skills, and practical applications to prepare yourself for a wide array of professional opportunities.

This major provides students with the ability to:

- Demonstrate fundamental accounting principles and procedures,
- Employ technology tools related to the area of accounting,
- Analyze alternatives to complex accounting problems,
- Utilize and integrate accounting information in business decision-making.

## Certificate Approval and Maintenance

- Certificates must be approved by the University Curriculum Committee (UCC) and become effective for the next catalog. Students who wish to meet the revised requirements must declare the catalog under which the revised certificate requirements were approved.
- Credit-bearing or competency-based certificate offerings are reviewed and approved by the sponsoring academic unit (program/department/school), the unit's Chair, Director and/or the College Dean, College Curriculum Committee and the University Curriculum Committee and are applicable under the next catalog.
- Non-credit earning certificates will be reviewed and approved by the sponsoring academic unit (program/department/school), the unit's chair/director/manager, the College Curriculum Committee, and the College Dean and are applicable under the next catalog.
- Certificate curriculum/content will be reviewed annually for rigor and relevancy. Any changes made will be reviewed by the appropriate academic unit and approved by the sponsoring academic unit, the unit's chair/director/manager, the College Curriculum Committee, and the College Dean and the University Curriculum Committee and are applicable under the next CGCS catalog.

## Admission, Enrollment and Completion

- The CGCS Program Director/Manager or on-campus College Dean or designee makes all admissions decisions.
- Admission into a certificate program does not guarantee admission into a Norwich University degree program.
- All courses/seminars required for a certificate are taken at Norwich University; transfer credit is not permitted.
- For credit-earning courses/seminars that comprise certificates, the normal grade and/or GPA requirements are in effect for the level of credit the certificate carries:
  - 2.0 cumulative GPA and D- or higher grades for undergraduate students
  - 3.0 cumulative GPA and C or higher grades for graduate students
- Credits earned as part of a certificate may be applied in whole, or in part, to a Norwich University degree program (subject to minimum grade and/or GPA requirements as listed above). The Program Director/Manager/Chair of the relevant program approves/denies all requests for credit.
- Certificates cannot be attached to a previously awarded degree.
- Students may not be awarded a Certificate and a Major Concentration in the same specialization.
- Upon completion of all requirements the certificate will be posted to the student's official transcript using the last day of the session/term in which the certificate requirements were completed.

## Certificate Discontinuation

An academic unit may request the College Curriculum Committee, the College Dean and the University Curriculum Committee to approve elimination of a certificate program if:

- There have been no certificates issued in a three-year period
- The originating academic unit recommends

**Outcomes:**

- Able to prepare and interpret a set of general-purpose financial statements.
- Understand the external audit process including planning, risk assessment, evidence, audit procedures, and reporting, as well its inherent limitations, all within the context of ethical behavior and legal liability.
- Able to prepare a comprehensive and complex personal income tax return using appropriate software.
- Possess an integrated understanding of the other major areas of business: management, economics, finance, marketing, etc.

**Careers for this Major:**

Accountants seeking to become CPAs are employed in public accounting (CPA firms) as :

- auditors
- tax preparers and planners
- 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

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. State and local government units have 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 2016-2017 Catalog**

Print PDF Curriculum Map

| <b>Freshman</b>  |  |            |
|--|--|------------|
| <b>Fall</b>  | <b>Cr. Spring</b>  | <b>Cr.</b> |
| CS 120 Business Applications & Problem Solving Techniques                              | 3 EC 106 The Structure and Operation of the World Economy (General Education Social Science) | 3          |
| EN 101 Composition and Literature I  | 3 EN 102 Composition and Literature II   | 3          |
| MA 107 Precalculus Mathematics   | 4 EN 112 Public Speaking   | 3          |
| MG 101 Introduction to Business  | 3 General Education Lab Science  | 4          |
|  | MA 108 Applied Calculus (General Education Math)   | 4          |
| Semester Total Credits   | 13 Semester Total Credits  | 17         |
| <b>Sophomore</b>   |  |            |
| <b>Fall</b>  | <b>Cr. Spring</b>  | <b>Cr.</b> |
| AC 205 Principles of Accounting-Financial <sup>3</sup>                                 | 4 AC 206 Principles of Accounting-Managerial <sup>3</sup>                                    | 4          |
| EC 202 Principles of Economics (Micro) (General Education Social Science) <sup>3</sup> | 3 EC 201 Principles of Economics (Macro) <sup>3</sup>  | 3          |
| General Education Lab Science  | 4 EN 204 Professional and Technical Writing  | 3          |
| General Education History  | 3 QM 213 Business and Economic Statistics I  | 3          |
| MA 212 Finite Mathematics (General Education Math)                                     | 3 MG 309 Management of Organizations   | 3          |
| Semester Total Credits   | 17 Semester Total Credits  | 16         |
| <b>Junior</b>  |  |            |
| <b>Fall</b>  | <b>Cr. Spring</b>  | <b>Cr.</b> |
| AC 335 Intermediate Accounting I   | 3 AC 336 Intermediate Accounting II  | 3          |
| CS 300 Management Information Systems  | 3 AC 441 Cost Accounting   | 3          |
| FN 311 Corporate Finance   | 3 EC 310 Money and Banking   | 3          |
| MG 310 Production/Operations Management  | 3 General Education Arts & Humanities  | 3          |
| MG 314 Marketing Management  | 3 PH 322 Business Ethics (General Education Ethics)  | 3          |
| Semester Total Credits   | 15 Semester Total Credits  | 15         |
| <b>Senior</b>  |  |            |
| <b>Fall</b>  | <b>Cr. Spring</b>  | <b>Cr.</b> |
| AC 442 Advanced Accounting   | 4 AC 419 Taxation I  | 3          |
| MG 319 International Dimensions of Business  | 3 AC 428 Auditing  | 3          |
| MG 341 Business Law I  | 3 MG 346 Business Law II   | 3          |
| General Education Literature   | MG 449 Administrative Policy and Strategy (Capstone)   | 3          |
| Free Elective  | 3 Free Elective  | 3          |
| Semester Total Credits   | 13 Semester Total Credits  | 15         |
| Total Credits For This Major: 121  |  |            |

<sup>1</sup> Must be taken first year. Upper level students without credit for these courses will substitute with an Elective Course from a School of Business & Management subject area. This must be done via a petition.

<sup>2</sup> **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 higher is required in MA 103 prior to taking MA 107. If required MA 103 will be counted as one of the Elective Courses.

<sup>3</sup> AC 205, AC 206, EC 201, EC 202 require a grade of C or higher.

**Accounting Minor Curriculum Map 2016-2017 Catalog**

Students seeking a minor in Accounting must obtain the approval of the School Director and must complete all of the six courses listed below, each with a grade of C or higher.

|   |                                     |            |
|---|-------------------------------------|------------|
| 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          |
| <b>Any two of the following courses (but not both MG 341 and FN 311):</b> |                                     | <b>6-7</b> |
| 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 Cr.

20-21

## Architectural Studies (undergraduate)

Charles A. Dana Professor David Woolf; Professors Arthur Schaller and Aron Temkin; Associate Professors Wendy Cox, Eleanor D'Aponte, Michael Hoffman, Matthew Lutz, and Danny Sagan; Assistant Professors Timothy Parker and Tolya Stonorov; Lecturer Cara Armstrong; Instruction Specialist Angelo Arnold.

Architecture is the art and science of the built environment: buildings, groups of buildings, communities, and their surroundings. As a profession, it is an art, science, and business with careers available in private firms, government, theater and film, industrial corporations, manufacturing, design, planning, public and private institutions, academia, and in architectural research.

The School of Architecture + Art is one of the smallest programs of its kind in the country, fostering a natural and effective mentoring relationship between faculty and students. Courses take a balanced approach to both the art and science of architecture and we embrace environmental sustainability as part of Vermont's ethos.

A Bachelor's Degree in Architectural Studies is a four-year pre-professional program that prepares students for a one-and-a-half-year Master of Architecture program (accredited by the National Architectural Accrediting Board) offered at Norwich. It is an introduction to the profession, where students learn vital technical, artistic, design, and communication skills.

The architecture major will study in a studio environment that encourages creativity, critical thinking, independent learning, and the exploration of ideas through hands-on making. The studio environment in some ways resembles a large architectural office with 10 to 15 students assigned to one faculty member. The small size encourages both the exchange of ideas and intense effort. Studio encourages personal responsibility, teamwork, a sense of community, and a commitment to working on real-world problems. The integration of design-build studios as well as close collaboration between our technical courses and design studios creates an education deeply rooted in practical solutions and technical invention. The architecture major will also have the opportunity to spend a semester at Norwich University's CityLab: Berlin.

In our unique Design: Build architecture studios, students collaboratively conceptualize, plan and make a habitable structure that benefits the community. Projects have included a town library, a house for Habitat for Humanity, an outdoor high-school classroom, a mobile energy research laboratory, and a solar house.

A bachelor's degree offers students the chance to pursue a minor in other areas, including studio art, construction management, business, leadership, and art history.

### Mission:

We offer our students the education necessary for the practice of architecture and art in their fullest sense: to design, make, and build in a way that embodies cultural meaning, employs technology wisely, and contributes to social and environmental justice. To this end, we seek to instill in students the core values of comprehensive knowledge, holistic awareness, continual innovation, active cooperation, and ethical responsibility through a balanced curriculum comprising observation, analysis, exploration, iteration, and synthesis, grappling throughout with abstract as well as concrete material, intellectual as well as hands-on experience.

We endeavor to contribute to the making of meaning and the meaning of making.

### Goals:

Graduates of the Architecture Program will:

- Be respected and recognized for technical competence in the creation of solutions that balance sustainability, resiliency, societal and economic issues.
- Become successful architects with a range of capabilities including residential design, small and large institutional project design, civic projects and urban planning projects.
- Help their communities by advocating and implementing good design principles at a broad range of scales.
- Communicate to both technical and non-technical audiences.
- Actively engage in continuing education throughout life.
- Be recognized for their leadership skills and their abilities to work with all people.

### Outcomes:

Architecture majors will:

- Gain a way of thinking, rooted in the iterative, test-and-learn approach to creativity and innovation.
- Learn to utilize techniques, skills, conventions, and modern digital and hand tools and techniques necessary for professional practice.
- Understand structural systems, heating and cooling systems, circulation systems, building systems, etc.
- Practice resilient and sustainable design.
- Learn materials and methods for construction.
- Prepare and deliver construction documents.
- Be trained in the ethics of the profession and learn to make ethical decisions.

- Function as a member of a multidisciplinary team and be able to assume leadership roles on the team.
- Understand and begin the process of architectural internship, training and registration necessary for the profession as well as the expectation for lifelong learning.

### Careers for this Major:

- Private architectural firms
- Commercial, industrial, and retail design
- Facilities management
- Real estate and development
- Engineering
- Sales and manufacturing
- Government
- Industrial corporations
- Public and private institutions
- Academia

### Accreditation:

Combined, the bachelor and master programs form a five-year professional degree accredited by the National Architectural Accrediting Board (NAAB), [www.naab.org](http://www.naab.org) (<http://www.naab.org>), 1101 Connecticut Ave NW #410, Washington, DC 20036, phone, 202-783-2007.

### B.S. in Architectural Studies - Curriculum Map 2016-2017 Catalog

Print PDF Curriculum Map

| Freshman   |     |  |     |
|--|-----|--|-----|
| Fall   | Cr. | Spring   | Cr. |
| AP 111 Fundamentals of Architecture                              | 4   | AP 118 Fundamentals of Architecture II                                     | 4   |
| EN 101 Composition and Literature I                              | 3   | EN 102 Composition and Literature II                                       | 3   |
| HI 107 The History of Civilization I (General Education History) | 3   | HI 108 The History of Civilization II                                      | 3   |
| MA 107 Precalculus Mathematics (General Education Math)          | 4   | SA 104 Introduction to Visual Design (General Education Arts & Humanities) | 3   |
| SA 103 Introduction to Drawing                                   | 3   | MA 220 Geometry in Action (General Education Math)                         | 3   |
| Semester Total Credits   | 17  | Semester Total Credits   | 16  |
| Sophomore  |     |  |     |
| Fall   | Cr. | Spring   | Cr. |
| AP 211 Architectural Design I                                    | 5   | AP 212 Architectural Design II   | 5   |
| AP 225 Introduction to Passive Environmental Systems             | 3   | AP 325 Materials, Construction, and Design                                 | 3   |
| FA 201 History/Theory of Architecture I                          | 3   | FA 202 History/Theory of Architecture II                                   | 3   |
| PS 201 General Physics I (General Education Lab Science)         | 4   | General Education Lab Science  | 4   |
| General Education Literature                                     | 3   | General Education Social Science   | 3   |
| Semester Total Credits   | 18  | Semester Total Credits   | 18  |
| Junior   |     |  |     |
| Fall   | Cr. | Spring   | Cr. |
| AP 221 Site Development and Design                               | 3   | AP 222 Human Issues in Design  | 3   |
| AP 311 Architectural Design III                                  | 5   | AP 312 Architectural Design IV   | 5   |
| 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 Architecture III                        | 3   | FA 309 History/Theory of Architecture IV                                   | 3   |
| Semester Total Credits   | 18  | Semester Total Credits   | 18  |
| Senior   |     |  |     |
| Fall   | Cr. | Spring   | Cr. |
| AP 411 Architectural Design V                                    | 5   | AP 412 Architectural Design VI (Capstone)                                  | 5   |
| Free Elective  | 3   | AP 436 Project Delivery and Documentation (General Education Ethics)       | 4   |
| Free Elective  | 3   | AP Elective (may substitute required course for a minor)                   | 3   |
| Free Elective  | 3   | Free Elective  | 3   |
| AP Elective (may substitute required course for a minor)         | 3   | Free Elective  | 3   |
| Semester Total Credits   | 17  | Semester Total Credits   | 18  |
| Total Credits For This Major: 140                                |     |  |     |

### Architectural Studies Minor Curriculum Map 2016-2017 Catalog

- The minor in Architectural Studies is for students in other majors who are interested in studying the use and design of space for human work and habitation.
- A minor in Architectural Studies requires 18 credit hours, involving four designated courses and at least three others.
- All courses require a grade of C or higher.

|             |                                   |   |
|-------------|-----------------------------------|---|
| 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 |
| AP Elective |                                   | 3 |
| AP Elective |                                   | 3 |

## Architecture (graduate)

Charles A. Dana Professor David Woolf; Professors Arthur Schaller and Aron Temkin; Associate Professors Wendy Cox, Eleanor D'Aponte, Michael Hoffman, Matthew Lutz, and Danny Sagan; Assistant Professors Timothy Parker and Tolya Stonorov; Lecturer Cara Armstrong; Instruction Specialist Angelo Arnold.

The School of Architecture + Art 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 who are 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).

The Master of Architecture (MArch) degree program builds on a student's undergraduate experience and builds the foundation for a career as a professional architect. This is a one-and-a-half-year program consisting of a summer internship, one academic year of graduate-level seminars and an individual, custom-designed thesis experience designed around a topic of the student's choosing.

Between the fourth and fifth years, students work as an intern in an architecture office (or in a design-related firm). Coursework is completed using distance-learning techniques, which not only permit students to work where they wish, but encourages them to master digital communications technology, important to architectural practice.

The Master of Architecture degree is a first professional degree and is required for licensure.

### Admission Requirements:

Application to the M.Arch program is normally made between the 7th and 8th semesters of the BS/AS degree program. Students who are enrolled in the BS/AS at Norwich, may apply to the M.Arch program at any time after their 7th semester. If they chose to graduate with the BS/AS and leave the university, they may apply to the program at a future date.

Graduates from other colleges are not accepted into the fifth year of this program, nor is admission for students who graduate with a Norwich bachelor's degree in architecture automatic.

Admission to the M.Arch program is based upon:

- minimum Norwich cumulative GPA of 2.50
- minimum GPA of 2.75 in all design studio courses: AP 111, AP 118, AP 211, AP 212, AP 311, AP 312, AP 411, AP 412
- Submission of a portfolio, conforming to the criteria in effect at the time of application, for review and approval by the architecture graduate admissions committee.

Students are provisionally accepted until they meet the graduation requirements for the BS/AS degree. Accepted students may defer their start of coursework for one year. Beyond the one year deferral, they must reapply. Reapplications will be evaluated under the admission criteria in effect at the time of reapplication.

### Mission

To build on the experience of the Bachelor's curriculum, the Master's degree in Architecture 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).

### Goals:

Graduates of the Architecture Program will:

- Be respected and recognized for technical competence in the creation of solutions that balance sustainability, resiliency, societal and economic issues.
- Become successful architects with a range of capabilities including residential design, small and large institutional project design, civic projects and urban planning projects.
- Help their communities by advocating and implementing good design principles at a broad range of scales Communicate to both technical and non-technical audiences.
- Actively engage in continuing education throughout life.
- Be recognized for their leadership skills and their abilities to work with all people.

### Outcomes:

Master's of Architecture majors will:

- Gain a way of thinking, rooted in the iterative, test-and-learn approach to creativity and innovation.
- Learn to utilize techniques, skills, conventions, and modern digital and hand tools and techniques necessary for professional practice.
- Understand structural systems, heating and cooling systems, circulation systems, building systems, etc.
- Practice resilient and sustainable design.
- Learn materials and methods for construction.
- Prepare and deliver construction documents.
- Be trained in the ethics of the profession and learn to make ethical decisions.
- Function as a member of a multidisciplinary team and be able to assume leadership roles on the team.
- Understand and begin the process of architectural internship, training and registration necessary for the profession as well as the expectation for lifelong learning.

### Careers for this Major:

- Private architectural firms
- Commercial, industrial, and retail design
- Facilities management

- Real estate and development
- Engineering
- Sales and manufacturing
- Government
- Industrial corporations
- Public and private institutions
- Academia

### Accreditation:

Combined, the bachelor and master programs form a five-year professional degree accredited by the National Architectural Accrediting Board (NAAB), [www.naab.org](http://www.naab.org) (<http://www.naab.org>), 1101 Connecticut Ave NW #410, Washington, DC 20036, phone, 202-783-2007.

## Master of Architecture - Curriculum Map 2016-2017 Catalog

|                              |                               |    |
|------------------------------|-------------------------------|----|
| <b>Summer</b>                |                               | 6  |
| AP 531                       | Architectural Internship      | 6  |
| <b>Fall</b>                  |                               | 14 |
| AP 525                       | Architectural Thesis Research | 5  |
| AP 5XX Architecture Elective |                               | 3  |
| AP 5XX Architecture Elective |                               | 3  |
| AP 558                       | Global Issues in Architecture | 3  |
| <b>Spring</b>                |                               | 14 |
| AP 526                       | Architectural Thesis          | 5  |
| AP 533                       | Professional Practice         | 3  |
| AP 5XX Architecture Elective |                               | 3  |
| AP 5XX Architecture Elective |                               | 3  |
| Total Cr.                    |                               | 34 |

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

## Art History

Associate Professor Wendy Cox, Assistant Professor Timothy Parker, and Lecturer Cara Armstrong.

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 the subject matter.

Courses in the Fine Arts (FA) explore the history of art, including 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 that affect the discipline. All FA courses may be used towards fulfilling the Arts & Humanities General Education

### Art History Minor Curriculum Map 2016-2017

All courses must be completed with a grade of C or higher.

Select one of the following two courses:

|                          |   |    |
|--------------------------|---|----|
| FA 201                   | History/Theory of Architecture I                  | 3  |
| or FA 221                | History of Visual Arts I: Prehistoric to 1350     |    |
| FA 222                   | History of Visual Arts II: 1350 to the Modern Era | 3  |
| FA 250                   | Topics in Art <sup>1</sup>                        | 3  |
| FA 250 <sup>1</sup>      |   | 3  |
| FA Elective <sup>3</sup> |   | 3  |
| SA 103                   | Introduction to Drawing                           | 3  |
| or SA 104                | Introduction to Visual Design                     |    |
| Total Cr.                |   | 18 |

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

<sup>3</sup> 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

Professor Arthur Schaller, Associate Professor Galligan-Baldwin, Lecturer Cara Armstrong

Norwich students in all disciplines have the opportunity to broaden their college experience by earning a minor degree in art. A Studio Art Minor helps students develop their own creative skills and understanding of art in the studio.

### Goals:

1. Cultivate and extend an understanding and appreciation of art.
2. Assess the meaning and significance of the art to personal lives.
3. Offer a profound testimony to meaning and significance of the arts in a variety of ways:
  - Illuminate the ideas, values, beliefs, manners, and customs of an age

- Inform how artists interpret and understand the visible world in which they live
- Alert to moral and ethical perspectives which condition the artist's choice and treatment of subject matter.

### Art Minor Curriculum Map 2016-2017 Catalog

|                             |   |    |
|-----------------------------|---|----|
| FA 260                      | Art Appreciation                                  | 3  |
| or FA 222                   | History of Visual Arts II: 1350 to the Modern Era |    |
| FA Elective                 |   | 3  |
| SA Elective (200-300 level) |   | 3  |
| SA Elective                 |   | 3  |
| SA Elective                 |   | 3  |
| SA Elective                 |   | 3  |
| Total Cr.                   |   | 18 |

## Asian Studies

Before beginning their Asian Studies minor, students are strongly encouraged to take one or more language courses in their Asian region of choice (at Norwich, at least one full semester of Beginning Chinese). Asian Studies are by nature interdisciplinary studies of non-Western culture(s). Language study is important to understanding different cultures as English in almost all cases is not the predominant spoken nor written language and the majority of written and archival materials on Asia are not available in English.

### Asian Studies Minor Curriculum Map 2016-2017 Catalog

The Asian Studies minor requires a minimum of 18 credits (6 courses) divided among three area studies components. Students must complete one (1) Introductory Asian Studies course, three (3) Cultural and Historical Studies courses and two (2) Political, Economic and Sociological Studies courses as listed below.

- Students majoring in History, International Studies, Political Science or Studies in War & Peace, may use no more than two courses to apply to this minor and their major.
- Students majoring Political Science or International Studies must complete both PO 202 and PO 215; all other majors must complete either PO 202 or PO 215 as a prerequisite to enrolling in a 300 level political science course.
- Students who major or minor in Chinese may take only one (1) Chinese language class to satisfy the three (3) course requirement for the Cultural and Historical Studies category.
- No more than two of the six courses may be transfer courses.

### Introductory Asian Studies Courses (choose 1)

|        |                                 |   |
|--------|---------------------------------|---|
| HI 211 | Early East Asian Civilizations  | 3 |
| HI 212 | Modern East Asian Civilizations | 3 |

### Cultural And Historical Studies (choose 3)

|        |                         |   |
|--------|-------------------------|---|
| CN 205 | Intermediate Chinese I  | 3 |
| CN 206 | Intermediate Chinese II | 3 |

OR

|        |                     |   |
|--------|---------------------|---|
| CN 301 | Advanced Chinese I  | 3 |
| CN 302 | Advanced Chinese II | 3 |

OR

|        |   |   |
|--------|---|---|
| CN 321 | Chinese Literature, Culture and Society I 1911-1949     | 3 |
| CN 322 | Chinese Literature, Culture and Society II 1949-Present | 3 |

|        |                              |   |
|--------|------------------------------|---|
| FA 250 | Topics in Art (Asian Topics) | 3 |
|--------|------------------------------|---|

|        |              |   |
|--------|--------------|---|
| HI 315 | Modern China | 3 |
|--------|--------------|---|

|        |              |   |
|--------|--------------|---|
| HI 317 | Modern Japan | 3 |
|--------|--------------|---|

|        |                               |   |
|--------|-------------------------------|---|
| HI 319 | Colloquium in Chinese History | 3 |
|--------|-------------------------------|---|

|        |  |   |
|--------|--|---|
| HI 362 | Topics in Pre Modern History ( Asian topics) | 3 |
|--------|--|---|

|        |   |   |
|--------|---|---|
| HI 363 | Topics in Non-Western History (including Ethnic History in China, China's Military Systems and History, Imperial Rome and China, and Samurai Japan) | 3 |
|--------|---|---|

|        |                 |   |
|--------|-----------------|---|
| HI 371 | Nation-Building | 3 |
|--------|-----------------|---|

### Political, Economic, and Sociological Studies (choose 2)

|        |                                 |   |
|--------|---------------------------------|---|
| IN 350 | Topics in International Studies | 3 |
|--------|---------------------------------|---|

|        |   |   |
|--------|---|---|
| PO 301 | Special Topics in International Relations (Asian Studies) | 3 |
|--------|---|---|

|        |                                       |   |
|--------|---------------------------------------|---|
| PO 320 | Topics in Area Studies (Asian topics) | 3 |
|--------|---------------------------------------|---|

|        |                |   |
|--------|----------------|---|
| PO 348 | Asian Politics | 3 |
|--------|----------------|---|

|        |                                    |   |
|--------|------------------------------------|---|
| SO 300 | Topics in Sociology (Asian topics) | 3 |
|--------|------------------------------------|---|

|           |  |    |
|-----------|--|----|
| Total Cr. |  | 18 |
|-----------|--|----|

## Athletic Training

Program Director James Murdock, ATC ; Clinical Coordinator Jennie Kruger, ATC; Lecturer Gregory A. Jancaitis, ATC; and Lecturer Justin P. Zabroski, ATC

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 gain 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 physically active populations. Educational content is based on cognitive (knowledge), psycho-motor (skills), and clinical proficiencies (professional, practice-oriented outcomes). The Athletic Training Education Program (ATEP) incorporates hands-on experience in various professional

settings. The Athletic Training Education Program (NU-ATEP) is accredited by the Commission on the Accreditation of Athletic Training Education (CAATE). Graduates are eligible to sit for the National Athletic Trainers' Association (NATA) Board of Certification (BOC) examination.

### Goals:

- Develop competent athletic training students, by preparing them for the Board of Certification (BOC) examination and a successful future as athletic trainers.
- Provide high quality education to athletic training students to prepare them to pursue graduate education in athletic training,
- Foster a professional work ethic and responsibility in athletic training students.
- Encourage athletic training students to take responsibility for and value their education.
- Encourage students to utilize their didactic knowledge and incorporate it appropriately into their skills for clinical education experiences.
- Encourage student use of technology in the classroom and clinical education experiences.
- Provide students with an understanding of the value research plays in the growth of the athletic training profession.

### Outcomes:

The measurement of the NUATEP is passing the National Athletic Trainers Board of Certification National Examination.

### Careers for this Major:

The following areas are opportunities where Certified Athletic Trainers are being employed.

- Colleges & Universities
- Hospital & Clinical Settings
- Occupational Health
- Military
- Performing Arts
- Physician Extender
- Professional Sports
- Public Safety
- Secondary Schools

### B.S. in Athletic Training - Curriculum Map 2016-2017 Catalog

Print PDF Curriculum Map

- Students may declare as an Athletic Training Freshmen Fall Semester, but they must apply for entrance into the professional phase of the Athletic Training Education Program (ATEP) during the Freshmen Spring Semester.
- By the Freshmen Spring Semester, students must have completed, or be enrolled in and achieved a minimum of a C grade in the following courses: BI 215, BI 216, SM 136 SM 138, SM 139, SM 220.
- Students not meeting the minimum criteria (classes and grades) will need to correct any deficiencies before being considered for entrance into the professional phase of the Athletic Training Education Program (ATEP). Athletic Training students (ATS) must adhere to the policies and procedures of the Athletic Training Education Program (ATEP) and of clinical sites.

| Freshman  |  |     |
|---|--|-----|
| Fall  | Cr. Spring   | Cr. |
| EN 101 Composition and Literature I   | 3 EN 102 Composition and Literature II                                     | 3   |
| BI 215 Human Anatomy & Physiology I * C   | 4 BI 216 Human Anatomy & Physiology II * C                                 | 4   |
| MA 232 Elementary Statistics (General Education Math)                           | 3 SM 139 Health Science Research Methods * C                               | 2   |
| SM 136 Emergency Care, Injury/Illness * C                                       | 3 General Education History  | 3   |
| SM 138 Introduction to Sports Medicine * C                                      | 3 SM 220 Care and Prevention of Athletic Injuries * C                      | 4   |
| Semester Total Credits  | 16 Semester Total Credits  | 16  |
| Sophomore   |  |     |
| Fall  | Cr. Spring   | Cr. |
| General Education Arts and Humanities   | 3 CH 101 Introduction to General Chemistry (General Education Lab Science) | 4   |
| General Education Literature  | 3 PE 260 Personal and Community Health *                                   | 3   |
| MA 235 Clinical Mathematical Methods  | 3 SM 201 Clinical Education in Athletic Training II *                      | 2   |
| PY 211 Introduction to Psychology   | 3 SM 230 Fundamentals of Evidence-Based Practice *                         | 2   |
| SM 200 Clinical Education in Athletic Training I *                              | 1 SM 232 Lower Extremity Injuries *  | 3   |
| SM 214 Clinical Anatomy *   | 3  |     |
| Semester Total Credits  | 16 Semester Total Credits  | 14  |
| Junior  |  |     |
| Fall  | Cr. Spring   | Cr. |
| CH 102 Introduction to Organic and Biochemistry (General Education Lab Science) | 4 PE 371 Physiology of Exercise *  | 4   |
| SM 233 Upper Extremity Injuries *   | 3 SM 231 Management of Spine and Pelvic Conditions *                       | 3   |
| SM 300 Clinical Education in Athletic Training III *                            | 4 SM 301 Clinical Education in Athletic Training IV *                      | 4   |
| SM 420 Therapeutic Modalities *   | 4 SM 422 Therapeutic Exercise *  | 4   |
| Semester Total Credits  | 15 Semester Total Credits  | 15  |
| Senior  |  |     |
| Fall  | Cr. Spring   | Cr. |
| SM 210 Assessment of Injury and Illness *                                       | 4 BI 253 Foods and Nutrition *   | 4   |
| SM 400 Clinical Education in Athletic Training V *                              | 4 SM 401 Clinical Education in Athletic Training VI *                      | 4   |
| SM 439 Leadership & Management in Sports Medicine (General Education Ethics) *  | 3 SM 451 Capstone Experience II *  | 1   |

|                                       |       |                                   |       |
|---------------------------------------|-------|-----------------------------------|-------|
| SM 450 Capstone Experience I *        | 1     | SM 460 Emerging Practice Skills * | 3     |
| Free Elective                         | 3 - 4 | Free Elective                     | 3-4   |
| Semester Total Credits                | 15-16 | Semester Total Credits            | 15-16 |
| Total Credits For This Major: 122-124 |       |                                   |       |

C By the Freshmen Spring Semester, students must have completed, or be enrolled.

\* Course must be passed with a grade of C or higher before progressing in the program.

## Biology

Professors Lauren Howard and Karen Hinkle; Associate Professor Scott Page (Chair), Assistant Professors Megan Doczi, Allison Neal and Simon Parish; Lecturers Virginia Kunkel and Kylie Cowens

A core curriculum of science, mathematics and English courses ensures development of appropriate analytical and communication skills. Rounding out the major, four free biology electives and seven free electives allow students to design their program to meet specific career goals and develop one or more minors and/or double majors. A special Pre-medical Committee oversees students on a Pre-medical/Pre-dental track and assists in the placement of these graduates.

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.

### Mission:

Biology and Neuroscience 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.

### Goals:

- Prepare students for admission into graduate, medical, optometry, dentistry, and veterinary medical schools as well as entry into the workforce in various biology-related fields.

### Outcomes:

- Graduates understand and have broad knowledge of the biological or neurological sciences including, but not limited to, the botany, zoology, microbiological and other laboratory-based sciences, as well as ecology and other field sciences.
- Graduates are prepared for successful employment in a profession in the field of biology or neuroscience, or for graduate or professional school.

### Careers for these Majors:

- Graduate School: Medical, Optometry, Dentistry, Veterinary Medicine
- Environmental Science
- Biotechnology
- Healthcare
- Education
- Research and Development

### B. S. in Biology – Curriculum Map 2016-2017 Catalog

[Print PDF Curriculum Map](#)

| Freshman   |     |   |       |
|--|-----|---|-------|
| Fall   | Cr. | Spring  | Cr.   |
| BI 101 Principles of Biology I (General Education Lab Science)       | 4   | BI 102 Principles of Biology II (General Education Lab Science)               | 4     |
| 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 (General Education Math)              | 4   | MA 108 Applied Calculus or 232 Elementary Statistics (General Education Math) | 3-4   |
| Semester Total Credits   | 15  | Semester Total Credits  | 14-15 |
| Sophomore  |     |   |       |
| Fall   | Cr. | Spring  | Cr.   |
| BI 202 Genetics  | 4   | BI 306 Cell Biology   | 4     |
| BI 203 Introduction to Scientific Method & Bioscientific Terminology | 1   | CH 226 Organic Chemistry II   | 4     |
| CH 225 Organic Chemistry I   | 4   | EN 202 World Literature II  | 3     |
| EN 201 World Literature I (General Education Literature)             | 3   | Free Elective   | 3     |
| Free Elective  | 3   |   |       |
| Semester Total Credits   | 15  | Semester Total Credits  | 14    |
| Junior   |     |   |       |
| Fall   | Cr. | Spring  | Cr.   |
| BI Elective  | 4   | BI Elective   | 4     |
| General Education History  | 3   | General Education Arts & Humanities   | 3     |
| PS 201 General Physics I   | 4   | PS 202 General Physics II   | 4     |
| Free Elective  | 3   | PH 303 Survey of Ethics or 323 Environmental Ethics (OR)                      | 3     |
| Free Elective  | 3   | PH 350 Medical Ethics (General Education Ethics)                              |       |
|  |     | Free Elective   | 3     |
| Semester Total Credits   | 17  | Semester Total Credits  | 17    |
| Senior   |     |   |       |
| Fall   | Cr. | Spring  | Cr.   |
| BI Elective  | 4   | BI Elective   | 4     |
| BI 405 Ecology   | 4   | BI 402 Evolution  | 4     |
| BI 401 Senior Seminar (Capstone)                                     | 3   | General Education Social Science  | 3     |

|                                       |    |                        |    |
|---------------------------------------|----|------------------------|----|
| Free Elective                         | 3  | Free Elective          | 3  |
| Semester Total Credits                | 14 | Semester Total Credits | 14 |
| Total Credits For This Major: 120-121 |    |                        |    |

### Biology Minor Curriculum Map 2016-2017 Catalog

Must earn a C or higher in all courses.

|                                   |                          |       |
|-----------------------------------|--------------------------|-------|
| BI 101                            | Principles of Biology I  | 4     |
| BI 102                            | Principles of Biology II | 4     |
| BI Elective (200 level or higher) |                          | 3-4   |
| BI Elective (200 level or higher) |                          | 4     |
| BI Elective (200 level or higher) |                          | 4     |
| Bi Elective (200 level or higher) |                          | 4     |
| Total Cr.                         |                          | 23-24 |

<sup>1</sup> PE 365, PE 371, or CH 324 may be substituted for one BI Elective (200 level or higher) course.

## Business Administration

Charles A. Dana Professor Michael Puddicombe; Professors Bill Jolley, Mich Kabay and Mehdi Mohaghegh; Associate Professors David Blythe, Jeremy Hansen, and Thomas Yandow; Assistant Professor Alex Chung; Lecturers Matthew Bovee, Stephen Pomeroy, and Kris Rowley.

A Business Administration minor will come to understand the relationships between marketing, quantitative theory, accounting, economic principles, and financial, human, and organizational management.

### Business Administration Minor Curriculum Map 2016-2017 Catalog

- Students with any major except Accounting or Management may pursue a minor in Business Administration.
- Students seeking a minor in Business Administration must obtain the approval of the School's Director.
- All 6 courses require a grade of C or higher.

|   |  |     |
|---|--|-----|
| AC 205                                      | Principles of Accounting-Financial                 | 4   |
| EC 201                                      | Principles of Economics (Macro)                    | 3   |
| EC 202                                      | Principles of Economics (Micro)                    | 3   |
| MG 309                                      | Management of Organizations                        | 3   |
| MG 314                                      | Marketing Management                               | 3   |
| <b>Choose one of the following courses:</b> |  | 3-4 |
| AC 206                                      | Principles of Accounting-Managerial                | 4   |
| EC 106                                      | The Structure and Operation of the World Economy   | 3   |
| FN 311                                      | Corporate Finance                                  | 3   |
| CS 120                                      | Business Applications & Problem Solving Techniques | 3   |
| MG 101                                      | Introduction to Business                           | 3   |
| MG 319                                      | International Dimensions of Business               | 3   |
| MG 351                                      | Organizational Behavior                            | 3   |
| MG 408                                      | Human Resources Management                         | 3   |

Total Cr. 19-20

## Chemistry & Biochemistry

### *Shinquin Program in Chemistry and Biochemistry*

Professors Joseph Byrne, Mary Hoppe, and Michael McGinnis; Associate Professors Joseph Rizzolo, Natalia Blank (Chair), and Seth Frisbie; Assistant Professor Ethan Guth; Lecturers Richard Milius, Amy Hoeltge, and Anthony Rutkowski

### Majors:

- Bachelor of Science in Chemistry
- Bachelor of Science in Biochemistry (fulfills all pre-medical and pre-dental required courses)

### Mission:

Within the mission of Norwich University and the College of Science and Mathematics, the mission of the Chemistry and Biochemistry Department is to offer laboratory-intensive courses that provide an understanding of the chemical and biochemical aspects of the physical environment and to prepare students majoring in the discipline for careers in chemistry and biochemistry related fields as well as for further educational opportunities.

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.

### Goals:

- Graduates will have a good understanding and broad knowledge of chemistry in all five areas of the discipline: analytical, biochemistry, inorganic, organic, and physical.
- Graduates will be capable of performing independently and competently in the laboratory.
- Graduates will be prepared for successful employment in a profession employing chemistry and will be prepared for graduate or professional school.

### Outcomes:

- Chemistry and biochemistry majors will complete the ETS standardized chemistry major field exam and score on average in the 50<sup>th</sup> percentile or above.

- Chemistry and biochemistry majors will develop the ability to read the primary literature; to follow procedures found in the literature; to perform a variety of modern laboratory techniques and produce quality results, and to communicate results orally and in writing.
- Ninety percent of graduates who wish to pursue graduate or professional education will be accepted into programs; 100% of graduates desiring employment or commissioning directly from the undergraduate programs will be employed or commissioned within six months of graduation.

### Careers for these Majors:

A degree in chemistry or biochemistry serves as an excellent foundation for careers both in and out of science. It can be of particular benefit to students interested in pursuing any of the following careers:

- Agricultural Chemist
- Air Pollution Monitor
- Assayer
- Bio-Analyst
- Biochemist
- Biologist
- Biomedical Engineer
- Biostatistician
- Brewmaster
- Clinical Chemist
- Crime Lab Assistant
- Dentist
- DNA Analyst
- Doctor
- Teacher
- Epidemiologist
- Food and Drug Inspector
- Food Chemist
- Food Safety Auditor
- Food Scientist
- Forensic Chemist
- Laboratory Manager
- Medical Laboratory Technologist
- Patent Agent
- Pest Control Technician
- Petroleum Chemist
- Pharmaceutical Chemist
- Pharmacist
- Pharmacologist
- Quality Control Specialist
- Regulatory Affairs Specialist
- Research Assistant
- Sales Representative
- Science Advisor
- Toxicologist
- University Professor
- Water Purification Chemist
- Water Quality Analyst

### B.S. in Biochemistry Curriculum Map 2016-2017 Catalog

[Print PDF Curriculum Map](#)

| Freshman  |       |  |     |
|---|-------|--|-----|
| Fall  | Cr.   | Spring   | Cr. |
| CH 103 General Chemistry I (General Education Lab Science)            | 4     | CH 104 General Chemistry II (General Education Lab Science)            | 4   |
| MA 107 Precalculus Mathematics <sup>1</sup>                           | 4-3   | MA 121 Calculus I (General Education Math)                             | 4   |
| EN 101 Composition and Literature I                                   | 3     | EN 102 Composition and Literature II                                   | 3   |
| BI 101 Principles of Biology I  | 4     | BI 102 Principles of Biology II  | 4   |
| Semester Total Credits  | 15-14 | Semester Total Credits   | 15  |
| Sophomore   |       |  |     |
| Fall  | Cr.   | Spring   | Cr. |
| CH 225 Organic Chemistry I  | 4     | CH 226 Organic Chemistry II  | 4   |
| PS 201 General Physics I <sup>2</sup>                                 | 4     | PS 202 General Physics II <sup>2</sup>                                 | 4   |
| BI 202 Genetics   | 4     | MA 122 Calculus II (General Education Math)                            | 4   |
| EN 201 World Literature I (General Education Literature) <sup>3</sup> | 3     | EN 202 World Literature II (General Education Literature) <sup>3</sup> | 3   |
| CH 214 Communication in Chemistry (or in 3rd year)                    | 1-0   |  |     |
| Semester Total Credits  | 16-15 | Semester Total Credits   | 15  |

| Junior   |       |  |       |
|--|-------|--|-------|
| Fall   | Cr.   | Spring   | Cr.   |
| CH 204 Quantitative Analysis (or Free Elective)    | 4     | CH 314 Instrumental Methods (or Free Elective)           | 3     |
| CH 214 Communication in Chemistry (or in 2nd year) | 0-1   | CH 315 Analysis Laboratory (taken with CH 314)           | 1-0   |
| CH 327 Physical Chemistry I (or Free Elective)     | 3     | CH 328 Physical Chemistry II (or Free Elective)          | 3     |
| CH 324 Biochemistry I                              | 4     | BI 306 Cell Biology (or CH 325 Biochemistry II)          | 4     |
| History (General Education)                        | 3     | Social Science (General Education)                       | 3     |
| Free Elective (or BI 304 Physiology)               | 3     |  |       |
| Semester Total Credits                             | 17-18 | Semester Total Credits                                   | 14-13 |
| Senior   |       |  |       |
| Fall   | Cr.   | Spring   | Cr.   |
| CH 413 Chemistry Seminar (Capstone)                | 1     | CH 422 Chemical Synthesis and Examination II (Capstone)  | 3     |
| BI 304 Physiology (or Free Elective)               | 4-3   | CH 325 Biochemistry II or BI 306 Cell Biology            | 4     |
| Arts & Humanities (General Education)              | 3     | Free Elective (or CH 314 / CH 315 Instrumental Analysis) | 3-4   |
| PH Ethics (General Education)                      | 3     | Free Elective (or CH 328 Physical Chemistry II)          | 3     |
| Free Elective (or CH 204 Quantitative Analysis)    | 3-4   |  |       |
| Free Elective (or CH 327 Physical Chemistry I)     | 3     |  |       |
| Semester Total Credits                             | 17    | Semester Total Credits                                   | 13-14 |
| Total Credits For This Major: 122-121              |       |  |       |

1 MA 107 can be substituted with a Free Elective credit if Math Placement Test places a student into MA 121

2 PS 211 - PS 212 may be substituted for PS 201 - PS 202

3 EN 112 or EN 204 may be substituted for one semester of EN 201 - EN 202.

### B.S. in Chemistry - Curriculum Map 2016-2017 Catalog

Print PDF Curriculum Map

| Freshman   |       |   |       |
|--|-------|---|-------|
| Fall   | Cr.   | Spring  | Cr.   |
| CH 103 General Chemistry I (General Education Lab Science)   | 4     | CH 104 General Chemistry II (General Education Lab Science)   | 4     |
| MA 121 Calculus I (General Education Math)   | 4     | MA 122 Calculus II (General Education Math)   | 4     |
| EN 101 Composition and Literature I  | 3     | EN 102 Composition and Literature II  | 3     |
| Arts and Humanities (General Education)  | 3     | MA 241 Mathematical Computation and Modeling <sup>1</sup>   | 3     |
| Semester Total Credits   | 14    | Semester Total Credits  | 14    |
| Sophomore  |       |   |       |
| Fall   | Cr.   | Spring  | Cr.   |
| CH 225 Organic Chemistry I or 327 Physical Chemistry I (and CH 337 Physical Chemistry Laboratory I) <sup>4</sup> | 4     | CH 226 Organic Chemistry II or 328 Physical Chemistry II (and CH 338 Physical Chemistry Laboratory II) <sup>4</sup> | 4     |
| EN 201 World Literature I (General Education Literature) <sup>2</sup>  | 3     | EN 202 World Literature II (General Education Literature) <sup>2</sup>  | 3     |
| PS 211 University Physics I  | 4     | PS 212 University Physics II  | 4     |
| CH 214 Communication in Chemistry (or in 3rd year) <sup>4</sup>  | 1-0   | MA 224 Differential Equations   | 4     |
| BI 101 Principles of Biology I   | 4     |   |       |
| Semester Total Credits   | 16-15 | Semester Total Credits  | 15    |
| Junior   |       |   |       |
| Fall   | Cr.   | Spring  | Cr.   |
| CH 204 Quantitative Analysis (or CH 324 Biochemistry I)  | 4     | CH 314 Instrumental Methods (or Free Elective)  | 3     |
| CH 214 Communication in Chemistry (or in 2nd year)   | 0-1   | CH 315 Analysis Laboratory (taken with CH 314)  | 1-0   |
| CH 327 Physical Chemistry I (or Math/Science elective)   | 3     | CH 328 Physical Chemistry II (or Free Elective)   | 3     |
| CH 337 Physical Chemistry Laboratory I   | 1-0   | CH 338 Physical Chemistry Laboratory II   | 1-0   |
| Social Science (General education)   | 3     | Math/ Science elective (or CH 438 Advanced Inorganic)   | 3     |
| History (General Education)  | 3     | PH Ethics (General Education)   | 3     |
| Free Elective  | 3     | Free Elective   | 3     |
| Semester Total Credits   | 17    | Semester Total Credits  | 17-15 |
| Senior   |       |   |       |
| Fall   | Cr.   | Spring  | Cr.   |
| CH 413 Chemistry Seminar (Capstone)  | 1     | CH 422 Chemical Synthesis and Examination II (Capstone)   | 3     |
| CH 421 Chemical Synthesis and Examination I  | 3     | CH 438 Advanced Inorganic Chemistry (or Math/Science Elective)  | 3     |
| CH 324 Biochemistry I (or CH 204 Quantitative Analysis)  | 4     | Free Elective (or CH 314 / CH315 Instrumental Analysis)   | 3-4   |
| Math/Science elective (or CH 327 / CH 337 Physical Chemistry I)  | 3-4   | Free Elective (or CH 328 / CH 338 Physical Chemistry II)  | 3-4   |
| Free Elective  | 3     | Free Elective   | 3     |
| Semester Total Credits   | 14-15 | Semester Total Credits  | 15-17 |
| Total Credits For This Major: 122  |       |   |       |

1 MA 241 may be substituted for EG 110

2 EN 112 or EN 204 may be substituted for one semester of EN 201 - EN 202.

### Chemistry Minor Curriculum Map 2016-2017 Catalog

This minor is not available to students majoring in Chemistry or Biochemistry.

|                                   |   |
|-----------------------------------|---|
| CH Elective                       | 3 |
| CH Elective                       | 3 |
| CH Elective (200 level or higher) | 3 |
| CH Elective (200 level or higher) | 3 |
| CH Elective (200 level or higher) | 3 |

|                                   |    |
|-----------------------------------|----|
| CH Elective (200 level or higher) | 3  |
| Total Cr.                         | 18 |

## Chinese

Associate Professor Xiaoping Song, Assistant Professor Xingbo Li (Program Director)

The Chinese Program offers a wide range of courses that promote language learning and the development of intercultural competence necessary for communication in Chinese. The curriculum focuses on a balanced development of language and cultural competence across proficiency levels. All students are encouraged to participate in the cultural activities organized by the Chinese Club and to immerse themselves in Chinese culture on and off campus. Chinese majors are required to study abroad for one full semester, normally in the fall of their senior year, in an approved program in China.

All incoming students will take the foreign language placement test before registering for a Chinese course.

### Goals:

Students will communicate in Chinese at an intermediate high or advanced low level fluently and accurately with an appropriate breadth of vocabulary, enhance their understanding of the Chinese culture, and develop their critical thinking skills. The Chinese Program uses the Proficiency Guidelines from the American Council on the Teaching of Foreign Language to achieve the learning goals.

### Outcomes:

Upon graduation, students majoring in Chinese will be able to:

- reach intermediate-high to advanced-low level of proficiency in the areas of listening, speaking, reading, and writing.
- read authentic Chinese writings and recognize approximately 2700 characters and 5000 compounds.
- have a comprehensive understanding of Chinese values and beliefs.
- develop critical skills to analyze Chinese cultural materials.

### Careers for this Major:

- Law Enforcement
- Military Service
- Diplomacy
- Education
- Business
- Social Services
- Health Care
- Politics
- Environmental Science
- Advertising and Mass Media

### B.A. in Chinese - Curriculum Map 2016-2017 Catalog

Print PDF Curriculum Map

| Freshman   |     |   |     |
|--|-----|---|-----|
| Fall   | Cr. | Spring  | Cr. |
| CN 111 Beginning Chinese I (If CN 205 or higher is taken, an additional 3 credit elective must be taken; total credits must be 6) <sup>C</sup> | 6   | CN 112 Beginning Chinese II (If CN 205 or higher is taken, an additional 3 credit elective must be taken; total credits must be 6) <sup>C</sup> | 6   |
| EN 101 Composition and Literature I  | 3   | EN 102 Composition and Literature II  | 3   |
| General Education Math   | 3   | General Education Math  | 3   |
| Free Elective  | 3   | General Education Social Science  | 3   |
| Semester Total Credits   | 15  | Semester Total Credits  | 15  |
| Sophomore  |     |   |     |
| Fall   | Cr. | Spring  | Cr. |
| CN 205 Intermediate Chinese I <sup>C</sup>   | 3   | CN 206 Intermediate Chinese II <sup>C</sup>   | 3   |
| EN 201 World Literature I (B.A. Requirement)   | 3   | EN 202 World Literature II (B.A. Requirement)   | 3   |
| General Education Ethics   | 3   | General Education Lab Science   | 4   |
| General Education Lab Science  | 4   | HI 211 Early East Asian Civilizations or 212 Modern East Asian Civilizations (General Education History (OR))                                   | 3   |
| Free Elective  | 3   | HI 315 Modern China   |     |
|  |     | Free Elective   | 3   |
| Semester Total Credits   | 16  | Semester Total Credits  | 16  |
| Junior   |     |   |     |
| Fall   | Cr. | Spring  | Cr. |
| CN 301 Advanced Chinese I <sup>C</sup>   | 3   | CN 302 Advanced Chinese II <sup>C</sup>   | 3   |
| CN 300 level elective <sup>C</sup>   | 3   | CN 300 level elective <sup>C</sup>  | 3   |
| HI 212 Modern East Asian Civilizations or 211 Early East Asian Civilizations (OR HI 315)   | 3   | B.A. Social Science Elective  | 3   |
| General Education Literature   | 3   | Free Elective   | 3   |
| Free Elective  | 3   | Free Elective   | 3   |
| Semester Total Credits   | 15  | Semester Total Credits  | 15  |
| Senior   |     |   |     |
| Fall   | Cr. | Spring  | Cr. |
| Study Abroad CN 300 Level Electives <sup>1 C</sup>   | 15  | CN 300 level <sup>C</sup>   | 3   |
|  |     | CN 399 Capstone <sup>C</sup>  | 3   |
|  |     | Free Elective   | 3   |
|  |     | Free Elective   | 3   |

|                                   |                           |    |
|-----------------------------------|---------------------------|----|
|                                   | Free Elective             | 3  |
| Semester Total Credits            | 15 Semester Total Credits | 15 |
| Total Credits For This Major: 122 |                           |    |

- 1 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.
- \* Summer study in China, Taiwan, or Middlebury College (6 – 9 credits, depending on placement) is also highly recommended. See the Chinese program director.
- C Courses must be completed with a grade of C or higher

### Chinese Minor Curriculum Map 2016-2017 Catalog

All courses require a grade of C or higher. The courses required to complete the minor depend on the foreign-language proficiency level of the incoming student. See tracks A and B below:

#### A. Track A is to be completed by students who enter Norwich at or below the Intermediate level:

|                             |                         |    |
|-----------------------------|-------------------------|----|
| CN 205                      | Intermediate Chinese I  | 3  |
| CN 206                      | Intermediate Chinese II | 3  |
| CN Elective (250 or higher) |                         | 3  |
| CN Elective (301 or higher) |                         | 3  |
| CN Elective (301 or higher) |                         | 3  |
| CN Elective (301 or higher) |                         | 3  |
| Total Cr.                   |                         | 18 |

#### B. Track B is to be completed by students who place above the Intermediate level.

|                             |   |    |
|-----------------------------|---|----|
| CN Elective (301 or higher) | 3 |    |
| CN Elective (301 or higher) | 3 |    |
| CN Elective (301 or higher) | 3 |    |
| CN Elective (301 or higher) | 3 |    |
| CN Elective (301 or higher) | 3 |    |
| CN Elective (301 or higher) | 3 |    |
| Total Cr.                   |   | 18 |

## Civil Engineering

Charles A. Dana Professor Michael Puddicombe; Professors Thomas Descoteaux and Edwin Schmeckpeper (Chair); Associate Professors Michael Kelley, Jack Patterson and Adam Sevi; Assistant Professors Nadia Al-Aubaidy, Tara Kulkarni, and Moses Tefe.

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.

The Civil & Environmental Engineering field encompasses planning, design, construction and maintenance of structures, which often includes altering the natural geography to meet human needs. Civil Engineers plan, design, construct, and maintain suspension bridges, dams, tunnels, skyscrapers, the Interstate highway system, airports, ports, shopping centers, residential developments, water delivery and purification facilities and irrigation systems. 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 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.

### Mission:

The mission of the Civil Engineering Program is:

- 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.

### Goals:

Graduates of the Civil Engineering Program will:

- Lead project teams in their chosen field of Civil Engineering research, design, construction, or management, progressively rising to positions of technical leadership
- Be respected and recognized for technical competence in the creation of solutions that balance sustainability, societal and economic issues.
- Become active citizens in their profession, community, the nation and the world.
- Communicate to both technical and non-technical audiences.

- Actively engage in continuing education throughout life.

### Outcomes:

Students in the Civil Engineering Program will demonstrate an ability to:

- Apply scientific and fundamental engineering knowledge based upon a strong foundation in advanced mathematics, chemistry, physics, and the engineering sciences.
- Design and conduct hands-on experiments, use appropriate laboratory equipment to develop, analyze and interpret data.
- Design a component system or process in the civil engineering field that meets performance, quality, cost, time, safety, environmental, and sustainable requirements.
- Function as a member of a multidisciplinary team and be able to assume leadership roles on the team.
- Determine into which technical area of civil engineering a project belongs and be able to analyze a project within at least four technical areas.
- Recognize and achieve a high level of professional and ethical conduct in all aspects of engineering work and can analyze a professional dilemma.
- Formulate and deliver effective written and verbal communications of laboratory, analytical and design project work to a variety of audiences.
- Understand and incorporate non-technical considerations into an engineering solution including safety, environmental, social, economic, and global issues.
- Recognize the need for civil engineers to engage in lifelong learning and begin the process by taking the FE examination.
- Be knowledgeable of contemporary issues in civil engineering.
- Utilize techniques, skills and modern engineering tools necessary for civil engineering practice.
- With the knowledge that engineering changes society, civil engineers must understand that they are leaders.

### Careers for this Major:

Graduate from this program manage varying job demands and requirements and are capable of adapting to rapidly changing technology. Graduates are also prepared for further formal study in graduate school where a student can specialize in a civil engineering sub-discipline. Whether working for a private engineering firm, construction firm, government agency, or industry, there are many areas in which civil engineers can focus. A few of the major specialties include:

- Structural (buildings, bridges, tunnels)
- Geotechnical (retaining structures, foundations)
- Water and wastewater (water supply, sewage disposal)
- Hydrology (river control, drainage)
- Transportation (highways, airports, railroads)
- Environmental (hazardous waste, air pollution, water quality)

The American Society of Civil Engineers is the largest professional organization that serves Civil and Environmental Engineers, as well as many other types of engineers in associated fields. To learn more about employment opportunities in Civil and Environmental Engineering, please visit: <http://careers.asce.org>.

### Accreditation:

The Civil Engineering Program is accredited by the Engineering Accreditation Commission (EAC) of ABET, <http://www.abet.org>, 415 N. Charles Street, Baltimore, MD 21201, Telephone: (410) 347-7700.

### B.S. in Civil Engineering - Curriculum Map 2016-2017 Catalog

Print PDF Curriculum Map

| Freshman  |     |  |     |
|---|-----|--|-----|
| Fall  | Cr. | Spring   | Cr. |
| CH 103 General Chemistry I (General Education Lab Science)              | 4   | CH 104 General Chemistry II (General Education Lab Science)            | 4   |
| EG 109 Introduction to Engineering I                                    | 3   | EG 110 Introduction to Engineering II                                  | 3   |
| EN 101 Composition and Literature I                                     | 3   | EN 102 Composition and Literature II                                   | 3   |
| MA 121 Calculus I   | 4   | MA 122 Calculus II (General Education Math)                            | 4   |
|   |     | General Education: History/Literature/Arts & Humanities/Social Science | 3   |
| Semester Total Credits  | 14  | Semester Total Credits   | 17  |
| Sophomore   |     |  |     |
| Fall  | Cr. | Spring   | Cr. |
| CE 211 Surveying  | 3   | CE 214 Site Development and Engineering                                | 4   |
| CE 264 Specifications and Estimating                                    | 1   | EG 202 Engineering Mechanics (Statics,Dynamics)                        | 3   |
| EG 201 Engineering Mechanics (Statics, Dynamics)                        | 3   | EG 206 Thermodynamics I  | 3   |
| MA 223 Calculus III (General Education Math)                            | 4   | MA 224 Differential Equations  | 4   |
| PS 211 University Physics I   | 4   | Science Elective *   | 3   |
| General Education : History/Literature/Arts & Humanities/Social Science | 3   |  |     |
| Semester Total Credits  | 18  | Semester Total Credits   | 17  |
| Junior  |     |  |     |
| Fall  | Cr. | Spring   | Cr. |
| EG 350 Engineering Economics and Decision Analysis                      | 3   | CE 322 Fluid Mechanics Laboratory                                      | 1   |
| CE 321 Materials Laboratory   | 1   | CE 328 Soil Mechanics  | 4   |
| CE 336 Introduction to Transportation Engineering                       | 3   | CE 332 Engineering Hydrology   | 3   |
| CE 421 Environmental Engineering  | 4   | CE 348 Structural Analysis   | 3   |
| EG 301 Mechanics of Materials   | 3   | CE 422 Waste and Water Treatment                                       | 3   |
| EG 303 Fluid Mechanics  | 3   | EN 204 Professional and Technical Writing                              | 3   |
| Semester Total Credits  | 17  | Semester Total Credits   | 17  |

| Senior  |     |  |     |
|---|-----|--|-----|
| Fall  | Cr. | Spring   | Cr. |
| CE 419 Foundation Engineering                         | 3   | CE 444 Reinforced Concrete Design                                      | 3   |
| CE 442 Design of Steel Structures                     | 3   | CE 480 Senior Design (Capstone)  | 3   |
| CE 460 Construction Management                        | 3   | General Education: History/Literature/Arts & Humanities/Social Science | 3   |
| CE 475 Senior Project Planning                        | 1   | General Education: History/Literature/Arts & Humanities/Social Science | 3   |
| EE 315 Electrical Energy Systems                      | 3   | Science Elective*  | 4   |
| EG 044 Conference                                     | 0   |  |     |
| EG 450 Professional Issues (General Education Ethics) | 3   |  |     |
| Semester Total Credits                                | 16  | Semester Total Credits   | 16  |
| Total Credits For This Major: 132                     |     |  |     |

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).

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, BI 102, BI 220, BI 275, BI 405, CH 204, CH 205, CH 327, ES 270, GL 110, GL 111, GL 156, GL 253, GL 255, GL 257, GL 262, GL 265, ID 110, PS 212. Must include at least one science course that is in an area other than chemistry or physics.

## Coaching Minor

### Coaching Minor Curriculum Map 2016-2017 Catalog

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 higher.

|   |  |            |
|---|--|------------|
| PE 161                                      | Physical Fitness & Wellness Assessment                                     | 3          |
| PE 224                                      | Motor Skills Development II  | 3          |
| PE 355                                      | Coaching:Leadership in Sports  | 3          |
| PE 432                                      | Organization and Administration in Physical Education                      | 3          |
| <b>Two courses from the following list:</b> |  | <b>7-8</b> |
| PE 223                                      | Motor Skills Development I   | 3          |
| 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 Cr.

41-43

## Communications

Professors Narain Batra, Kenneth Bush, William Estill

The Communications Program provides a high-level, broad-based bachelor's degree in Communications as well as a minor in Communications. The career-oriented curriculum provides introductory and advanced writing, editing, and production experience in print, digital, and electronic media. The program is committed to freedom of expression, personal and professional fulfillment, intellectual development, and the fostering of ethical understanding and creative growth.

### Goals:

To expand students' knowledge of the structure, history, and practices of the field of mass media, and provide them with the skill set necessary to enter the current employment market.

### Outcomes:

Graduates will demonstrate:

- the knowledge and skills to write a balanced, thorough and incisive news or feature story for the Norwich University community by following established Associated Press style guidelines
- the knowledge and skills necessary for television production.
- understanding of various social media issues and agility with web-based presentations.
- knowledge of legal and ethical responsibilities of media professionals

### Careers for this Major:

- Television Producer
- Journalist
- Videographer
- Editor
- Camera Operator
- Studio Technician

- Teaching
- Communications Law
- Public Affairs
- Corporate Communications

### B.S. in Communications - Curriculum Map 2016-2017 Catalog

Print PDF Curriculum Map

A grade of C or higher is required in EN 101, EN 102, EN 112, and all required CM courses.

| Freshman  |       |   |       |
|---|-------|---|-------|
| Fall  | Cr.   | Spring  | Cr.   |
| CM 109 Introduction to Mass Media   | 3     | CM 271 Television Production or EN 112 Public Speaking                            | 4-3   |
| EN 101 Composition and Literature I   | 3     | General Education Math  | 3     |
| EN 112 Public Speaking or CM 271 Television Production  | 3-4   | EN 102 Composition and Literature II  | 3     |
| General Education Math  | 3     | CM 261 Interpersonal Communications   | 3     |
|   |       | Psychology (PY) Elective  | 3     |
| Semester Total Credits  | 12-13 | Semester Total Credits  | 16-15 |
| Sophomore   |       |   |       |
| Fall  | Cr.   | Spring  | Cr.   |
| CM 211 Broadcasting Techniques  | 3     | CM 208 Journalism II: Advanced News Gathering and Design                          | 3     |
| CM 207 Journalism I: News Gathering   | 3     | AC 205 Principles of Accounting-Financial or MG 101 Introduction to Business (OR) | 4-3   |
| EN 201 World Literature I   | 3     | EC 201 Principles of Economics (Macro)  |       |
| CS Elective (excluding CS 120)  | 3     | CM 351 Radio Production or 491 Media Composer Techniques                          | 3     |
| General Education History   | 3     | EN 202 World Literature II  | 3     |
|   |       | General Education Social Science  | 3     |
| Semester Total Credits  | 15    | Semester Total Credits  | 16-15 |
| Junior  |       |   |       |
| Fall  | Cr.   | Spring  | Cr.   |
| CM 209 Broadcast Writing  | 3     | CM 303 Advertising  | 3     |
| General Education Lab Science   | 4     | Free Elective   | 3     |
| Free Elective   | 3     | General Education Lab Science   | 4     |
| FA or MU or PH or SA (excluding SA 107) Elective General Education Arts & Humanities          | 3     | Psychology (PY) Elective  | 3     |
| Free Elective   | 3     | EN 240 Technical Aspects of Theatrical Design or 241 Acting and Directing (OR)    | 3     |
|   |       | EN 310 The Art of the Motion Picture or 253 Approaches to Shakespeare (OR)        |       |
|   |       | EN 307 The History of the Motion Picture or 308 The Motion Picture Director (OR)  |       |
|   |       | CM 335 Television Criticism or EN 239 Introduction to Theater (OR)                |       |
| Semester Total Credits  | 16    | Semester Total Credits  | 16    |
| Senior  |       |   |       |
| Fall  | Cr.   | Spring  | Cr.   |
| CM 436 Communications Law and Ethics (General Education Ethics)                               | 3     | CM 407 Senior Communications Seminar (Capstone)                                   | 3     |
| CM 391 Advanced Television Production or 392 Documentary Television Production                | 3     | CM 408 Communications Internship  | 3     |
| CM 393 Non-linear Digital Television or 491 Media Composer Techniques                         |       | General Education Literature  | 3     |
| CM 492 Advanced Media Composer Techniques or 494 Advanced Media Composer Effects and Graphics |       | Free Elective   | 3     |
| CM 495 Systems Configuration and Media Data Management or SA 107 Introduction to Photography  |       | Free Elective   | 3     |
| General Education Literature  | 3     |   |       |
| Free Elective   | 3     |   |       |
| Free Elective   | 3     |   |       |
| Semester Total Credits  | 15    | Semester Total Credits  | 15    |
| Total Credits For This Major: 121-120   |       |   |       |

### B.S. in Communications - Digital Media Concentration Curriculum Map 2016-2017 Catalog

Print as PDF Curriculum Map

A grade of C or higher is required in EN 101, EN 102, EN 112, and all required CM courses.

| Freshman  |     |   |       |
|---|-----|---|-------|
| Fall  | Cr. | Spring  | Cr.   |
| CM 109 Introduction to Mass Media                             | 3   | CM 261 Interpersonal Communications or EN 112 Public Speaking                     | 3     |
| EN 101 Composition and Literature I                           | 3   | CM 271 Television Production  | 4     |
| EN 112 Public Speaking or CM 261 Interpersonal Communications | 3   | EN 102 Composition and Literature II  | 3     |
| General Education Math  | 3   | General Education Math  | 3     |
|   |     | Psychology (PY) Elective  | 3     |
| Semester Total Credits  | 12  | Semester Total Credits  | 16    |
| Sophomore   |     |   |       |
| Fall  | Cr. | Spring  | Cr.   |
| CM 207 Journalism I: News Gathering                           | 3   | AC 205 Principles of Accounting-Financial or MG 101 Introduction to Business (OR) | 4-3   |
| CM 211 Broadcasting Techniques                                | 3   | EC 201 Principles of Economics (Macro)  |       |
| CS Elective (excluding CS 120)                                | 3   | CM 208 Journalism II: Advanced News Gathering and Design                          | 3     |
| EN 201 World Literature I                                     | 3   | CM 351 Radio Production or 491 Media Composer Techniques                          | 3     |
| General Education History                                     | 3   | EN 202 World Literature II  | 3     |
|   |     | General Education Social Science  | 3     |
| Semester Total Credits  | 15  | Semester Total Credits  | 16-15 |

| Junior   |     |  |     |
|--|-----|--|-----|
| Fall   | Cr. | Spring   | Cr. |
| CM 209 Broadcast Writing   | 3   | CM 303 Advertising   | 3   |
| CM 391 Advanced Television Production  | 3   | CM 393 Non-linear Digital Television   | 3   |
| CM 392 Documentary Television Production   | 3   | General Education Lab Science  | 4   |
| FA or MU or PH or SA (excluding SA 107) Elective General Education Arts & Humanities | 3   | Psychology (PY) Elective   | 3   |
| General Education Lab Science  | 4   | EN 240 Technical Aspects of Theatrical Design or 241 Acting and Directing (OR)   | 3   |
|  |     | EN 310 The Art of the Motion Picture or 253 Approaches to Shakespeare (OR)       |     |
|  |     | EN 307 The History of the Motion Picture or 308 The Motion Picture Director (OR) |     |
|  |     | CM 335 Television Criticism or EN 239 Introduction to Theater (OR)               |     |
| Semester Total Credits   | 16  | Semester Total Credits   | 16  |
| Senior   |     |  |     |
| Fall   | Cr. | Spring   | Cr. |
| CM 436 Communications Law and Ethics (General Education Ethics)                      | 3   | CM 407 Senior Communications Seminar (Capstone)                                  | 3   |
| General Education Literature   | 3   | CM 408 Communications Internship   | 3   |
| SA 107 Introduction to Photography   | 3   | CM 492 Advanced Media Composer Techniques  | 3   |
| Free Elective  | 3   | General Education Literature   | 3   |
| Free Elective  | 3   | Free Elective  | 3   |
| Semester Total Credits   | 15  | Semester Total Credits   | 15  |
| Total Credits For This Major: 121-120  |     |  |     |

### Communications Minor Curriculum Map 2016-2017 Catalog

All requirements require a grade of C or higher

|                       |                              |    |
|-----------------------|------------------------------|----|
| CM 109                | Introduction to Mass Media   | 3  |
| CM 207                | Journalism I: News Gathering | 3  |
| CM Elective above 208 |                              | 3  |
| CM Elective above 208 |                              | 3  |
| CM elective above 208 |                              | 3  |
| CM Elective above 208 |                              | 3  |
| Total Cr.             |                              | 18 |

## Computer Crime & Forensics

Professor Mich Kabay; Associate Professors David Blythe, Jeremy Hansen and Huw Read; Lecturers Matthew Bovee and Kris Rowley.

Computer crime is a pervasive threat and the organizational demand for individuals capable of providing collaboration and support in dealing with this threat continues to grow. To prepare students from a variety of disciplines with the foundational study for this demand, the Computer Crime and Forensics minor provides a background in criminal justice and digital forensics, as well as computer science, computer programming, and information assurance. Students wishing to pursue the minor must obtain the approval of the School Director and complete each of the required courses with a grade of C or higher.

### Goals:

To develop in students

- An understanding and appreciation of computer-science, computer-security, and information-assurance fundamentals
- Knowledge and basic facility with a high-level programming language
- A foundation of understanding and skills in digital forensics and cyber-investigation
- The foundation for practical work and further study in information assurance, cyber law, and cyber forensics.
- Understanding of the constraints, legal procedures, and multi-jurisdictional nature and scope of digital incidents and the responses to them
- The ability to identify, think critically, analyze, and solve cyber-crime and cyber-law problems

### Outcomes:

Upon graduation successful students will competently demonstrate

- Use of the fundamental concepts and terminology regarding computers, computer security, and information assurance
- Application of the essential cyber crime and digital forensic concepts, techniques and procedures
- Ability to recognize, define and use the technical terminology of information assurance (IA)
- Application of the fundamentals of information assurance in both personal and organizational contexts
- A breadth of knowledge, and the ability to apply it, regarding cyber law and cyber crime, including: identifying and classifying cyber crimes; the motivations of cyber criminals; seizure and handling of computer-related evidence; ; admissibility of digital incident evidence; preparing and delivering professional testimony; and, the key regulations and laws regarding cyber crimes of varying types and jurisdictions
- High ethical, personal and professional standards, especially in regards to information assurance and its impact on individuals, organizations, and society

### Careers for this Minor:

Computers are now common tools used in the commission of ordinary crime, and the frequency, magnitude and scope of cyber crimes have increased dramatically. The Computer Crime & Forensics minor prepares students with the following career paths to better deal with them:

- Attorneys
- Crime Analysts
- Federal, state and local law enforcement
- Federal intelligence agents
- Private security personnel

- Probation and parole officers

### Computer Crime and Forensics Minor Curriculum Map 2016-2017 Catalog

Students must complete all of the six courses listed below, each with a grade of C or higher.

|           |  |    |
|-----------|--|----|
| CJ 301    | Criminal Procedure                                 | 3  |
| CJ 341    | Cyber Law and Cyber Crime <sup>1</sup>             | 3  |
| CS 140    | Programming and Computing <sup>2</sup>             | 4  |
| IA 340    | Introduction to Information Assurance <sup>3</sup> | 3  |
| DF 395    | Cyber Criminalistics <sup>4</sup>                  | 3  |
| CJ 423    | Evidence <sup>5</sup>                              | 3  |
| Total Cr. |  | 19 |

- 1 Cross-listed as IA 241; Prerequisite: CJ 101 or instructor permission  
 2 Prerequisite: C or higher in IS 100 or CS 100, or instructor permission  
 3 Prerequisite: C or higher in IS 131 or CS 140, or instructor permission  
 4 Open to CJ 2nd semester sophomores or higher, or by instructor permission  
 5 Offered every other year. Open only to juniors and seniors. Prerequisites: CJ 101 and CJ 102

## Computer Science

Professor Mich Kabay; Associate Professors David Blythe, Jeremy Hansen, and Huw Read; Lecturers Matthew Bovee and Kris Rowley.

The program focuses on practical 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 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 hardware, 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 to keep the student's individualized program on track throughout their enrollment at Norwich. Committed to strong ties linking 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.

### Goals:

Graduates will be able to:

- Apply their knowledge of computer science to problems encountered in their professional careers or in pursuit of advanced degrees.
- Use evolving technologies, analytical thinking, and design to address contemporary issues.
- Communicate well orally and in writing, interact professionally, and work effectively on multidisciplinary teams to achieve project objectives.
- Uphold high ethical standards, including concern for the impact of computing on individuals, organizations, and society.

### Outcomes:

Upon graduation, students will:

- Be competent in theoretical and mathematical foundations of computer science.
- Be proficient in at least one programming language and have a basic knowledge of at least one other.
- Understand the hardware and software architecture of computer systems.
- Demonstrate the ability to participate in professional practices related to software engineering.
- Be able to communicate effectively about computer science-related topics.
- Demonstrate the ability to be responsible practitioners of computer science and understand the social and ethical implications of computing.

### Careers for this Major:

- Chief Information Officer
- Chief Technical Officer
- Computer Support Specialist
- Information Systems Manager
- Network Administrator
- Software Engineer
- Software Tester
- Systems Administrator

### B.S. in Computer Science - Curriculum Map 2016-2017 Catalog

Print Curriculum Map

| Freshman   |                                    |     |
|--|------------------------------------|-----|
| Fall   | Cr. Spring                         | Cr. |
| CS 100 Foundations of Computer Science and Information Assurance | 3 CS 140 Programming and Computing | 4   |

|   |            |   |            |
|---|------------|---|------------|
| EN 101 Composition and Literature I   | 3          | EN 102 Composition and Literature II  | 3          |
| General Education History   | 3          | MA 121 Calculus I (General Education Math)  | 4          |
| MA 107 Precalculus Mathematics <sup>1</sup>                                       | 4          | General Education Arts & Humanities   | 3          |
|   |            | Free Elective   | 3          |
| Semester Total Credits  | 13         | Semester Total Credits  | 17         |
| <b>Sophomore</b>  |            |   |            |
| <b>Fall</b>   | <b>Cr.</b> | <b>Spring</b>   | <b>Cr.</b> |
| CS 228 Introduction to Data Structures  | 3          | CS 240 Database Management  | 4          |
| EE 215 Fundamentals of Digital Design   | 4          | CS 212 Assembly Language & Reverse Engineering                                      | 3          |
| General Education Lab Science   | 4          | General Education Lab Science   | 4          |
| MA 122 Calculus II (General Education Math)                                       | 4          | QM 213 Business and Economic Statistics I   | 3          |
| Free Elective   | 3          | Free Elective   | 3          |
| Semester Total Credits  | 18         | Semester Total Credits  | 17         |
| <b>Junior</b>   |            |   |            |
| <b>Fall</b>   | <b>Cr.</b> | <b>Spring</b>   | <b>Cr.</b> |
| CS 301 Software Engineering   | 3          | CS 260 Data Communications and Networks   | 3          |
| EE 321 Embedded Systems   | 4          | CS 270 Operating Systems & Parallelism  | 3          |
| MA 306 Discrete Mathematics   | 3          | MA 380 Theory of Computation  | 3          |
| Technical Elective <sup>2</sup>   | 3          | Technical Elective <sup>2</sup>   | 3          |
| Free Elective   | 3          | Free Elective   | 3          |
| Semester Total Credits  | 16         | Semester Total Credits  | 15         |
| <b>Senior</b>   |            |   |            |
| <b>Fall</b>   | <b>Cr.</b> | <b>Spring</b>   | <b>Cr.</b> |
| CS 420 Computer Science capstone I or 430 Computer Science Undergraduate Thesis I | 3          | CS 421 Computer Science Capstone II or 431 Computer Science Undergraduate Thesis II | 3          |
| General Education Literature  | 3          | General Education Social Science  | 3          |
| PH 303 Survey of Ethics or 322 Business Ethics (General Education Ethics)         | 3          | Mathematics Elective <sup>3</sup>   | 3          |
| Technical Elective <sup>2</sup>   | 3          | Technical Elective <sup>2</sup>   | 3          |
| Free Elective   | 3          | Free Elective   | 3          |
| Semester Total Credits  | 15         | Semester Total Credits  | 15         |
| Total Credits For This Major: 126   |            |   |            |

1 Requires math placement score of 2. Students scoring below 2 must complete the appropriate necessary prerequisite math courses first. Waived with math placement score of 3

2 CS 302 or higher, or IA 241 or higher, or DF 241 or higher, or EE 201 or higher

3 MA 223, MA 224, MA 240, MA 241, MA 309, MA 318, or MA 421

### Computer Science Minor

All six courses require a grade of C or higher.

|  |   |   |
|--|---|---|
| CS 140   | Programming and Computing <sup>1</sup>  | 4 |
| CS 228   | Introduction to Data Structures         | 3 |
| EE 215   | Fundamentals of Digital Design          | 4 |
| MA 306   | Discrete Mathematics <sup>2</sup>       | 3 |
| <b>Minor Elective Courses: choose two of the following</b> |   | 6 |
| CS 212   | Assembly Language & Reverse Engineering | 3 |
| CS 240   | Database Management                     | 3 |
| CS 250   | Virtual Systems Administration          | 3 |
| CS 260   | Data Communications and Networks        | 3 |
| CS 270   | Operating Systems & Parallelism         | 3 |
| CS 301   | Software Engineering                    | 3 |

Total Cr. 20

1 Prerequisite: C or higher in IS 100 or CS 100, or permission of instructor

2 Prerequisite: MA 108 or MA 121 and knowledge of computer programming. Offered fall semesters.

## Computer Security & Information Assurance

Professor Mich Kabay; Associate Professors David Blythe, Jeremy Hansen, and Huw Read; Lecturers Matthew Bovee and Kris Rowley.

### Center of Academic Excellence in Digital Forensics and Information Assurance Education

Norwich University is one of very few academic institutions to be designated as both a Center of Academic Excellence in Information Assurance/Cyber Defense ([https://www.nsa.gov/ia/academic\\_outreach/nat\\_cae](https://www.nsa.gov/ia/academic_outreach/nat_cae)) (since 2001, by the National Security Agency of the United States of America) and a Center of Digital Forensics Academic Excellence (<http://www.dc3.mil>) (since 2012, by the Defense Cyber Crime Center of the United States Air Force Office of Special Operations). These designations recognize Norwich's significant contribution in meeting national demand for digital-forensics and information-assurance education, developing a growing number of professionals with expertise in both areas, and ultimately contributing to the protection of the national critical information infrastructure.

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 to keep the student's individualized program on track throughout their enrollment at Norwich. Committed to strong ties between the classroom, the computer labs, and the real world, this program focuses extensively on the practical application of classroom work to solving real world forensic and information assurance problems.

The Computer Security and Information Assurance (CSIA) degree provides a foundation of study in the liberal arts, mathematics, management, and the sciences as well as computer programming, digital forensics and information assurance. Students integrate knowledge from these disciplines so as to enter organizations with both practical, functional capabilities and enterprise perspective. In addition, during the spring semester of their sophomore year, CSIA majors select from two available areas of specialization – Forensics or Information-Assurance Management (some students successfully complete both by taking more than the usual number of courses per semester). Many of our graduates go on to high-level positions of responsibility for forensics and IA in industry and government agencies and also complete advanced degrees in their chosen fields.

- The Forensics Concentration focuses on preparing our graduates for practical application of current forensics theory, ethics, techniques, skills and tools for all levels of digital incident investigation relevant to solving policy violations and crimes. Students learn and apply foundational concepts, terminology and techniques ranging from the extraction and analysis of digital evidence, its sources and communication, to process, system and program design.
- The Information-Assurance Management Concentration (IA) focuses on enabling our graduates to analyze requirements 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. Students integrate concepts, terminology and techniques from operations management, organizational psychology and information assurance for effective development and implementation of IA in organizations. The curriculum of the major complies with the standards (<http://niatec.info/viewpage.aspx?id=103>) defined by the Committee on National Security Systems (CNSS (<https://www.cnss.gov/cnss>)) required by the National Information Assurance Training and Education Center (NIATEC (<http://niatec.info/ViewPage.aspx?id=0>)).

### Goals:

To develop in or provide for students

- Foundational competency in liberal arts, mathematics, management, the sciences, and computer programming
- An understanding and appreciation for the evolving nature and role of technology at all levels of society
- An understanding of individual privacy rights and the impact of large-scale data collection and interconnected data sources
- Multiple, differing perspectives on information security
- Ethical decision-making principles for deciding how best to implement information assurance in all environments
- Integrated knowledge and practical skills in digital forensics and information assurance
- An appreciation for the organizational importance and applications of digital forensics and information assurance
- Advanced specialization in the theory, practice and application digital forensics or information assurance management
- Preparedness to participate with computer-security professionals in industry, government, military and academic environments
- A multidisciplinary perspective coupled with the commitment to integrate human factors for success in defending information resources
- Readiness for continuing, perpetual education in a constantly changing field.

### Outcomes:

Upon graduation successful students will competently demonstrate:

- Clear and effective communication of the fundamentals of computers, computer science, computer security and information assurance
- Facility in at least one programming language and a basic knowledge of at least one other
- Ability to identify and discuss the fundamental hardware and software architecture of computer systems.
- Application of fundamental theory and practice of digital forensics, digital incident investigation, and information assurance
- Professional-level knowledge regarding cyber law and cyber crime, including: identifying and classifying cyber crimes; the motivations of cyber criminals; seizure and handling of computer-related evidence; admissibility of digital incident evidence; preparing and delivering professional testimony; and, the key regulations and laws regarding cyber crimes of varying types and jurisdictions
- Ethical, responsible conduct, both personal and professional, in their computer-security and information-assurance practices consistent with the highest professional standards of the field
- Depth of knowledge and application of the concepts, terminology and techniques of their chosen concentration area

### Careers for this Major:

The CSIA curriculum provides a balanced foundation of both information assurance and digital forensics. The Information Assurance Management concentration emphasizes upper-level coursework associated with implementation, management and support of corporate networks, information, and cyber defense programs. The Forensics concentration emphasizes upper-level coursework on the skills, practices and policies of digital forensics and cyber-investigation. All organizations need professionals with either skill set. However, there is a tendency for IA Management to be more oriented toward careers with for-profit commercial and non-profit public organizations, and for Forensics to be more oriented toward careers with federal, state, and local government agencies. Students' elective course choices further influence the career opportunities open to them. Potential careers include:

- Computer Network Defense
- Counterintelligence
- Counterterrorism
- Cyber Crime Investigation & Analysis
- Cyber Forensics Investigation
- Cyber Incident Analysis & Response
- Cyber Intelligence
- Cyber Security
- Cyber Warfare and National Security
- Information Systems/Technology Management
- Law enforcement (federal, state, local)
- Legal studies and practice of law as attorneys
- Malware Analysis
- Penetration Testing
- Threat Analysis

**B.S. Computer Security & Information Assurance - Curriculum Map 2016-2017 Catalog**

Print PDF Curriculum Map

Students must declare either the Forensics or the Information Assurance Management Concentration (see requirements below).

| <b>Freshman</b>  |            |  |            |
|--|------------|--|------------|
| <b>Fall</b>  | <b>Cr.</b> | <b>Spring</b>                                  | <b>Cr.</b> |
| CS 100 Foundations of Computer Science and Information Assurance             | 3          | CS 140 Programming and Computing <sup>2</sup>  | 4          |
| EN 101 Composition and Literature I  | 3          | EN 102 Composition and Literature II           | 3          |
| MA 107 Precalculus Mathematics (General Education Math) <sup>1</sup>         | 4          | General Education Arts & Humanities            | 3          |
| PY 211 Introduction to Psychology (General Education Social Science)         | 3          | General Education History                      | 3          |
|  |            | Free Elective                                  | 3          |
| Semester Total Credits   | 13         | Semester Total Credits                         | 16         |
| <b>Sophomore</b>   |            |  |            |
| <b>Fall</b>  | <b>Cr.</b> | <b>Spring</b>                                  | <b>Cr.</b> |
| CS 228 Introduction to Data Structures                                       | 3          | CS 212 Assembly Language & Reverse Engineering | 3          |
| IA 241 Cyberlaw and Cybercrime <sup>3</sup>                                  | 3          | CS 240 Database Management                     | 3          |
| MA 240 Introduction to Number Theory and Cryptology (General Education Math) | 3          | MA 318 Cryptology (General Education Math)     | 3          |
| MG 341 Business Law I (General Education Ethics)                             | 3          | General Education Lab Science                  | 4          |
| General Education Lab Science  | 4          | Free Elective                                  | 3          |
| Semester Total Credits   | 16         | Semester Total Credits                         | 16         |
| <b>Junior</b>  |            |  |            |
| <b>Fall</b>  | <b>Cr.</b> | <b>Spring</b>                                  | <b>Cr.</b> |
| DF 242 Computer Forensics I  | 4          | CS 260 Data Communications and Networks        | 3          |
| EN 112 Public Speaking   | 3          | IA 342 Management of Information Assurance     | 3          |
| IA 340 Introduction to Information Assurance                                 | 3          | QM 213 Business and Economic Statistics I      | 3          |
| Concentration Elective (see below)   | 3          | Concentration Elective (see below)             | 3          |
| Free Elective  | 3          | Concentration Elective (see below)             | 3          |
| Semester Total Credits   | 16         | Semester Total Credits                         | 15         |
| <b>Senior</b>  |            |  |            |
| <b>Fall</b>  | <b>Cr.</b> | <b>Spring</b>                                  | <b>Cr.</b> |
| CS 301 Software Engineering  | 3          | IA 456 Cyber Defense Practicum (Capstone)      | 3          |
| IA 455 Contemporary Issues in Information Assurance                          | 3          | Concentration Elective (see below)             | 3          |
| Concentration Elective (see below)   | 3          | Concentration Elective (see below)             | 3          |
| General Education Literature   | 3          | Free Elective                                  | 3          |
| Free Elective  | 3          | Free Elective                                  | 3          |
| Semester Total Credits   | 15         | Semester Total Credits                         | 15         |
| Total Credits For This Major: 122  |            |  |            |

<sup>1</sup> Requires math placement score of 2. Students scoring below 2 must complete the appropriate necessary prerequisite math courses first. Waived with math placement score of 3.

<sup>2</sup> Prerequisite: C or higher in IS 100 or CS 100, or instructor permission

<sup>3</sup> Cross-listed as CJ 341

**Concentrations****Forensics Concentration 2016-2017 Catalog****Required Courses**

|        |                     |   |
|--------|---------------------|---|
| DF 311 | Network Forensics   | 3 |
| DF 312 | Malware Forensics   | 3 |
| DF 411 | Cyber Investigation | 3 |

**Elective Courses - Choose any non-duplicate three of the following courses:**

|        |                                      |   |
|--------|--------------------------------------|---|
| CS 221 | GUI Programming                      | 3 |
| CS 250 | Virtual Systems Administration       | 3 |
| CS 270 | Operating Systems & Parallelism      | 3 |
| CS 330 | Ethics in Computing and Technology   | 3 |
| CS 406 | Special Topics in Computer Science * | 3 |
| CS 407 | Politics of Cyberspace               | 3 |
| CS 410 | Computing Internship *               | 3 |
| DF 423 | Advanced Digital Forensics           | 3 |
| IA 360 | Network Security                     | 3 |
| MG 309 | Management of Organizations          | 3 |
| MG 346 | Business Law II                      | 3 |
| MG 351 | Organizational Behavior              | 3 |
| PY 234 | Forensic Psychology                  | 3 |

Total Cr. 18

\* May be taken more than once for credit by approval, contingent on each section taken covering substantively different content.

**Information Assurance Management Concentration 2016-2017 Catalog****Required Courses**

|        |                                 |   |
|--------|---------------------------------|---|
| CS 270 | Operating Systems & Parallelism | 3 |
|--------|---------------------------------|---|

|  |                                      |    |
|--|--------------------------------------|----|
| IA 360   | Network Security                     | 3  |
| MG 309   | Management of Organizations          | 3  |
| MG 351   | Organizational Behavior              | 3  |
| <b>Elective Courses - Choose any non-duplicate two of the following:</b> |                                      |    |
| CS 221   | GUI Programming                      | 3  |
| CS 250   | Virtual Systems Administration       | 3  |
| CS 330   | Ethics in Computing and Technology   | 3  |
| CS 406   | Special Topics in Computer Science * | 3  |
| CS 407   | Politics of Cyberspace               | 3  |
| CS 410   | Computing Internship *               | 3  |
| DF 311   | Network Forensics                    | 3  |
| DF 312   | Malware Forensics                    | 3  |
| DF 411   | Cyber Investigation                  | 3  |
| DF 423   | Advanced Digital Forensics           | 3  |
| MG 346   | Business Law II                      | 3  |
| PY 234   | Forensic Psychology                  | 3  |
| Total Cr.  |                                      | 18 |

\* May be taken more than once for credit by approval, contingent on each section taken covering substantively different content.

## Construction Management

Charles A. Dana Professor Michael Puddicombe; Professors Thomas Descoteaux and Edwin Schmeckpeper (Chair); Associate Professors Michael Kelley, Jack Patterson, and Adam Sevi; Assistant Professors Nadia Al-Aubaidy, Tara Kulkarni, and Moses Tefe.

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 Construction Management degree program, where students learn the foundational skills necessary to take projects from the conceptual stage straight through to the grand opening ceremony.

### Mission:

- Prepare students to excel in construction management and related fields.
- Make clear to students that above all else, the Construction Management profession is committed to bettering the world.
- Provide fundamental, hands-on education in the construction management field.
- Foster creativity, critical thinking, and problem solving abilities and motivate students to consider the impact of their work on society
- Enable students to be leaders in their profession, community, nation, and the world.

### Goals:

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 Construction 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.

The Goals [Program Educational Objectives (PEOs)] for graduates of the Construction Management Program are to:

- Lead project teams in their chosen field progressively rising to positions of technical or managerial leadership.
- Be respected and recognized for technical and managerial competence in the creation of solutions that balance sustainability, societal and economic issues.
- Become active citizens in their profession, community, the nation and the world.
- Communicate to both technical and non-technical audience.
- Actively engage in continuing education throughout life.

### Outcomes:

Students who are awarded the Bachelor of Science in Construction Management, may sit for the Associated Constructors (AC) and/or the Construction Management in Training Exams (CMIT) exams, and have a foundational understanding of:

- Construction project management from pre-design through commissioning;
- project life-cycle and sustainability;
- health and safety, accident prevention, and regulatory compliance;
- law, contract documents administration, and dispute prevention and resolution;
- materials, labor, and methods of construction;
- finance and accounting principles;
- planning and scheduling;
- cost management, plan reading, quantity takeoff and estimating;
- project delivery methods;
- leadership and people management; and
- business and communication skills

Student Outcomes for graduates of the Construction Management Program are an ability to:

- Apply knowledge of science, mathematics, and applied sciences.
- Design and conduct experiments, as well as analyze and interpret data.

- Formulate and design a system, process or program to meet desired needs.
- Function on a multidisciplinary team, and be able to assume leadership roles on the team.
- Identify and solve applied science problems.
- Understand professional and ethical responsibility.
- Communicate effectively.
- Utilize the broad education necessary to understand the impact of solutions in a societal and global context.
- Recognize the need for and demonstrate an ability to engage in lifelong learning.
- Be knowledgeable of contemporary issues.
- Utilize the techniques, skills and modern scientific, and technical tools necessary for professional practice.
- Recognize that with the knowledge that construction changes society, construction managers must understand that they are leaders.

### Careers for this Major:

Graduates from this program manage varying job demands and requirements and are capable of adapting to rapidly changing technology. Whether working for a private construction firm, engineering firm, government agency, real estate developer, or Industry, there are many areas in which construction managers can focus. A few of the major specialties include:

- Construction management
- Construction supervision
- Construction inspection
- Safety inspection
- Project estimation
- Project development

To learn more about employment opportunities in Construction Management, please visit: <http://careers.asce.org>.

### Accreditation:

In the Fall of 2015, Norwich University applied to the Applied Science Accreditation Commission (ASAC) of ABET for review of the Construction Management Program. That application was approved and the formal review will occur in the Fall of 2016. ABET, <http://www.abet.org>, 415 N. Charles Street, Baltimore, MD 21201, (410) 347-7700.

### B.S. in Construction Management - Curriculum Map 2016-2017 Catalog

Print PDF Curriculum Map

| <b>Freshman</b>  |            |   |            |
|--|------------|---|------------|
| <b>Fall</b>  | <b>Cr.</b> | <b>Spring</b>   | <b>Cr.</b> |
| CH 103 General Chemistry I or GL 110 Introduction to Geology (General Education Lab Science) | 4          | AP 111 Fundamentals of Architecture   | 4          |
| EG 109 Introduction to Engineering I   | 3          | EM 101 Introduction to Construction Project Management or EG 110 Introduction to Engineering II | 3          |
| EN 101 Composition and Literature I  | 3          | EN 102 Composition and Literature II  | 3          |
| MA 107 Precalculus Mathematics (General Education Math)                                      | 4          | MA 121 Calculus I or 108 Applied Calculus (General Education Math)                              | 4          |
|  |            | General Education: History/Literature/Arts & Humanities/Ethics *                                | 3          |
| Semester Total Credits   | 14         | Semester Total Credits  | 17         |
| <b>Sophomore</b>   |            |   |            |
| <b>Fall</b>  | <b>Cr.</b> | <b>Spring</b>   | <b>Cr.</b> |
| AP 225 Introduction to Passive Environmental Systems   | 3          | AC 205 Principles of Accounting-Financial   | 4          |
| CE 211 Surveying   | 3          | AP 325 Materials, Construction, and Design  | 3          |
| CE 264 Specifications and Estimating   | 1          | CE 214 Site Development and Engineering   | 4          |
| EC 202 Principles of Economics (Micro) (General Education Social Science)                    | 3          | EM 302 Supply Chain Management  | 3          |
| EN 204 Professional and Technical Writing  | 3          | QM 213 Business and Economic Statistics I or MA 232 Elementary Statistics                       | 3          |
| PS 201 General Physics I (General Education Lab Science)                                     | 4          |   |            |
| Semester Total Credits   | 17         | Semester Total Credits  | 17         |
| <b>Junior</b>  |            |   |            |
| <b>Fall</b>  | <b>Cr.</b> | <b>Spring</b>   | <b>Cr.</b> |
| AP 327 Active Building Systems I   | 3          | AP 328 Active Building Systems II   | 3          |
| CE 336 Introduction to Transportation Engineering  | 3          | CE 457 Wood, Steel, and Concrete Structures   | 4          |
| CE 351 Statics and Mechanics of Materials  | 4          | EM 320 Construction Productivity  | 3          |
| CE 460 Construction Management   | 3          | EM 322 Construction Safety  | 3          |
| EG 350 Engineering Economics and Decision Analysis   | 3          | General Education: History/Literature/Arts & Humanities/Ethics *                                | 3          |
| Semester Total Credits   | 16         | Semester Total Credits  | 16         |
| <b>Senior</b>  |            |   |            |
| <b>Fall</b>  | <b>Cr.</b> | <b>Spring</b>   | <b>Cr.</b> |
| CE 321 Materials Laboratory  | 1          | EM 402 Construction Management Practices (Capstone)   | 3          |
| CE 458 Structural Issues for Construction  | 3          | CE 446 Soils in Construction  | 4          |
| EM 301 Project Management  | 3          | MG 310 Production/Operations Management   | 3          |
| EM 401 Pre-Construction Management   | 3          | MG 351 Organizational Behavior  | 3          |
| MG 341 Business Law I  | 3          | General Education: History/Literature/Arts & Humanities/Ethics *                                | 3          |
| MG 309 Management of Organizations   | 3          |   |            |
| Semester Total Credits   | 16         | Semester Total Credits  | 16         |
| Total Credits For This Major: 129  |            |   |            |

\* Students MUST satisfy the General Education Ethics requirement by selecting an Arts & Humanities course that also meets the Ethics requirement, such as PH 303, PH 322, EG 450, etc.

**Construction Management Minor Curriculum Map 2016-2017 Catalog**

Engineering majors may elect this minor.

All of the following courses must be completed with a grade of C or higher.

|   |  |       |
|---|--|-------|
| <b>Two courses from:</b>                                |  | 6-8   |
| AP 225<br>& AP 325                                      | Introduction to Passive Environmental Systems<br>and Materials, Construction, and Design | 6     |
| CE 211<br>& CE 214                                      | Surveying<br>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 300 and/or 400 level Computer Science courses       |  | 6-8   |
| Two 300 and/or 400 level Science courses                |  | 6-8   |
| <b>Two Architectural Design courses from:</b>           |  | 6-10  |
| AP 111  | Fundamentals of Architecture   | 4     |
| AP 118  | Fundamentals of Architecture II  | 4     |
| AP 211  | Architectural Design I   | 5     |
| AP 212  | Architectural Design II  | 5     |
| AP 311  | Architectural Design III   | 5     |
| AP 312  | Architectural Design IV  | 5     |
| AP 411  | Architectural Design V   | 5     |
| AP 412  | Architectural Design VI  | 5     |
| <b>Four courses from:</b>                               |  | 12-13 |
| EG 350<br>or AC 205                                     | Engineering Economics and Decision Analysis<br>Principles of Accounting-Financial        | 3     |
| CE 460  | Construction Management  | 3     |
| EM 301  | Project Management   | 3     |
| MG 310  | Production/Operations Management   | 3     |
| EM 302  | Supply Chain Management  | 3     |
| Total Cr.   |  | 18    |

**Criminal Justice**

Charles A. Dana Professor Stanley Shernock (Director); Professors William Clements and Penny Shtull; Associate Professor Aimee Vieira; Assistant Professors Elizabeth Gurian, Min Li, Emily Meyer, W. Travis Morris; Instructor: Stephanie Maass; Lecturers: Anne Buttimer, David Orrick

The baccalaureate program in Criminal Justice 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 the development of leadership skills.

**Goals:**

- Knowledge--Graduates will demonstrate superior knowledge of criminology, criminal law, and the criminal justice system compared to their peers from similar programs.
- Skills--Graduates will have the critical thinking and communications skills to analyze and articulate the effectiveness, ethical underpinnings and theoretical basis of criminal justice and social policies, programs and practices.
- Careers--Graduates will possess the knowledge, skills, and abilities to obtain employment in their desired career field, and/or to gain acceptance to graduate school.
- Values--Graduates will exhibit professionalism, leadership, and a commitment to lifelong learning through their careers and/or in their public service.

**Outcomes:**

Upon graduation, students will demonstrate a comprehensive knowledge of the field as measured by the following assessment indicators of the ETS (Educational Testing Service) Field Test in Criminal Justice:

- Theories of Criminal Behavior
- The Law
- Law Enforcement
- Corrections
- The Court System
- Critical Thinking
- Research Methodology and Statistics

**Careers for this Major:**

- federal law enforcement
- intelligence agents
- private and corporate security personnel
- state and local police officers

- probation and parole officers
- crime analysts
- attorneys

**Certification:**

The Criminal Justice program is certified by the Massachusetts Department of Higher Education for the Police Career Incentive Pay Program (PCIPP) or Quinn Bill.

**B.A. in Criminal Justice - Curriculum Map 2016-2017 Catalog**

Print PDF Curriculum Map

| <b>Freshman</b>   |            |  |            |
|---|------------|--|------------|
| <b>Fall</b>   | <b>Cr.</b> | <b>Spring</b>  | <b>Cr.</b> |
| CJ 101 Introduction to Criminal Justice <sup>c</sup>                                    | 3          | CJ 102 Substantive Criminal Law <sup>c</sup>   | 3          |
| EN 101 Composition and Literature I   | 3          | EN 102 Composition and Literature II   | 3          |
| Modern Language OR<br>General Education Lab Science AND Sociology Elective              | 6-7        | Modern Language OR<br>General Education Lab Science AND Psychology Elective              | 6-7        |
|   |            | General Education Math   | 3          |
| Semester Total Credits  | 12-13      | Semester Total Credits   | 15-16      |
| <b>Sophomore</b>  |            |  |            |
| <b>Fall</b>   | <b>Cr.</b> | <b>Spring</b>  | <b>Cr.</b> |
| CJ 209 Methods of Social Science Research   | 4          | CJ 201 Criminology <sup>c</sup>  | 3          |
| EN 201 World Literature I (B.A. Requirement)  | 3          | EN 202 World Literature II (B.A. Requirement)  | 3          |
| MA 232 Elementary Statistics <sup>b</sup>   | 3          | General Education History <sup>h</sup>   | 3          |
| General Education Lab Science AND Sociology Elective OR<br>Modern Language <sup>f</sup> | 7-6        | General Education Lab Science AND Psychology Elective OR<br>Modern Language <sup>f</sup> | 7-6        |
| Semester Total Credits  | 17-16      | Semester Total Credits   | 16-15      |
| <b>Junior</b>   |            |  |            |
| <b>Fall</b>   | <b>Cr.</b> | <b>Spring</b>  | <b>Cr.</b> |
| CJ 301 Criminal Procedure <sup>c</sup>  | 3          | CJ 310 The Courts <sup>c</sup>   | 3          |
| CJ 308 The Police <sup>c</sup>  | 3          | CJ 312 Corrections <sup>c</sup>  | 3          |
| PH 324 Criminal Justice Ethics (General Education Ethics)                               | 3          | DF 395 Cyber Criminalistics  | 3          |
| SO 214 Racial and Cultural Minorities   | 3          | General Education Arts & Humanities  | 3          |
| Social Science or Business Elective <sup>p</sup>  | 3          | Free Elective  | 3          |
| Semester Total Credits  | 15         | Semester Total Credits   | 15         |
| <b>Senior</b>   |            |  |            |
| <b>Fall</b>   | <b>Cr.</b> | <b>Spring</b>  | <b>Cr.</b> |
| CJ Elective <sup>c</sup>  | 3          | CJ Elective <sup>c</sup>   | 3          |
| PO 321 U.S. Constitutional Law (or Free Elective if taking PO 324 in spring)            | 3          | CJ 410 Senior Seminar (Capstone) <sup>c</sup>  | 3          |
| General Education Arts & Humanities <sup>t</sup>  | 3          | PO 324 Civil Liberties (or Free Elective only if PO 321 taken in fall)                   | 3          |
| General Education Literature  | 3          | Free Elective  | 3          |
| Free Elective   | 3          | Free Elective  | 3          |
| Semester Total Credits  | 15         | Semester Total Credits   | 15         |
| Total Credits For This Major: 120   |            |  |            |

b Students should take the MA 232 sections arranged for criminal justice majors

c Grade of C or higher is required

f If not taken freshman year

h Preferably HI 121, HI 122, HI 235, HI 236

p (a) any other social science course (in sociology, psychology, history, or political science) not already required (i.e. not CJ 209/SO 209, PO 321 or PO 324, SO 214, SO 201 or SO 202) or taken

**or**

(b) any of the following courses in management, economics or accounting offered in the School of Business & Management

AC 201 Introduction to Accounting and the Financial World

EC 201 Principles of Economics (Macro)

EC 202 Principles of Economics (Micro)

MG 309 Management of Organizations

MG 341 Business Law I

MG 351 Organizational Behavior

MG 409 Organizational Leadership

s Preferably SO 201 OR SO 202; excludes SO 209 and SO 214

**Criminal Justice Minor Curriculum Map 2016-2017 Catalog**

For the minor in Criminal Justice, the student must complete six courses (18 degree credits) with a grade of C or higher 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 Course (excludes CJ 209) |             | 3  |
| Total Cr.                                |             | 18 |

Computer Crime and Forensics Minor  
Transnational Crime Minor

## Economics

Charles A. Dana Professor Michael Puddicombe; Professors Bill Jolley, Mich Kabay and Mehdi Mohaghegh; Associate Professors David Blythe and Tom Yandow; Assistant Professor Chung; Lecturers Pomeroy and Rowley.

The minor in Economics is intended to provide a general introduction to the field and provides non-business majors with an understanding of key finance concepts. Students seeking a minor in Economics must obtain the approval of the School Director and complete each of the required courses with a grade of C or higher.

### Economics Minor Curriculum Map 2016-2017 Catalog

- Students seeking a minor in Economics must obtain the approval of the School Director
- Complete all 6 courses with a grade of C or higher.

|  |                                 |    |
|--|---------------------------------|----|
| EC 201   | Principles of Economics (Macro) | 3  |
| EC 202   | Principles of Economics (Micro) | 3  |
| <b>Two of the following:</b>   |                                 | 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 Cr.  |                                 | 18 |

## Education

Program Director: Associate Professor Diane Byrne; Assistant Professor Sharon Goodvin

The BS in Education is designed to lead to recommendation for licensure for students who complete the program. The BS in Education requires all students to have a double major. Those choosing elementary education may major in mathematics or any of the Liberal arts and science areas that are offered at Norwich University. Those who choose secondary education must major in Mathematics.

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 GPA of 3.0 in both majors before being placed in Student Teaching and before graduation. In addition, all education majors are required to take the PRAXIS Core Academic Skills for Educators test & the PRAXIS II Content Tests. All students are required to take the PRAXIS Core Academic Skills for Educators test before the end of their sophomore year or 60 credits. All students are required to take the PRAXIS II Content Tests in the spring of their junior year before their completion of 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 50 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. Students are encouraged to do a semester of study abroad. Opportunities are also available to do service learning education projects abroad and in inner city schools.

The BS in Education Teacher Licensure requires 120 credits for Education Elementary track and Education Secondary track Mathematics

### Mission:

The Education Majors provide essential course content in Pedagogy and Practice for State Licensure in Elementary Or Secondary Education.

### Goals:

- To expose students to the full range of ideas in Education.
- To provide students the opportunity to experience the process of becoming a teacher .
- To prepare students for lifelong career development.

### Outcomes:

- To demonstrate understanding and knowledge of the content of Education including major concepts of teaching and learning, theoretical constructs, and historical foundations.
- To write reflectively regarding one's development as a teacher.
- To demonstrate growth in teaching skills, strategies, and dispositions.
- Completion of Professional Portfolio.

### Careers for this Major:

- Preparation for Overseas schools for military dependents
- Test Preparation Companies
- Tutoring and Learning Centers
- Graduate study in Special Service Fields, such as English as a Second Language
- Curriculum Supervision
- Administration, such as a Principal or Superintendent

Print PDF Curriculum Map

**B.S. in Education/Elementary Teacher Licensure - Curriculum Map 2016-2017 Catalog**

Must maintain an overall 3.0 cumulative Grade Point Average in the Education major as well as in the second major.

| Freshman   |     |   |     |
|--|-----|---|-----|
| Fall   | Cr. | Spring  | Cr. |
| ED 104 Foundations of Education  | 3   | EN 102 Composition and Literature II  | 3   |
| EN 101 Composition and Literature I  | 3   | PY 220 Developmental Psychology   | 3   |
| General Education History or SO 214  | 3   | MA 161 Mathematics for Elementary School Teachers II (General Education Math) | 3   |
| MA 160 Mathematics for Elementary School Teachers I  | 3   | General Education History or SO 214   | 3   |
| PY 211 Introduction to Psychology  | 3   | Free Elective   | 3   |
| Semester Total Credits   | 15  | Semester Total Credits  | 15  |
| Sophomore  |     |   |     |
| Fall   | Cr. | Spring  | Cr. |
| ED 234 Learning and Teaching Strategies  | 4   | ED 315 Special Needs Child  | 3   |
| General Education Lab Science  | 4   | General Education Lab Science   | 4   |
| General Education Literature   | 3   | General Education Arts & Humanities   | 3   |
| Free Elective  | 3   | Free Elective   | 3   |
| Free Elective  | 3   | Free Elective   | 3   |
| Semester Total Credits   | 17  | Semester Total Credits  | 16  |
| Junior   |     |   |     |
| Fall   | Cr. | Spring  | Cr. |
| ED 360 Language Arts and Teaching Reading in the Elementary School                           | 4   | ED 351 Methods of Teaching Science to Elementary Students                     | 3   |
| General Education Math   | 3   | General Education Ethics  | 3   |
| MA 360 Teaching Mathematics at the Elementary - Middle School Level (General Education Math) | 3   | PY 352 Learning and Memory  | 4   |
| Free Elective  | 3   | Free Elective   | 3   |
| Free Elective  | 3   | Free Elective   | 3   |
| Semester Total Credits   | 16  | Semester Total Credits  | 16  |
| Senior   |     |   |     |
| Fall   | Cr. | Spring  | Cr. |
| ED 432 Curriculum and Methods of the Elementary School                                       | 4   | ED 425 Student Teaching   | 12  |
| Free Elective  | 3   |   |     |
| Semester Total Credits   | 16  | Semester Total Credits  | 12  |
| Total Credits For This Major: 123  |     |   |     |

**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 Major.

**The Portfolio**

All licensure candidates are required to complete a portfolio. Development of the portfolio begins in your sophomore year and is continued in 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. The development of your portfolio and its process is discussed in further detail in your Portfolio Handbook.

**Praxis Tests**

In order to be recommended for licensure, candidates must achieve a passing score on the Praxis Core Academic Skills for Educators and the PRAXIS II Content Tests. These tests are discussed in detail with Education students during their individual advising times.

All students are required to pass PRAXIS I Core Academic Skills for Educators test and the Praxis II Content tests prior to placement in ED 425 Student Teaching.

**B.S. in Secondary Teacher Licensure - Curriculum Map 2016-2017 Catalog**

Print as PDF Curriculum Map

**Students must also major in Mathematics with the Secondary Education major.**

Must maintain an overall 3.0 cumulative Grade Point Average in the Education major as well as in the Mathematics major.

| Freshman  |     |                                      |       |
|---|-----|--------------------------------------|-------|
| Fall  | Cr. | Spring                               | Cr.   |
| ED 104 Foundations of Education                                       | 3   | EN 102 Composition and Literature II | 3     |
| EN 101 Composition and Literature I                                   | 3   | General Education Math               | 3-4   |
| PY 211 Introduction to Psychology                                     | 3   | PY 220 Developmental Psychology      | 3     |
| SO 214 Racial and Cultural Minorities ( Or General Education History) | 3   | General Education History or SO 214  | 3     |
| Second Major Requirement  | 3   | Second Major Requirement             | 3     |
| Semester Total Credits  | 15  | Semester Total Credits               | 15-16 |
| Sophomore   |     |                                      |       |
| Fall  | Cr. | Spring                               | Cr.   |
| ED 234 Learning and Teaching Strategies                               | 4   | EN 202 World Literature II           | 3     |

|  |       |                                     |            |
|--|-------|-------------------------------------|------------|
| EN 201 World Literature I (General Education Literature) | 3     | General Education Arts & Humanities | 3          |
| General Education Lab Science                            | 4     | General Education Lab Science       | 4          |
| PY 324 Adolescent Psychology                             | 3-4   | Second Major Requirement            | 3          |
| Second Major Requirement                                 | 3     | Second Major Requirement            | 3          |
| Semester Total Credits                                   | 17-18 | Semester Total Credits              | 16         |
| <b>Junior</b>  |       |                                     |            |
| <b>Fall</b>  |       | <b>Cr. Spring</b>                   | <b>Cr.</b> |
| ED 363 Reading and Writing in the Content Area           | 4     | PY 352 Learning and Memory          | 4          |
| Second Major Requirement                                 | 3     | General Education Ethics            | 3          |
| Second Major Requirement                                 | 3     | Second Major Requirement            | 3          |
| Second Major Requirement                                 | 3     | Free Elective                       | 3          |
| Second Major Requirement                                 | 3     | Free Elective                       | 3          |
| Semester Total Credits                                   | 16    | Semester Total Credits              | 16         |
| <b>Senior</b>  |       |                                     |            |
| <b>Fall</b>  |       | <b>Cr. Spring</b>                   | <b>Cr.</b> |
| ED 368 Curriculum & Methods in Secondary Subjects        | 4     | ED 425 Student Teaching (Capstone)  | 12         |
| Free Elective  | 3     |                                     |            |
| Semester Total Credits                                   | 16    | Semester Total Credits              | 12         |
| Total Credits For This Major: 123-125                    |       |                                     |            |

## 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 Major.

## The Portfolio

All licensure candidates are required to complete a portfolio. Development of the portfolio begins in your sophomore year and is continued in 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. The development of your portfolio and its process is discussed in further detail in your Portfolio Handbook.

## Praxis Tests

In order to be recommended for licensure, candidates must achieve a passing score on the Praxis Core Academic Skills for Educators and the PRAXIS II Content Tests. These tests are discussed in detail with Education students during their individual advising times.

All students are required to pass PRAXIS I Core Academic Skills for Educators test and the Praxis II Content tests prior to placement in ED 425 Student Teaching.

### Elementary Education Minor Curriculum Map 2016-2017 Catalog

|   |   |             |
|---|---|-------------|
| ED 234  | Learning and Teaching Strategies  | 4           |
| PY 220  | Developmental Psychology  | 3           |
| ED 315  | Special Needs Child   | 3           |
| <b>And three of the following four courses:</b> |   | <b>9-11</b> |
| ED 432  | Curriculum and Methods of the Elementary School   | 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 (Pre-requisites include MA 160 and MA 161) | 3           |
| Total Cr.                                       |   | 19-21       |

### Secondary Education Minor Curriculum Map 2016-2017 Catalog

|           |  |       |
|-----------|--|-------|
| ED 234    | Learning and Teaching Strategies           | 4     |
| PY 220    | Developmental Psychology                   | 3     |
| ED 315    | Special Needs Child                        | 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 Cr. |  | 21-22 |

## Electrical & Computer Engineering

Professors Jacques Beneat, Stephen Fitzhugh, and Ronald Lessard; Associate Professor Michael Prairie (Chair); Assistant Professor David Feinauer; Lecturer Michael Cross.

### Mission:

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.

**Goals:**

Graduates of the Electrical and Computer Engineering program will:

- Attain respect for competence in the skills of engineering practice by solving problems and leading others in the pursuit of solutions.
- Effectively communicate the results of their work.
- Work professionally in team environments to design electrical and computer systems.
- Pursue professional development through life-long learning to better serve in an evolving global society.
- Demonstrate initiative and perform leadership roles in an ethical manner.
- Perceive the impact of their professional decisions on society.

**Outcomes:**

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.

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.

**Careers for this Major:**

The Electrical and Computer Engineering (ECE) program is 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.

Career choices for ECE graduates are extremely diverse, and providing a comprehensive list here would be quite impossible. Below is an abbreviated list that is taken from "Your Career in the Electrical, Electronics, and Computer Engineering Fields," a website published by the Institute for Electrical and Electronics Engineers (IEEE). This list includes some of the topic areas served by professional societies within the IEEE that align well with the interests of the ECE faculty at Norwich, as well as many of our recent graduates.

- Signal Processing
- Aerospace and Electronic Systems
- Circuits and Systems
- Communications
- Computers
- Consumer Electronics
- Control Systems
- Industrial Electronics
- Industry Applications
- Instrumentation and Measurement
- Power Electronics
- Power Engineering
- Robotics
- Systems, Man and Cybernetics
- Frequency Control
- Vehicular Technology

The IEEE is the largest professional organization that serves Electrical and Computer Engineers, as well as many other types of engineers in related fields. To see the IEEE website that discusses a broader range of ECE career opportunities, please visit <http://www.ieeeusa.org/careers/yourcareer.html>.

**Accreditation:**

The Electrical and Computer Engineering curriculum is accredited by the Engineering Accreditation Commission (EAC) of ABET, <http://www.abet.org>, 415 N. Charles Street, Baltimore, MD 21201, Telephone: (410) 347-7700

**B.S. in Electrical and Computer Engineering - Curriculum Map 2016-2017 Catalog**

Print PDF Curriculum Map

| <b>Freshman</b>   |            |   |            |
|---|------------|---|------------|
| <b>Fall</b>   | <b>Cr.</b> | <b>Spring</b>   | <b>Cr.</b> |
| CH 103 General Chemistry I (General Education Lab Science)                  | 4          | EG 110 Introduction to Engineering II                                       | 3          |
| EG 109 Introduction to Engineering I  | 3          | EE 200 Engineering Programming  | 3          |
| EN 101 Composition and Literature I   | 3          | EN 102 Composition and Literature II  | 3          |
| MA 121 Calculus I (General Education Math)                                  | 4          | General Education History / Literature / Arts & Humanities / Social Science | 3          |
|   |            | MA 122 Calculus II (General Education Math)                                 | 4          |
| Semester Total Credits  | 14         | Semester Total Credits  | 16         |
| <b>Sophomore</b>  |            |   |            |
| <b>Fall</b>   | <b>Cr.</b> | <b>Spring</b>   | <b>Cr.</b> |
| EE 215 Fundamentals of Digital Design                                       | 4          | EE 356 Electrical Circuits II   | 3          |
| EE 204 Electrical Circuits I  | 3          | EG 206 Thermodynamics I   | 3          |
| General Education History / Literature / Arts & Humanities / Social Science | 3          | MA 224 Differential Equations   | 4          |
| MA 223 Calculus III   | 4          | PS 212 University Physics II (General Education Lab Science)                | 4          |
| PS 211 University Physics I (General Education Lab Science)                 | 4          |   |            |
| Semester Total Credits  | 18         | Semester Total Credits  | 14         |
| <b>Junior</b>   |            |   |            |
| <b>Fall</b>   | <b>Cr.</b> | <b>Spring</b>   | <b>Cr.</b> |
| EE 321 Embedded Systems   | 4          | EE 303 Electromagnetic Field Theory I                                       | 3          |
| EE 350 Linear Systems   | 3          | EE 323 Computer Architecture  | 3          |
| EE 357 Electronics I  | 3          | EE 366 Electronics II   | 4          |
| EE 359 Electrical Engineering Laboratory                                    | 1          | EE 373 Electrical Energy Conversion   | 4          |
| MA 306 Discrete Mathematics   | 3          | EN 204 Professional and Technical Writing                                   | 3          |
| General Education History / Literature / Arts & Humanities / Social Science | 3          |   |            |
| Semester Total Credits  | 17         | Semester Total Credits  | 17         |
| <b>Senior</b>   |            |   |            |
| <b>Fall</b>   | <b>Cr.</b> | <b>Spring</b>   | <b>Cr.</b> |
| EE 491 Electrical System Design I (Capstone)                                | 3          | EE 411 Infrastructure Control Systems                                       | 4          |
| EE 459 Electric Power Systems   | 3          | EE 478 Control Systems  | 3          |
| EE 463 Communication Systems  | 4          | EE 486 Digital Signal Processing  | 3          |
| EG 450 Professional Issues (General Education Ethics)                       | 3          | EE 487 Digital Signal Processing Lab  | 1          |
| MA 311 Statistical Methodology  | 3          | EE 494 Electrical System Design II  | 3          |
|   |            | General Education History / Literature / Arts & Humanities / Social Science | 3          |
| Semester Total Credits  | 16         | Semester Total Credits  | 17         |
| Total Credits For This Major: 129   |            |   |            |

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 Director of the David Crawford School of Engineering).

## Engineering Science

**Engineering Science Minor Curriculum Map 2016-2017 Catalog**

- Construction Management majors may elect this minor.
- Students who are engineering majors may not elect this minor.

Complete 6 engineering courses 200 level or above with a grade of C or higher, in a program approved by the Director of the David Crawford School of Engineering. ONE course must be an applied engineering course\*.

Choose from the following Engineering subjects

CE, EE, EG or ME Elective (200 level or higher)

CE, EE, EG or ME Elective (200 level or higher)

CE, EE, EG or ME Elective (200 level or higher)

CE, EE, EG or ME Elective (200 level or higher)

CE, EE, EG or ME Elective (200 level or higher)

CE, EE, EG or ME Elective (200 level or higher)

Total Cr.

18

\* EE 215, EE 321, EE 373, EE 411, EG 201, EG 301, EG 303, CE 211, CE 321, CE 322, CE 336, CE 348, ME 381, ME 382

## English

Professors Helen Caudill, F. Brett Cox, Patricia Ferreira, Andrew Knauf, Daniel Lane; Associate Professors Carl Martin, Kathleen McDonald (Chair), Sean Prentiss, and Lea Williams; Assistant Professors Dalyn Luedtke, Kyle Pivetti, Amy Woodbury Tease; Lecturer Jessica Kuskey

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 world texts in their historical and cultural contexts. 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. Specialty courses also include literature of the developing 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.

### Goals:

Through developing a critical understanding of English and American literature in relationship to aesthetic, cultural, and intellectual contexts, we are committed to fostering opportunities that cultivate freedom of expression, personal and professional fulfillment, intellectual development, collaboration, and social growth.

### Outcomes:

Graduates will:

- have the ability to write critically with clarity and precision and to read with comprehension.
- achieve basic levels of skill performing literary analysis, understanding theoretical approaches to the discipline, and applying these approaches to reading a text.
- have the ability to demonstrate knowledge of major literary periods, movements, and genres in American and British literature.
- demonstrate the ability to identify an advanced research question, know how to locate juried, peer-reviewed sources about the question, and craft a solid written response to the question, thus evidencing an ability to participate in critical thinking about the intellectual questions of the field.

### Careers for this Major:

- Advertising
- Public Relations
- Publishing
- Medicine
- Teaching
- Business
- Government
- Military Service
- Law
- Post-graduate study in a variety of fields

## B.A. in English - Required Courses

Print PDF Curriculum Map

All courses must be completed with a C or better

Minimum of fifteen EN courses above 202

#### Required courses above EN 202:

|  |                                    |    |
|--|------------------------------------|----|
| 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 274  | Introduction to Creative Writing   |    |
| EN 282   | Literary Methods                   | 3  |
| EN 350   | History of the English Language    | 3  |
| EN 373   | Major Author                       | 3  |
| EN 370 Topics in British Literature  |                                    |    |
| EN 390 Topics in American Literature   |                                    |    |
| EN 450   | Senior Seminar                     | 3  |
| Four additional English courses numbered above EN 202, three of which must be above 299. |                                    | 12 |

EN 101 and EN 102 are prerequisites for all English courses numbered above EN 200.

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

### B.A. in English - Curriculum Map 2016-2017 Catalog

| Freshman   |     |  |     |
|--|-----|--|-----|
| Fall   | Cr. | Spring   | Cr. |
| EN 101 Composition and Literature I                                  | 3   | EN 102 Composition and Literature II   | 3   |
| General Education History  | 3   | General Education Social Science   | 3   |
| Modern Language  | 6   | Modern Language  | 6   |
| Free Elective OR General Education Math                              | 3   | Free Elective  | 3   |
| Semester Total Credits   | 15  | Semester Total Credits   | 15  |
| Sophomore  |     |  |     |
| Fall   | Cr. | Spring   | Cr. |
| EN 201 World Literature I (B.A. Requirement)                         | 3   | EN 202 World Literature II (B.A. Requirement)                                | 3   |
| EN 225 Survey of British Literature I (General Education Literature) | 3   | EN 226 Survey of British Literature II (General Education Arts & Humanities) | 3   |

|  |            |   |            |
|--|------------|---|------------|
| EN 282 Literary Methods  | 3          | General Education Math OR Free Elective | 3          |
| General Education Math   | 3          | Free Elective                           | 3          |
| PH or SA or Modern Language Elective                                       | 3          | Free Elective                           | 3          |
| Semester Total Credits   | 15         | Semester Total Credits                  | 15         |
| <b>Junior</b>  |            |   |            |
| <b>Fall</b>  | <b>Cr.</b> | <b>Spring</b>                           | <b>Cr.</b> |
| EN 227 Survey of American Literature I                                     | 3          | EN 228 Survey of American Literature II | 3          |
| EN 373 Major Author  | 3          | EN 350 History of the English Language  | 3          |
| EN 390 Topics in American Literature                                       | 3          | EN 370 Topics in British Literature     | 3          |
| General Education Lab Science  | 4          | General Education Lab Science           | 4          |
| Free Elective  | 3          | Free Elective                           | 3          |
| Semester Total Credits   | 16         | Semester Total Credits                  | 16         |
| <b>Senior</b>  |            |   |            |
| <b>Fall</b>  | <b>Cr.</b> | <b>Spring</b>                           | <b>Cr.</b> |
| EN 203 Advanced Composition or 204 Professional and Technical Writing (OR) | 3          | EN Elective (above 299)                 | 3          |
| EN 274 Introduction to Creative Writing                                    |            | EN Elective (above 299)                 | 3          |
| EN 450 Senior Seminar (General Education Capstone)                         | 3          | BA Social Science Requirement           | 3          |
| EN Elective (above 202)  | 3          | Free Elective                           | 3          |
| EN Elective (above 299)  | 3          | Free Elective                           | 3          |
| BA Social Science Requirement  | 3          |   |            |
| Semester Total Credits   | 15         | Semester Total Credits                  | 15         |
| Total Credits For This Major: 122  |            |   |            |

### English Minor Curriculum Map 2016-2017 Catalog

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 minor encourages students to draw from the department's range of resources in writing, literature, film, and theater, tailoring a program to their special interests.

- Students 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 these competencies.

All requirements require a grade of C or higher

|                       |                     |    |
|-----------------------|---------------------|----|
| EN 201                | World Literature I  | 3  |
| EN 202                | World Literature II | 3  |
| EN 282                | Literary Methods    | 3  |
| EN Elective above 202 |                     | 3  |
| EN Elective above 202 |                     | 3  |
| EN Elective above 299 |                     | 3  |
| Total Cr.             |                     | 18 |

## Entrepreneurship

The Entrepreneurship Minor is designed as a multidisciplinary opportunity for interested students to expand their knowledge and experience. Entrepreneurship, fundamentally, is about innovation. It is about recognizing opportunities and acting on them.

Entrepreneurs are agents of change. Being entrepreneurial requires the ability to think creatively, innovate, and lead the development of an idea to implementation

### Goals:

The Entrepreneurship minor provides students with the skills and knowledge necessary to undertake the process of starting a new business venture. This minor is not just for students interested in creating a new business. Rather it is a broad exploration of how to be entrepreneurial, whether by starting a new business, or within an existing business or organization.

### Outcomes:

Students who satisfy the requirements for the minor will demonstrate:

- an ability to evaluate a product or service to meet the desired needs of markets within realistic constraints such as financial, environmental, social, political, ethical, health and safety, manufacturability, and sustainability;
- an understanding of how to start an entrepreneurial business;
- an ability to convince others about the merits of a new idea;
- an ability to practice techniques to effectively manage and motivate people;
- the broad education necessary to understand the impact of product- and service-based solutions in a contemporary global, economic, environmental, and societal context;
- knowledge of legal and tax implications associated with their decisions;
- an ability to think and act innovatively;
- knowledge of design thinking and other tools that every innovative organization needs to succeed

### Careers for this Minor:

- Mid-level management
- Business consultant
- Sales
- Research and development

- Not-for-profit fundraiser
- Teacher
- Recruiter
- Business reporter

### Entrepreneurship Minor Curriculum Map 2016-2017 Catalog

|   |  |    |
|---|--|----|
| <b>Overview of the entrepreneurial landscape</b>  |  | 3  |
| MG 224  | Principles of Entrepreneurship                 | 3  |
| <b>Convincing others the merits new ideas. (choose one course from below)</b>   |  | 3  |
| CM 261  | Interpersonal Communications                   | 3  |
| EN 112  | Public Speaking                                | 3  |
| MG 314  | Marketing Management                           | 3  |
| MG 411  | Consumer Behavior                              | 3  |
| MG 441  | Integrated Marketing Communications            | 3  |
| <b>Interacting with employees within an organization. (choose one course from below; MG majors cannot choose a MG course)</b> |  | 3  |
| AP 222  | Human Issues in Design                         | 3  |
| EN 244  | The Literature of Leadership                   | 3  |
| MG 309  | Management of Organizations                    | 3  |
| MG 351  | Organizational Behavior                        | 3  |
| MG 408  | Human Resources Management                     | 3  |
| NR 321  | Nursing Leadership                             | 3  |
| <b>Economic factors and trends influencing current and future profitability. (choose one course from below)</b>               |  | 3  |
| EC 201  | Principles of Economics (Macro)                | 3  |
| EC 202  | Principles of Economics (Micro)                | 3  |
| EC 310  | Money and Banking                              | 3  |
| EC 419  | International Economics                        | 3  |
| MG 319  | International Dimensions of Business           | 3  |
| <b>Legal and tax implications (choose one course from below)</b>  |  | 3  |
| AC 201  | Introduction to Accounting and Financial World | 3  |
| MG 341  | Business Law I                                 | 3  |
| MG 346  | Business Law II                                | 3  |
| <b>Incorporating innovation in work and teams.</b>  |  | 3  |
| AP 431  | Design Thinking and Innovation                 | 3  |
| or EG 400   | Design Thinking and Innovation                 | 3  |
| Total Cr.   |  | 18 |

## Environmental Science

Charles A. Dana Professor Richard K. Dunn (Chair); Charles A. Dana Professor David S. Westerman; Assistant Professor G. Christopher Koteas; Lecturer Laurie D. Grigg; Research Associate George E. Springston

This major is interdisciplinary, designed for those with environmental interests and career goals. The program emphasizes experiential learning, commonly through field studies and outdoor education. Courses include real projects and original research participation. Students begin their curriculum with the development of a firm base in the sciences and mathematics. Each student develops an area of specialization by selecting a Concentration from one of two Options. Option I Concentrations lead to a heavier emphasis in science and engineering, and include Environmental Biology, Environmental Geology, Environmental Engineering, Environmental Chemistry, and Climate Science. Option II Concentrations result in a stronger emphasis in the social sciences, humanities and business, and include Environmental Policy & Management, Environmental Law & Protection, Environmental Writing, Green Design, and Environmental Education.

All Environmental Science majors take a pair of capstone courses involving an original research project and a seminar designed to synthesize their education and tie scientific thought to issues in society. The Department houses a number of instruments for environmental monitoring and analysis, and students also have access to resources in their area of Concentration.

### Goals:

- To provide an interdisciplinary Liberal Arts degree program in Environmental Science having a strong foundation in the physical and life sciences with a focus on relationships connecting society and nature.
- To provide two options, one with a concentration in the sciences and engineering, and the other with a concentration in the social sciences and humanities.
- To provide instruction and experiences with emphasis on field studies, solution of active problems, and communication in a professional format.

### Outcomes:

- Understand the physical laws of nature that control the formation and evolution of Earth materials and biological organisms.
- Understand what controls the behavior of the chemical compounds that make up the inorganic and organic materials of the Earth.
- Know how to define a problem, design a study to acquire data, critically analyze and interpret data, and discuss the implications of results and orally
- Be able to think critically about published work, synthesize the content of such work, and present findings at a professional level both in writing and orally
- Meet the University's General Education Goals.

### Careers for this Major:

- Graduate education

- Industry and consulting
- Military
- Environmental agencies
- Non-profit organizations

## B.S. in Environmental Science – Curriculum Map 2016-2017 Catalog

### Option I

Print PDF Curriculum Map

Concentrations for Option 1 are: Environmental Biology, Environmental Chemistry, Environmental Geology, Environmental Engineering, or Climate Science.

| Freshman   |  |       |
|--|--|-------|
| Fall   | Cr. Spring   | Cr.   |
| BI 101 Principles of Biology I <sup>1</sup>  | 4 BI 102 Principles of Biology II <sup>1</sup>                                 | 4     |
| EN 101 Composition and Literature I  | 3 EN 102 Composition and Literature II   | 3     |
| GL 110 Introduction to Geology (General Education Lab Science)   | 4 GL 111 Oceanography (General Education Lab Science)                          | 4     |
| MA 107 Precalculus Mathematics (General Education Math)  | 4 MA 108 Applied Calculus (General Education Math) <sup>2</sup>                | 4     |
| Semester Total Credits   | 15 Semester Total Credits  | 15    |
| Sophomore  |  |       |
| Fall   | Cr. Spring   | Cr.   |
| CH 103 General Chemistry I   | 4 CH 104 General Chemistry II  | 4     |
| Concentration Elective   | 3-4 Concentration Elective   | 3-4   |
| ES 270 Fundamentals of Environmental Science (or Free Elective) <sup>3</sup>                                     | 3-4 General Education Literature (or ES 130)                                   | 3     |
| ES 251 Sophomore Seminar in Environmental Science  | 1 MA 232 Elementary Statistics   | 3     |
| PH 323 Environmental Ethics (General Education Ethics) OR General Education Arts & Humanities                    | 3 Free Elective <sup>3</sup>   | 3-4   |
| Semester Total Credits   | 14-16 Semester Total Credits   | 16-18 |
| Junior   |  |       |
| Fall   | Cr. Spring   | Cr.   |
| Concentration Elective   | 3-4 ES 130 Introduction to Environmental Law (or General Education Literature) | 3     |
| EC 201 Principles of Economics (Macro) or 202 Principles of Economics (Micro) (General Education Social Science) | 3 Concentration Elective   | 3-4   |
| General Education Arts & Humanities (or PH 323)  | 3 ES 340 Project Development in Environmental Science                          | 1     |
| PS 201 General Physics I   | 4 PS 202 General Physics II  | 4     |
| Free Elective (or ES 270) <sup>3</sup>   | 3-4 Free Elective <sup>3</sup>   | 3-4   |
| Semester Total Credits   | 16-18 Semester Total Credits   | 14-16 |
| Senior   |  |       |
| Fall   | Cr. Spring   | Cr.   |
| BI 405 Ecology   | 4 Concentration Elective   | 3-4   |
| Concentration Elective   | 3-4 ES 451 Environmental Science Seminar                                       | 3     |
| ES 440 Research Project in Environmental Science (General Education Capstone)                                    | 3 ES 460 Project Completion in Environmental Science                           | 1     |
| GL 255 Hydrogeology  | 3 General Education History  | 3     |
|  | Free Elective <sup>3</sup>   | 3-4   |
| Semester Total Credits   | 13-14 Semester Total Credits   | 13-15 |
| Total Credits For This Major: 116-127  |  |       |

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.

## Available Concentrations – Option I

### Environmental Biology

|                              |                                    |          |
|------------------------------|------------------------------------|----------|
| GL 261                       | Field Geology                      | 4        |
| CH 205                       | Survey of Organic Chemistry        | 4        |
| <b>Two of the following:</b> |                                    | <b>8</b> |
| BI 275                       | Environmental Biology              | 4        |
| BI 316                       | Plant Taxonomy                     | 4        |
| BI 351                       | Dendrology and Silvics             | 4        |
| BI 424                       | Woodland Ecology and Management    | 4        |
| <b>Two of the following:</b> |                                    | <b>8</b> |
| BI 201                       | Comparative Vertebrate Anatomy     | 4        |
| BI 220                       | Introductory Microbiology          | 4        |
| BI 325                       | Invertebrate Zoology               | 4        |
| BI 326                       | Natural History of the Vertebrates | 4        |

Total Cr. 24

### Environmental Geology

|        |               |   |
|--------|---------------|---|
| GL 253 | Geomorphology | 4 |
| GL 257 | Sedimentation | 4 |
| GL 261 | Field Geology | 4 |

|   |            |       |
|---|------------|-------|
| GL 263  | Mineralogy | 4     |
| GL 200 level Elective or EG 203 Materials Science |            | 3-4   |
| CH elective: CH204 or above, 3-4 cr. options only |            | 3-4   |
| Total Cr.   |            | 22-24 |

**Environmental Chemistry**

|                                |                                       |       |
|--------------------------------|---------------------------------------|-------|
| CH 204                         | Quantitative Analysis                 | 4     |
| CH 205                         | Survey of Organic Chemistry           | 4     |
| GL 263                         | Mineralogy                            | 4     |
| <b>Three of the following:</b> |                                       | 10-12 |
| GL 261                         | Field Geology                         | 4     |
| CH 314                         | Instrumental Methods (+/- CH 315 Lab) | 3/4   |
| EG 203                         | Materials Science                     | 3     |
| BI 220                         | Introductory Microbiology             | 4     |
| Total Cr.                      |                                       | 22-24 |

**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     |
| <b>One of the following:</b>                       |                                       | 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 Cr.  |                                       | 19-20 |

**Climate Science**

|                              |                                       |       |
|------------------------------|---------------------------------------|-------|
| GL 265                       | Glacial Geology and Paleoclimate      | 4     |
| CH 204                       | Quantitative Analysis                 | 4     |
| GL 253                       | Geomorphology                         | 4     |
| MA 241                       | Mathematical Computation and Modeling | 3     |
| <b>Two of the following:</b> |                                       | 6-8   |
| CH 314                       | Instrumental Methods (+/- CH 315 Lab) | 3/4   |
| BI 402                       | Evolution                             | 4     |
| PO 305                       | Geopolitics (recommended)             | 3     |
| PO 415                       | International Law                     | 3     |
| Total Cr.                    |                                       | 21-23 |

**B. S. in Environmental Science – Curriculum Map 2016-2017 Catalog****Option II**

Print PDF Curriculum Map

Concentrations for Option 2 are: Environmental Policy and Management, Environmental Law and Protection, Environmental Writing, Green Design, or Education

| <b>Freshman</b>  |            |  |
|--|------------|--|
| <b>Fall</b>  | <b>Cr.</b> | <b>Spring</b>  |
| BI 101 Principles of Biology I   | 4          | BI 102 Principles of Biology II  |
| EN 101 Composition and Literature I  | 3          | EN 102 Composition and Literature II                                       |
| GL 110 Introduction to Geology (General Education Lab Science)   | 4          | GL 111 Oceanography (General Education Lab Science)                        |
| MA 107 Precalculus Mathematics (General Education Math)  | 4          | MA 108 Applied Calculus (General Education Math)                           |
| Semester Total Credits   | 15         | Semester Total Credits   |
| <b>Sophomore</b>   |            |  |
| <b>Fall</b>  | <b>Cr.</b> | <b>Spring</b>  |
| Concentration Elective   | 3-4        | Concentration Elective   |
| ES 270 Fundamentals of Environmental Science (or EC 201 or EC 202)   | 4          | General Education Literature (or ES 130)                                   |
| ES 251 Sophomore Seminar in Environmental Science  | 1          | MA 232 Elementary Statistics   |
| PH 323 Environmental Ethics or EN 276 Environmental Writing (General Education Ethics, or General Education Arts & Humanities) | 3          | PO Elective 2 <sup>1</sup>   |
| PO Elective <sup>1</sup>   | 3          | PY 211 Introduction to Psychology (General Education Social Science)       |
| Semester Total Credits   | 14-15      | Semester Total Credits   |
| <b>Junior</b>  |            |  |
| <b>Fall</b>  | <b>Cr.</b> | <b>Spring</b>  |
| CH Chemistry Elective  | 4          | Concentration Elective   |
| Concentration Elective   | 3-4        | ES 130 Introduction to Environmental Law (or General Education Literature) |
| EC 201 Principles of Economics (Macro) or 202 Principles of Economics (Micro) (or ES 270)                                      | 3-4        | ES 340 Project Development in Environmental Science                        |
| EN 276 Environmental Writing (or PH 323)   | 3          | General Education History  |
|  |            |  |

|   |       |  |            |
|---|-------|--|------------|
| SO 201 Introduction to Sociology  | 3     | GL 253 Geomorphology (or Free Elective) <sup>2</sup> | 3-4        |
|   |       | Free Elective <sup>2</sup>                           | 3-4        |
| Semester Total Credits  | 16-18 | Semester Total Credits                               | 16-18      |
| <b>Senior</b>   |       |  |            |
| <b>Fall</b>   |       | <b>Cr. Spring</b>                                    | <b>Cr.</b> |
| BI 405 Ecology  |       | 4 ES 451 Environmental Science Seminar               | 3          |
| Concentration Elective  | 3-4   | ES 460 Project Completion in Environmental Science   | 1          |
| ES 440 Research Project in Environmental Science (General Education Capstone) | 3     | Concentration Elective                               | 3-4        |
| General Education Arts & Humanities OR PH 323                                 | 3     | Free Elective <sup>2</sup>                           | 3-4        |
|   |       | Free Elective (or GL 253) <sup>2</sup>               | 3-4        |
|   |       | Free Elective <sup>2</sup>                           | 3-4        |
| Semester Total Credits  | 13-14 | Semester Total Credits                               | 16-20      |
| Total Credits For This Major: 120-131   |       |  |            |

<sup>1</sup> 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.

<sup>2</sup> Can be used out of sequence and to take more than on concentration elective concurrently.

## Available Concentrations – Option II

### Environmental Policy and Management

|           |  |    |
|-----------|--|----|
| MG 101    | Introduction to Business                           | 3  |
| CS 120    | Business Applications & Problem Solving Techniques | 3  |
| SO 202    | Problems of Modern Society                         | 3  |
| PO 321    | U.S. Constitutional Law                            | 3  |
| MG 309    | Management of Organizations                        | 3  |
| MG 341    | Business Law I                                     | 3  |
| Total Cr. |  | 18 |

### Environmental Law and Protection

|                                    |                                  |    |
|------------------------------------|----------------------------------|----|
| CJ 101                             | Introduction to Criminal Justice | 3  |
| CJ 102                             | Substantive Criminal Law         | 3  |
| CJ 402                             | Law and Society                  | 3  |
| <b>Two of the following three:</b> |                                  | 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 Cr.                          |                                  | 18 |

### Environmental Writing

|                               |  |    |
|-------------------------------|--|----|
| EN 274                        | Introduction to Creative Writing                 | 3  |
| EN 364                        | Intermediate Creative Writing                    | 3  |
| <b>Four of the following:</b> |  | 12 |
| EN 203                        | Advanced Composition                             | 3  |
| EN 227                        | Survey of American Literature I                  | 3  |
| EN 228                        | Survey of American Literature II                 | 3  |
| EN 251                        | Literature of the Sea                            | 3  |
| EN 282                        | Literary Methods                                 | 3  |
| EN 292                        | American Ethnic Literature & Cultural Literature | 3  |
| EN 320                        | Literature of the Developing World               | 3  |
| CM 109                        | Introduction to Mass Media                       | 3  |
| Total Cr.                     |  | 18 |

### 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  |
| <b>One of the following three:</b> |   | 3  |
| FA 201                             | History/Theory of Architecture I              | 3  |
| FA 202                             | History/Theory of Architecture II             | 3  |
| FA 308                             | History/Theory of Architectural III           | 3  |
| Total Cr.                          |   | 20 |

### Environmental Education<sup>1</sup>

|                               |                          |       |
|-------------------------------|--------------------------|-------|
| ED 104                        | Foundations of Education | 3     |
| <b>Five of the following:</b> |                          | 16-19 |

|           |  |       |
|-----------|--|-------|
| ED 234    | Learning and Teaching Strategies                   | 4     |
| ED 315    | Special Needs Child                                | 3     |
| ED 351    | Methods of Teaching Science to Elementary Students | 3     |
| ED 363    | Reading and Writing in the Content Area            | 4     |
| PY 220    | Developmental Psychology                           | 3     |
| PY 324    | Adolescent Psychology                              | 3-4   |
| PY 352    | Learning and Memory                                | 4     |
| Total Cr. |  | 19-22 |

<sup>1</sup> For Environmental Education concentration students seeking licensure, a double major in Education, Elementary Teacher Licensure is required, and may require an additional semester for student teaching.

## Exercise Science

Faculty: Assistant Professors Thomas Roberge and Amanda Tepfer; Lecturer Kylie Cowens

Information

### Goals:

- The goals of the Exercise Science major are to provide undergraduate students with the following:
  - A fundamental background in human physiology
  - An understanding of how exercise can impact the human body in a positive manner
  - A solid foundation in the natural sciences
  - To produce highly trained individuals to educate others on how to exercise appropriately without causing undue harm

### Outcomes:

- Exercise Science students will acquire scientific literacy related to the biological and exercise sciences. This will be demonstrated through written and oral expression.
- Exercise Science students will conduct laboratory research to allow students to learn hands-on experimental methodology, approach, design, and statistical analysis.
- The Exercise Science major will give students the knowledge, skills and abilities to become gainfully employed upon graduation or secure a position at a graduate school in a related field.

### Careers for this Major:

- Cardiopulmonary Rehabilitation Specialist; Exercise Technologist in cardiology suites
- Personal Trainer/Exercise leader
- Strength and Conditioning Coach for College, University and professional sports programs
- Laboratory Researcher in exercise science
- Sports Nutritionist
- Corporate Fitness Program Director
- Sports and Wellness Program Instructor and Director
- Health Promotion Specialist

### B.S. in Exercise Science Curriculum Map 2016-2017 Catalog

Print PDF Curriculum Map

| Freshman   |   |     |
|--|---|-----|
| Fall   | Cr. Spring  | Cr. |
| BI 101 Principles of Biology I (General Education Lab Science)               | 4 CH 101 Introduction to General Chemistry                                | 4   |
| EN 101 Composition and Literature I (General Education English)              | 3 EN 102 Composition and Literature II (General Education English)        | 3   |
| MA 107 Precalculus Mathematics (General Education Math)                      | 4 MA 232 Elementary Statistics (General Education Math)                   | 3   |
| PE 161 Physical Fitness & Wellness Assessment <sup>C</sup>                   | 3 PE 265 Lifelong Motor Development <sup>C</sup>                          | 3   |
| PE 260 Personal and Community Health <sup>C</sup>                            | 3 PE 107 Foundations of Physical Education <sup>C</sup>                   | 3   |
| Semester Total Credits   | 17 Semester Total Credits   | 16  |
| Sophomore  |   |     |
| Fall   | Cr. Spring  | Cr. |
| BI 215 Human Anatomy & Physiology I  | 4 BI 216 Human Anatomy & Physiology II                                    | 4   |
| CH 102 Introduction to Organic and Biochemistry                              | 4 BI 253 Foods and Nutrition  | 4   |
| PE 261 Foundations in Health Education <sup>C</sup>                          | 4 General Education Literature  | 3   |
| PE 306 Outdoor Physical Education I <sup>C</sup>                             | 3 PE 307 Outdoor Physical Education II <sup>C</sup>                       | 3   |
|  | PY 211 Introduction to Psychology (General Education Social Science)      | 3   |
| Semester Total Credits   | 15 Semester Total Credits   | 17  |
| Junior   |   |     |
| Fall   | Cr. Spring  | Cr. |
| PE 355 Coaching:Leadership in Sports (General Education Ethics) <sup>C</sup> | 3 BI 364 Pathophysiology in Sports Medicine <sup>C</sup>                  | 4   |
| PE 365 Kinesiology <sup>C</sup>  | 4 General Education Arts & Humanities                                     | 3   |
| PE 333 Management Sports Facilities <sup>C</sup>                             | 3 General Education History   | 3   |
| PS 201 General Physics I   | 4 PE 371 Physiology of Exercise <sup>C</sup>                              | 4   |
|  | PE 432 Organization and Administration in Physical Education <sup>C</sup> | 3   |
| Semester Total Credits   | 14 Semester Total Credits   | 17  |

| Senior  |       |                                      |     |
|---|-------|--------------------------------------|-----|
| Fall  | Cr.   | Spring                               | Cr. |
| BI 401 Senior Seminar <sup>C</sup>                                | 3     | PE 426 Internship (OR Free Elective) | 12  |
| BI 440 Reading and Research (OR Free Elective)                    | 3-4   |                                      |     |
| PE 441 Advanced Exercise Physiology and Prescription <sup>C</sup> | 4     |                                      |     |
| PE 450 Exercise Testing and Electrocardiography <sup>C</sup>      | 4     |                                      |     |
| Semester Total Credits  | 14-15 | Semester Total Credits               | 12  |
| Total Credits For This Major: 122-123                             |       |                                      |     |

c Grade of C or higher required.

- All sciences must be taken as lab sciences (4 credit courses)
- Certification in First Aid & CPR is also required for graduation

## Finance

Charles A. Dana Professor Michael Puddicombe; Professors David Jolley, Mich Kabay, and Mehdi Mohaghegh; Associate Professors David Blythe and Thomas Yandow; Assistant Professor Alex Chung; Lecturers Stephen Pomeroy and Kris Rowley.

### Goals:

In a rapidly changing and complex financial environment, college graduates in all disciplines will need financial management knowledge and skills to fulfill their professional careers and their own personal lives. The goal is to promote financial literacy. As a result, they must understand financial terminology, how to make budgets and how to channel resources and invest. Students should be able to make informed financial decisions.

### Careers for this Minor:

- Asset Management
- Investment Banking
- Commercial Banking and Management of Financial Institutions
- Financial Engineering
- Corporate Financial Management
- Consulting
- Private Equity / Venture Capital

### Finance Minor Curriculum Map 2016-2017 Catalog

- Students seeking a minor in Finance must obtain the approval of the School Director
- Complete all 6 courses with a grade of C or higher.

|                                  |                                      |    |
|----------------------------------|--------------------------------------|----|
| FN 311                           | Corporate Finance                    | 3  |
| FN 407                           | Corporate Finance II                 | 3  |
| FN 412                           | Investments                          | 3  |
| EC 310                           | Money and Banking                    | 3  |
| <b>Any two of the following:</b> |                                      | 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 Cr.                        |                                      | 18 |

## French

Professor Frances Sikola Chevalier (Department Chair and Program Director).

French is a useful strategic language, especially for those interested in careers in the military, business, the Department of Defense, research, and industry. It is ranked as the second most important communication language in the world after English by the Bloomberg Rankings (2014). Norwich has developed a program to prepare students to use French in the workplace or to strengthen an application for graduate school.

The French minor offers courses that are communicative and interactive at all levels. For beginning and intermediate-level students, a strong audio-video program facilitates learning language from native speakers through visuals and oral patterning. Every course includes a cultural focus. Literature, civilization courses and the examination of international French-language media sources provide opportunities for students to be alert to cultural differences outside their own culture to develop a more global perspective. The French minor offers service-learning courses and community service with leadership opportunities. Past examples of service include French-language interpreter/cultural role-play with 40 members of the National Guard, participation in Vermont's Lake Champlain Quadricentennial events representing the French heritage of the region, and the translation of a brochure for the Washington County Battered Women Services and Shelter.

All students are encouraged to participate in the program's *Cercle Francophone*/French Club on-campus and to study abroad for a summer or semester in an approved overseas program to experience language immersion and explore products, practices, and perspectives of other cultures. Norwich maintains a student exchange program with the renowned French military academy, *l'École Spéciale Militaire de Saint-Cyr* in Coëtquidan, France.

The foreign language placement test is required before any student registers for a first course in the program.

### The minor in French

**Goals:**

Our program aims to provide students with competency using the forms of language and cultural expression appropriate for use in the professions.

**Outcomes:**

Upon successful completion of the minor in French, students will present test results and written work in their dossiers showing the abilities to:

- develop linguistic skills in oral and written expression at the intermediate to low-advanced level
- engage in everyday conversation with native speakers of French
- communicate with respect and cultural understanding in the French language
- read and analyze authentic documents from French-speaking societies
- produce texts and media in French and demonstrate an understanding of approaches to translation

**Careers for this Minor:**

Because French is ranked the second most important communication language in the world after English according to the Bloomberg Rankings (2014) and has been identified as strategic for the military and counter-terrorist organizations, demonstrated proficiency in French language and culture can be a very useful asset for careers in

- military service
- diplomacy
- business
- law enforcement and peacekeeping
- state and federal government agencies
- industry and technology
- research
- teaching
- NGO global partnerships.

**French Minor Curriculum Map 2016-2017 Catalog**

All courses require a grade of C or higher. The courses required to complete the minor depend on the foreign-language proficiency level of the incoming student. See tracks A and B below:

**A. Track A is to be completed by students who place at or below the intermediate level:**

|                             |                        |    |
|-----------------------------|------------------------|----|
| FR 205                      | Intermediate French I  | 3  |
| FR 206                      | Intermediate French II | 3  |
| FR Elective (250 or higher) |                        | 3  |
| FR Elective (311 or higher) |                        | 3  |
| FR Elective (311 or higher) |                        | 3  |
| FR Elective (311 or higher) |                        | 3  |
| <hr/>                       |                        |    |
| Total Cr.                   |                        | 18 |

**B. Track B is to be completed by students who place above the intermediate level:**

|                             |  |    |
|-----------------------------|--|----|
| FR Elective (311 or higher) |  | 3  |
| FR Elective (311 or higher) |  | 3  |
| FR Elective (311 or higher) |  | 3  |
| FR Elective (311 or higher) |  | 3  |
| FR Elective (311 or higher) |  | 3  |
| FR Elective (311 or higher) |  | 3  |
| <hr/>                       |  |    |
| Total Cr.                   |  | 18 |

**Geology**

Charles A. Dana Professor Richard K. Dunn (Chair); Charles A. Dana Professor David S. Westerman; Assistant Professor G. Christopher Koteas; Lecturer Laurie D. Grigg; Research Associate George E. Springston

The Geology major provides a broad background in the physical sciences, with a strong focus on geology and its pivotal role in understanding our environment. Our graduates enter graduate school for continuing education, or move into the workforce prepared to contribute as leaders addressing the many local and global issues facing society.

The major emphasizes experiential learning through field studies and outdoor education. Courses include real projects and original research participation. The program is enriched through department field trips across New England, eastern Canada, and the western United States. All Geology majors take a pair of capstone courses involving an original research project and a seminar designed to synthesize their education and tie scientific thought to issues in society.

Students majoring in Geology have access to equipment for analyses of ground and surface water, soil, sediment, and rock. This equipment enables terrestrial and lake coring, collection of hydro-geochemical data, determination of sediment characteristics, subsurface studies, geological mapping, and more. Specific analytical tools include X-ray diffractometer, scanning electron microscope, and inductively coupled plasma spectrophotometer. The program also has a range of geophysical exploration equipment, including a gravity meter, seismographs, electromagnetometers, a magnetometer, and ground penetrating radar instruments.

**Goals:**

- To provide a Liberal Arts degree program in Geology having a broad background in the physical sciences with a focus on geology and its pivotal role in understanding our environment.
- To provide instruction and experiences with emphasis on field studies, solution of active problems, and communication in a professional format.

**Outcomes:**

- Know the procedures for identification of rocks, minerals and fossils,
- Understand the stresses produced in a dynamic Earth and their resulting products, and know the fundamentals of plate tectonic theory,
- Understand the materials and processes involved in the constitution and transformation of the Earth, both on the surface and within,
- Know how to define a problem, design a study to acquire data, critically analyze and interpret data, and discuss the implications of results, and
- Be able to think critically about published professional work, synthesize the content of such work, and present findings at a professional level both in writing and orally.
- Meet the University's General Education Goals.

**Careers for this Major:**

- Graduate school
- State and federal surveys
- Military
- Teaching
- Industry and consulting

**B.S. in Geology – Curriculum Map 2016-2017 Catalog**

Print PDF Curriculum Map

| <b>Freshman</b>   |            |  |            |
|---|------------|--|------------|
| <b>Fall</b>   | <b>Cr.</b> | <b>Spring</b>  | <b>Cr.</b> |
| CH 103 General Chemistry I                                      |            | 4 CH 104 General Chemistry II  | 4          |
| GL 110 Introduction to Geology (General Education Lab Science)  |            | 4 EN 102 Composition and Literature II                                   | 3          |
| EN 101 Composition and Literature I                             |            | 3 GL 156 Introduction to Earth Evolution (General Education Lab Science) | 4          |
| MA 107 Precalculus Mathematics (General Education Math)         |            | 4 MA 108 Applied Calculus (General Education Math)                       | 4          |
| Semester Total Credits  | 15         | Semester Total Credits   | 15         |
| <b>Sophomore</b>  |            |  |            |
| <b>Fall</b>   | <b>Cr.</b> | <b>Spring</b>  | <b>Cr.</b> |
| EN 201 World Literature I (General Education Literature)        |            | 3 EN 202 World Literature II   | 3          |
| General Education Social Science                                |            | 3 General Education Arts & Humanities                                    | 3          |
| GL 200 level Elective <sup>1</sup>                              | 4          | GL 200 level Elective <sup>1</sup>                                       | 4          |
| GL 251 Sophomore Seminar in Geology                             | 1          | PS 202 General Physics II  | 4          |
| PS 201 General Physics I  | 4          | Free Elective  | 3-4        |
| Free Elective   | 3-4        |  |            |
| Semester Total Credits  | 18-19      | Semester Total Credits   | 17-18      |
| <b>Junior</b>   |            |  |            |
| <b>Fall</b>   | <b>Cr.</b> | <b>Spring</b>  | <b>Cr.</b> |
| General Education History                                       |            | 3 General Education Ethics <sup>3</sup>                                  | 3          |
| GL 200 level Elective <sup>1</sup>                              | 4          | GL 200 level Elective <sup>1</sup>                                       | 4          |
| MA 232 Elementary Statistics                                    | 3          | GL 340 Project Development in Geology                                    | 1          |
| Tech Elective <sup>2</sup>                                      | 3-4        | Tech Elective <sup>2</sup>   | 3-4        |
| Free Elective   | 3-4        | Free Elective  | 3-4        |
|   |            | Free Elective  | 3-4        |
| Semester Total Credits  | 16-18      | Semester Total Credits   | 17-20      |
| <b>Senior</b>   |            |  |            |
| <b>Fall</b>   | <b>Cr.</b> | <b>Spring</b>  | <b>Cr.</b> |
| GL 200 level Elective <sup>1</sup>                              | 4          | GL 200 level Elective <sup>1</sup>                                       | 4          |
| GL 440 Research Project in Geology (General Education Capstone) | 3          | GL 451 Geology Seminar (General Education Capstone)                      | 3          |
| Tech Elective <sup>2</sup>                                      | 3-4        | GL 460 Project Completion in Geology                                     | 1          |
| Free Elective   | 3-4        | Tech Elective <sup>2</sup>   | 3-4        |
| Free Elective   | 3-4        | Free Elective  | 3-4        |
|   |            | Free Elective  | 3-4        |
| Semester Total Credits  | 16-19      | Semester Total Credits   | 17-20      |
| Total Credits For This Major: 131-144                           |            |  |            |

<sup>1</sup> These six electives must include Sedimentation (GL 257), Structural Geology (GL 262), and Mineralogy (GL 263).

<sup>2</sup> Technical Electives for this degree include Science courses (GL, ES, CH, BI, PS), Mathematics (above MA 103 College Algebra I), Engineering, or Computer Science courses to include CS 140 or any CS 200-level course.

<sup>3</sup> PH 323 Environmental Ethics strongly recommended.

**Geology Minor Curriculum Map 2016-2017 Catalog**

|                                   |       |
|-----------------------------------|-------|
| GL Elective                       | 3-4   |
| GL Elective                       | 3-4   |
| GL Elective (200 level or higher) | 3-4   |
| GL Elective (200 level or higher) | 3-4   |
| GL Elective (200 level or higher) | 3-4   |
| GL Elective (200 level or higher) | 3-4   |
| Total Cr.                         | 18-24 |

## German

Professor David Ward (Program Director)

The German program at Norwich is designed to give students a thorough mastery of speaking, aural comprehension, and reading and writing skills in German and a solid background in German literature and culture. Norwich maintains a student exchange program with the German military university, die Universität der Bundeswehr. Both civilian and corps students with a distinguished GPA and advanced proficiency in German may apply to participate in the program.

### German Minor Curriculum Map 2016-2017 Catalog

All courses require a grade of C or higher. The courses required to complete the minor depend on the foreign-language proficiency level of the incoming student. See tracks A and B below:

#### A. The following is the track to complete the minor for those who enter Norwich at or below the intermediate level:

|                            |                        |    |
|----------------------------|------------------------|----|
| GR 205                     | Intermediate German I  | 3  |
| GR 206                     | Intermediate German II | 3  |
| GR Elective (250 or above) |                        | 3  |
| GR Elective (321 or above) |                        | 3  |
| GR Elective (321 or above) |                        | 3  |
| GR Elective (321 or above) |                        | 3  |
| Total Cr.                  |                        | 18 |

#### B. Track B is to be completed by students who place above the Intermediate level:

|                            |  |    |
|----------------------------|--|----|
| GR Elective (321 or above) |  | 3  |
| GR Elective (321 or above) |  | 3  |
| GR Elective (321 or above) |  | 3  |
| GR Elective (321 or above) |  | 3  |
| GR Elective (321 or above) |  | 3  |
| GR Elective (321 or above) |  | 3  |
| Total Cr.                  |  | 18 |

## Health Sciences

Lecturer James Murdock, ATC (Chair); Lecturer Jennie Kruger, ATC; Lecturer Gregory Jancaitis, ATC, and Lecturer Justin P. Zabrowski, ATC

The Health Sciences program provides students an in-depth science background, and an introduction to the health care field.

A core curriculum in the first and second year provides the students with a sound understanding of liberal arts, biology, chemistry, mathematics, physics, assessment, care and prevention, along with our hands-on experiences in labs, and opportunities for internships provide the necessary framework.

### Goal:

To prepare students to meet the entrance requirements of graduate schools in areas such as physical therapy, occupational therapy, physician's assistant, medicine, public health, exercise sciences, biomechanics, and hospital administration.

### Outcomes:

- Pending

### Careers for this Major:

- Hospitals
- International healthcare organizations
- Research facilities
- Universities

### B.S. in Health Sciences - Curriculum Map 2016-2017 Catalog

Print PDF Curriculum Map

| Freshman   |     |   |    |
|--|-----|---|----|
| Fall   | Cr. | Spring Cr.  |    |
| BI 101 Principles of Biology I (General Education Lab Science)       | 4   | BI 102 Principles of Biology II (General Education Lab Science) | 4  |
| EN 101 Composition and Literature I                                  | 3   | EN 102 Composition and Literature II                            | 3  |
| MA 232 Elementary Statistics (General Education Math)                | 3   | General Education History                                       | 3  |
| SM 136 Emergency Care, Injury/Illness <sup>2</sup>                   | 3   | SM 139 Health Science Research Methods <sup>2</sup>             | 2  |
| SM 138 Introduction to Sports Medicine <sup>2</sup>                  | 3   | SM 220 Care and Prevention of Athletic Injuries <sup>2</sup>    | 4  |
| Semester Total Credits   | 16  | Semester Total Credits  | 16 |
| Sophomore  |     |   |    |
| Fall   | Cr. | Spring Cr.  |    |
| BI 215 Human Anatomy & Physiology I <sup>2</sup>                     | 4   | BI 216 Human Anatomy & Physiology II <sup>2</sup>               | 4  |
| CH 103 General Chemistry I   | 4   | CH 104 General Chemistry II                                     | 4  |
| MA 107 Precalculus Mathematics                                       | 4   | PE 260 Personal and Community Health <sup>2</sup>               | 3  |
| PY 211 Introduction to Psychology (General Education Social Science) | 3   | SM 230 Fundamentals of Evidence-Based Practice <sup>2</sup>     | 2  |
|  |     | General Education Literature                                    | 3  |
| Semester Total Credits   | 15  | Semester Total Credits  | 16 |

| Junior   |     |   |       |
|--|-----|---|-------|
| Fall   | Cr. | Spring  | Cr.   |
| PS 201 General Physics I   | 4   | CH 205 Survey of Organic Chemistry or BI 364 Pathophysiology in Sports Medicine | 4     |
| PE 365 Kinesiology <sup>2</sup>  | 4   | PS 202 General Physics II   | 4     |
| SM 420 Therapeutic Modalities <sup>2</sup>                                   | 4   | PE 371 Physiology of Exercise <sup>2</sup>                                      | 4     |
| General Education Arts & Humanities  | 3   | SM 422 Therapeutic Exercise <sup>2</sup>  | 4     |
| Semester Total Credits   | 15  | Semester Total Credits  | 16    |
| Senior   |     |   |       |
| Fall   | Cr. | Spring  | Cr.   |
| SM 210 Assessment of Injury and Illness <sup>2</sup>                         | 4   | BI 364 Pathophysiology in Sports Medicine or CH 205 Survey of Organic Chemistry | 4     |
| SM 450 Capstone Experience I <sup>2</sup>                                    | 1   | SM 451 Capstone Experience II <sup>2</sup>                                      | 1     |
| SM 439 Leadership & Management in Sports Medicine (General Education Ethics) | 3   | Free Electives or Internship <sup>1</sup>                                       | 9-12  |
| Biology Elective   | 4   |   |       |
| Free Elective <sup>1</sup>   | 3   |   |       |
| Semester Total Credits   | 15  | Semester Total Credits  | 14-17 |
| Total Credits For This Major: 123-126  |     |   |       |

<sup>1</sup> SM 426 Internship may be taken by qualified students during the junior or senior year in place of two or three Free Elective credits.

<sup>2</sup> Courses must be taken in order presented and passed with a grade of C or higher before progressing in the program.

## Health Minor

### Health Minor Curriculum Map 2016-2017 Catalog

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 higher.

|  |  |            |
|--|--|------------|
| PE 161   | Physical Fitness & Wellness Assessment   | 3          |
| PE 260   | Personal and Community Health            | 3          |
| BI 253   | Foods and Nutrition                      | 4          |
| <b>Three additional courses from the following list:</b> |  | <b>7-8</b> |
| BI 220   | Introductory 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          |
| PY 211   | Introduction to Psychology               | 3          |
| PY 220   | Developmental Psychology                 | 3          |
| PY 324   | Adolescent Psychology                    | 3-4        |
| SM 220   | Care and Prevention of Athletic Injuries | 4          |
| SO 320   | Drugs and Society                        | 3          |
| Total Cr.  |  | 57-59      |

## History

Program Coordinator: Emily Gray

Charles A. Dana Professors Gary Lord and Reina Pennington; Professors Rowland Brucken, Christine McCann, and Thomas Taylor; Associate Professors Emily Gray and Steven Sodergren; Assistant Professor Miri Kim.

### Mission:

The History Program instills and fosters, in the spirit of free inquiry and intellectual exchange, an understanding of the influence of political, economic, social and cultural forces on past and contemporary events, institutions, and peoples. The History Program provides students with the ability to comprehend, compare, and evaluate competing explanations of past and present subjects, using reason and evidence to guide inquiry.

### Goals:

- Develop critical thinking, research, and communications skills.
- Develop an appreciation for the variety of cultures and civilizations of the world, across every period of history, from the ancient world to the 21<sup>st</sup> century.
- Promote not only tolerance of different perspectives and points of view, but an understanding of why these differences exist and persist.
- Complete independent research in the field of history by working with professional historians.

### Outcomes:

- Students are able to write and speak effectively about the contributions of others as well as their own research.
- Students understand and use the methods and ethical standards of professional historians.
- Students are able to discern between different types of sources.

- Students develop and present a thesis.

**Careers for this Major:**

- Historian
- Military Officer
- Lawyer
- Museum Curator
- Teacher
- Intelligence Officer
- Any career that requires critical thinking, analytical, problem solving, and communications skills

**B.A. in History – Curriculum Map 2016-2017 Catalog**

Print PDF Curriculum Map

| <b>Freshman</b>  |            |   |            |
|--|------------|---|------------|
| <b>Fall</b>  | <b>Cr.</b> | <b>Spring</b>   | <b>Cr.</b> |
| EN 101 Composition and Literature I                                      | 3          | EN 102 Composition and Literature II  | 3          |
| HI 100 or higher <sup>1</sup>  | 3          | HI 121 American History Survey I or 122 American History Survey II (General Education History) <sup>2</sup> | 3          |
| Modern Language 111  | 6          | Modern Language 112   | 6          |
| PO 105 American Politics (General Education Social Science) <sup>2</sup> | 3          | Free Elective   | 3          |
| Semester Total Credits   | 15         | Semester Total Credits  | 15         |
| <b>Sophomore</b>   |            |   |            |
| <b>Fall</b>  | <b>Cr.</b> | <b>Spring</b>   | <b>Cr.</b> |
| EN 201 World Literature I (BA Requirement)                               | 3          | BA Arts & Humanities  | 3          |
| General Education Arts & Humanities                                      | 3          | EN 202 World Literature II (BA Requirement)   | 3          |
| General Education Math   | 3          | General Education Math  | 3          |
| HI 200 level or higher <sup>3</sup>                                      | 3          | HI 200 Level or Higher <sup>3</sup>   | 3          |
| HI 209 Historical Methods <sup>2</sup>                                   | 3          | PO 202 Introduction to Comparative Politics <sup>2</sup>  | 3          |
| Semester Total Credits   | 15         | Semester Total Credits  | 15         |
| <b>Junior</b>  |            |   |            |
| <b>Fall</b>  | <b>Cr.</b> | <b>Spring</b>   | <b>Cr.</b> |
| EC 201 Principles of Economics (Macro)                                   | 3          | General Education Lab Science   | 4          |
| HI Colloquium <sup>2,4,11</sup>  | 3          | General Education Literature  | 3          |
| HI Distribution Elective <sup>3,5,6,7,8</sup>                            | 3          | HI Distribution Elective <sup>3,5,6,7,8</sup>   | 3          |
| General Education Ethics   | 3          | HI Distribution Elective <sup>3,5,6,7,8</sup>   | 3          |
| General Education Lab Science  | 4          | Free Elective   | 3          |
| Semester Total Credits   | 16         | Semester Total Credits  | 16         |
| <b>Senior</b>  |            |   |            |
| <b>Fall</b>  | <b>Cr.</b> | <b>Spring</b>   | <b>Cr.</b> |
| HI Distribution Elective <sup>3,5,6,7,8</sup>                            | 3          | HI Upper Level Elective <sup>3,10</sup>   | 3          |
| HI 43X Course (Capstone) <sup>2,4,9</sup>                                | 3          | Free Elective   | 3          |
| Free Elective  | 3          | Free Elective   | 3          |
| Free Elective  | 3          | Free Elective   | 3          |
| Free Elective  | 3          | Free Elective   | 3          |
| Semester Total Credits   | 15         | Semester Total Credits  | 15         |
| Total Credits For This Major: 122  |            |   |            |

- 1 HI 100 level courses open to Freshmen only. History majors may not count more than five HI 100 and 200 level courses, including HI 209 Historical Methods, towards this major. History majors must complete 12 courses (36 credits) in History.
- 2 Grade of C or higher required.
- 3 One 200 level History course required with a C or higher, or written instructor permission to enroll in a 300 level History course.
- 4 May be counted as distribution courses. Additional 300 level History courses may be necessary so that the 12 course History requirement is satisfied.
- 5 United States History. Choose one course from: HI 331, HI 332, HI 333 HI 334, HI 335, HI 338, HI 339 HI 340 HI 341 HI 360, HI 372, HI 373, HI 430.
- 6 Modern European History. Choose one course from: HI 322 HI 326, HI 329, HI 361 HI 431.
- 7 Pre-Modern History (prior to 1600 C.E.). Choose one course from: HI 303, HI 304, HI 321 HI 362 HI 432
- 8 Non-Western History. Choose one course from: HI 315 HI 317 HI 319, HI 345, HI 363 HI 433.
- 9 HI 400 level courses require instructor permission.
- 10 HI Upper Level Elective (300 or 400 level).
- 11 History Colloquium. Choose one course from: HI 303, HI 304, HI 319, HI 322, HI 333, HI 335, HI 340, HI 345 or HI 355

**History Minor Curriculum Map 2016-2017 Catalog**

Must complete six HI courses with a grade of C or higher.

|                   |   |
|-------------------|---|
| HI Elective       | 3 |
| HI Elective       | 3 |
| HI Elective       | 3 |
| 84 <i>History</i> |   |

|                                 |    |
|---------------------------------|----|
| HI 200 level Elective           | 3  |
| HI 300 level Elective           | 3  |
| History Colloquium <sup>1</sup> | 3  |
| Total Cr.                       | 18 |

<sup>1</sup> History Colloquium. Choose one course from: HI 303, HI 304, HI 319, HI 322, HI 333, HI 335, HI 340, HI 345 or HI 355

## Information Assurance

Professor Mich Kabay; Associate Professors David Blythe, Jeremy Hansen and Huw Read; Lecturers Matthew Bovee and Kris Rowley

Assuring the security and integrity of information assets is now widely recognized as a critical function. Information is one of the most valuable, fragile and irreplaceable assets possessed or owned by an individual or organization. The Information-Assurance minor is designed to provide students in any major with the foundational knowledge and skills for practical work and further study in information assurance, and for information-assurance specialization within their major field. This includes: general knowledge of computer information systems; a programming language; introductory digital forensics; data communications; networks and network security; information-assurance fundamentals; and the management of information assurance.

### Goals:

Provide students with:

- An understanding and appreciation of computer science, computer security, and information assurance fundamentals
- Knowledge and basic facility with a high-level programming language
- Understanding of and ability to use data communication concepts and terminology
- Foundational understanding and skills in digital forensics, cyber-investigation, and information assurance
- Understanding of the multi-disciplinary, multi-jurisdictional regulations and standards that govern and guide information assurance, and their appropriate application
- The foundation for practical work and further study in information assurance
- The ability to intelligently and usefully discuss and information assurance topics at a management level
- An understanding of the high ethical, personal and professional standards associated with information assurance for individuals, organizations, and society

### Outcomes:

Upon graduation successful students will competently demonstrate:

- Use of fundamental computing and data communication terminology, concepts and practices
- Appropriate application of essential cyber crime and digital forensic concepts, techniques and procedures
- The ability to recognize, define or explain, and use the technical terminology of information assurance
- Application of the fundamentals of information assurance, information assurance management, and their application in organizational contexts
- High ethical, personal and professional standards, especially in regards to information assurance and its impact on individuals, organizations, and society

### Careers for this Minor:

Information assurance is critical to all fields, all organizations, and all individuals. Depending on the students major, augmenting it with the Information Assurance minor prepares the student for further study and for specialization within their chosen field in:

- Information Assurance
- Information-Assurance Management
- Information-Systems/Technology Management
- Cyber warfare assignments in military and national-security organizations
- Legal studies and careers in law

### Information Assurance Minor Curriculum Map 2016-2017 Catalog

Students seeking a minor in Information Assurance must obtain the approval of the School Director and complete all of the six courses listed below, each with a grade of C or higher.

|           |  |    |
|-----------|--|----|
| CS 140    | Programming and Computing <sup>1</sup>             | 4  |
| CS 260    | Data Communications and Networks <sup>2</sup>      | 3  |
| DF 395    | Cyber Criminalistics <sup>3</sup>                  | 3  |
| IA 340    | Introduction to Information Assurance <sup>2</sup> | 3  |
| IA 342    | Management of Information Assurance                | 3  |
| IA 360    | Network Security <sup>4</sup>                      | 3  |
| Total Cr. |  | 19 |

<sup>1</sup> Prerequisite: C or higher in IS 100 or CS 100, or instructor permission

<sup>2</sup> Prerequisite: C or higher in IS 131 or CS 140, or instructor permission

<sup>3</sup> Prerequisites: Open to CJ 2nd semester sophomores or higher, or by instructor permission

<sup>4</sup> Prerequisite: IS 460 or CS 260

## International Studies

Program Coordinator: Thomas F. Taylor

**Mission:**

The International Studies program develops, within students, an appreciation for the diversity of political, economic, and cultural systems in the world through an interdisciplinary curriculum. In addition to coursework, students expand their understanding of the world by studying abroad. International Studies majors develop self-discipline, critical thinking skills, and the ability to communicate effectively in both their language and a second language.

**Goals:**

- Develop the skills which will enable students to have successful and rewarding careers.
- Develop proficiency in a second language.
- Develop a substantive knowledge of the culture, history, political system and economy of a different country or region.

**Outcomes:**

- Have studied abroad in a non-English speaking country for at least one semester.
- Able to write and speak effectively about foreign study experiences.
- Be prepared for the job market, graduate studies, or law school.

**Careers for this Major:**

- Graduate studies
- Government service
- International agencies
- Multinational corporations
- Non-profit organizations
- Law
- Military

**B.A. International Studies - Curriculum Map 2016-2017 Catalog**

Print PDF Curriculum Map

Exceptions to any of these provisions listed below in the footnotes 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.

| <b>Freshman</b>   |            |   |            |
|---|------------|---|------------|
| <b>Fall</b>   | <b>Cr.</b> | <b>Spring</b>   | <b>Cr.</b> |
| EN 101 Composition and Literature I   | 3          | EN 102 Composition and Literature II  | 3          |
| HI 108 The History of Civilization II (General Education History)             | 3          | General Education Math  | 3          |
| IN 101 Introduction to International Studies *                                | 3          | Modern Language 112 <sup>1</sup>  | 6          |
| Modern Language 111 <sup>1</sup>  | 6          | PO 105 American Politics (General Education Social Science) *                   | 3          |
| Semester Total Credits  | 15         | Semester Total Credits  | 15         |
| <b>Sophomore</b>  |            |   |            |
| <b>Fall</b>   | <b>Cr.</b> | <b>Spring</b>   | <b>Cr.</b> |
| EN 201 World Literature I (BA Requirement)                                    | 3          | EC 202 Principles of Economics (Micro) or 201 Principles of Economics (Macro) * | 3          |
| EC 201 Principles of Economics (Macro) or 202 Principles of Economics (Micro) | 3          | EN 202 World Literature II (BA Requirement)                                     | 3          |
| General Education Math  | 3          | General Education Ethics  | 3          |
| Modern Language 205 <sup>1, *</sup>   | 3          | Modern Language 206 <sup>1, *</sup>   | 3          |
| PO 215 International Relations *  | 3          | PO 202 Introduction to Comparative Politics *                                   | 3          |
| Semester Total Credits  | 15         | Semester Total Credits  | 15         |
| <b>Junior</b>   |            |   |            |
| <b>Fall</b>   | <b>Cr.</b> | <b>Spring</b>   | <b>Cr.</b> |
| Study Abroad Free Elective <sup>7</sup>                                       | 3          | Comparative Politics Elective <sup>3</sup>                                      | 3          |
| Study Abroad Free Elective <sup>7</sup>                                       | 3          | General Education Lab Science   | 4          |
| Study Abroad Free Elective <sup>7</sup>                                       | 3          | General Education Literature  | 3          |
| Study Abroad Modern Language (300 level) <sup>2, 7</sup>                      | 3          | Modern Language (300 level) <sup>1</sup>  | 3          |
| Study Abroad Humanities Elective  | 3          | Free Elective   | 3          |
| Semester Total Credits  | 15         | Semester Total Credits  | 16         |
| <b>Senior</b>   |            |   |            |
| <b>Fall</b>   | <b>Cr.</b> | <b>Spring</b>   | <b>Cr.</b> |
| Comparative Politics Elective <sup>3</sup>                                    | 3          | BA Arts & Humanities Elective   | 3          |
| General Education Lab Science   | 4          | EC 419 International Economics  | 3          |
| History Elective (200 level) <sup>4</sup>                                     | 3          | History Elective (200 level) <sup>4</sup>                                       | 3          |
| History Elective (300 level)  | 5          | History Elective (300 level) <sup>5</sup>                                       | 3          |
| Free Elective   | 3          | IN 410 Seminar in International Studies (Capstone) <sup>6, *</sup>              | 3          |
| Semester Total Credits  | 18         | Semester Total Credits  | 15         |
| Total Credits For This Major: 124   |            |   |            |

<sup>1</sup> Languages other than Chinese, French, Spanish, or German may be used to satisfy the language requirement with the approval of the Modern Languages Department.

<sup>2</sup> At least one 300 level Modern Language courses must be taken abroad.

- 3 PO 202 is a prerequisite for upper level comparative politics courses and PO 215 is a prerequisite for upper level international relations courses. Choose 2 courses from PO 301, PO 305, PO 310, PO 320, PO 333, PO 340, PO 348, PO 405, PO 412, or PO 415
- 4 Choose 2 History courses from HI 201, HI 202, HI 211, HI 212, HI 214, HI 218 HI 223 HI 224, HI 227, HI 235, or HI 236
- 5 A 200 level history course is a prerequisite for upper level history courses. Choose 2 History courses from HI 303, HI 304, HI 315, HI 317, HI 319, HI 321, HI 322 HI 326, HI 329, HI 338, HI 339, HI 345 HI 363, HI 371, HI 372, or HI 373
- 6 Study Abroad must be completed before enrollment in IN 410
- 7
- 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 pre-approved credit-bearing internships or an off-campus experience within the U.S. (e.g. Washington, DC Semester program).
  - International Studies students must have a minimum cumulative 2.5 GPA at the end of the Sophomore year, and maintain this GPA through the time they apply for study abroad. Student will be required to leave the IS program if they fail to have the minimum cumulative 2.5 GPA at the end of their sophomore year. A decision to require a student to leave the IS program is done by a majority vote of the IS Faculty Advisory Board with the concurrence of the History and Political Science Department Chair.
- \* Grade must be C or higher

## Leadership Minor

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 minor, or concentration, draw 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.

### Goals:

- Build of self and others as members of teams.
- Enhance students' understanding of ethical decision making while developing the mental agility to adapt to the unknowns of the 21<sup>st</sup> century.
- Be able to develop a knowledge and skills essential in the 21<sup>st</sup> century including the role of the team member, teamwork, critical thinking, ethical decision making, mental agility, communications (both oral and written), planning, self awareness including self assessment, self reflection and self regulation, and reflection on ethical standards of conduct in the professional world.

### Outcomes:

- Demonstrate critical thinking skills through effective oral and written communication within the classroom and with the general public.
- Employ their mental agility, team building and planning skills to successfully engage others to affect positive change in their communities.
- Integrate knowledge with experience, formulating ethical decisions through reflection on the ethical standards of conduct within their profession and in their personal lives.
- Synthesize their awareness of self and of others through reflection, accurate assessment and example setting self regulation skills developed during their studies at Norwich.

### Careers for this Minor:

- The management skills that students learn in pursuing a leadership concentration transfer to all organizations and businesses, whether private, public or nonprofit
- Motivate and influence the behavior of the organization's members and teams
- Lead organizational change -- despite the challenges generally associated with change. This expertise is sought by consulting firms that contract out experts to organizations
- Lead departments in public agencies or in private corporations, and move up to the executive level with additional experience

### Leadership Minor Curriculum Map 2016-2017 Catalog

The Leadership Minor is a multidisciplinary opportunity for students to expand their knowledge and experience in leadership via an informally guided, multidisciplinary academic exploration and discovery that builds on the premise that leadership development is a core mission of Norwich University. The minor focuses on building an understanding of self and others as members of teams. Taken as a whole the minor will enhance development of knowledge and skills essential in the 21st century including the role of the team member, teamwork, critical thinking, ethical decision making, mental agility, communications (both oral and written), planning, self-awareness including self-assessment, self-reflection and self-regulation, and reflection on ethical standards of conduct in the professional world.

- The NU Leadership minor is open to students of all academic majors, except for Management majors with a Leadership concentration.
- All minor courses must be completed with a grade of C or higher to earn the minor.
- It is most beneficial if the student selects the minor prior to the start of her or his junior year to allow maximum time for personal assessment, reflection, growth and development.
- All students in the minor will have the opportunity for informal coaching and mentoring by a member of the multidisciplinary Leadership Minor Committee and will have the opportunity to attend and participate in optional leadership development activities.

|        |                          |   |
|--------|--------------------------|---|
| MG 351 | Organizational Behavior  | 3 |
| PY 210 | Psychology of Leadership | 3 |

**Minor-Ethics Elective** <sup>1</sup> 3

**Minor Elective Courses: choose two of the following:** <sup>2</sup> 6

|        |                              |   |
|--------|------------------------------|---|
| AP 222 | Human Issues in Design       | 3 |
| CM 261 | Interpersonal Communications | 3 |
| EN 112 | Public Speaking              | 3 |
| EN 244 | The Literature of Leadership | 3 |
| MG 309 | Management of Organizations  | 3 |
| PH 340 | Philosophy of Non-Violence   | 3 |
| PO 312 | The Presidency               | 3 |

|  |   |    |
|--|---|----|
| PY 211   | Introduction to Psychology                            | 3  |
| PY 236   | Cross-Cultural Psychology                             | 3  |
| PY 240   | Introduction to Social Psychology                     | 3  |
| SO 201   | Introduction to Sociology                             | 3  |
| SO 202   | Problems of Modern Society                            | 3  |
| AS 311   | Air Force Leadership Studies                          | 3  |
| AS 312   | Air Force Leadership Studies                          | 3  |
| MS 311   | Military Science III                                  | 3  |
| MS 312   | Military Science III                                  | 3  |
| NS 221   | Leadership and Management                             | 3  |
| NS 331   | Evolution of Warfare                                  | 3  |
| <b>Minor-Integrating Experience Elective: choose one of the following:</b> |   | 3  |
| MG 409   | Organizational Leadership                             | 3  |
| EG 450   | Professional Issues                                   | 3  |
| SM 439   | Leadership & Management in Sports Medicine            | 3  |
| NR 321   | Nursing Leadership                                    | 3  |
| AS 412   | National Security Affairs/Preparation for Active Duty | 3  |
| MS 411   | Military Science IV                                   | 3  |
| MS 412   | Military Science IV                                   | 3  |
| NS 422   | Leadership and Ethics                                 | 3  |
| Total Cr.  |   | 18 |

<sup>1</sup> Any General Education Ethics course.

<sup>2</sup> The two courses selected must be from two different disciplines outside of the student's major, except for military courses. Military courses used to meet Leadership minor requirements must be in the same discipline.

## Management

Charles A. Dana Professor Michael Puddicombe; Professors Bill Jolley, Mich Kabay, and Mehdi Mohaghegh; Associate Professors David Blythe, Jeremy Hansen, Huw Read, and Thomas Yandow; Assistant Professor Alex Chung; Lecturers Matt Bovee, Stephen Pomeroy, and Kris Rowley.

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 program provides a breadth of required courses and the opportunity to pursue elective courses in such fields as organizational behavior, information systems, marketing, economics, human resources, and finance enabling each student to align his or her interests with degree requirements. 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 the sophomore year, management majors must select a concentration.

### Management majors must choose from one of four concentrations:

- Computer Information Systems
- Financial Economics
- Leadership
- Marketing
- Sports Management.

### Goals:

- Identify opportunities
- Define objectives
- Organize information
- Utilize scarce resources
- Evaluate results

### Outcomes:

- Develop the capacity to think critically about a company, its present business position, its long-term direction, its resources and competitive capabilities, the caliber of its present strategy, and its opportunities for gaining sustainable competitive advantage.
- Build skills in conducting business analysis in a variety of industries and competitive situations and, especially, to provide a stronger understanding of the competitive challenges of a global market environment.
- Provide hands-on experience in creating business plans, reasoning carefully about strategic options, using what-if analysis to evaluate action alternatives, and making sound business decisions.
- Acquaint students with the managerial tasks associated with implementing and executing business plans, to drill them in the range of actions managers can take to promote competent strategy execution, and to give them greater confidence in being able to function effectively as part of a company's strategy-implementing team.
- Raise the consciousness about the importance of exemplary ethical principles, sound personal and company values, and socially responsible management practices.
- Demonstrate how the knowledge gained is integrated with other core courses of the business curriculum, show how the various pieces of the business puzzle fit together and from experience see why the different parts of a business need to be managed in harmony for a company to operate in winning fashion.
- Develop powers of managerial judgment, build skills in assessing business risk, and improve ability to create results-oriented business plans.
- Be able to operate effectively as a team in an unstructured environment under conditions of uncertainty and incomplete information.

- Build proficiency in using personal computers to do managerial analysis and make professional management presentations.

### Careers for this Major:

- Leadership and management positions in for-profit and not-for-profit businesses
- Leadership and management positions in, governmental organizations, and military organizations
- Entrepreneurs planning to start their own businesses
- Management in a family business
- Management in the international arena
- Management in service industries
- Banking
- Corporate Finance
- Information Assurance Management

## B.S. in Management - Curriculum Map 2016-2017 Catalog

Print PDF Curriculum Map

| Freshman   |     |  |     |
|--|-----|--|-----|
| Fall   | Cr. | Spring   | Cr. |
| EN 101 Composition and Literature I  | 3   | EN 102 Composition and Literature II                                 | 3   |
| CS 120 Business Applications & Problem Solving Techniques                              | 3   | EC 106 The Structure and Operation of the World Economy <sup>1</sup> | 3   |
| MA 107 Precalculus Mathematics (OR Free Elective) <sup>2</sup>                         | 4   | MA 108 Applied Calculus (General Education Math)                     | 4   |
| MG 101 Introduction to Business <sup>1</sup>   | 3   | General Education History  | 3   |
|  |     | General Education Lab Science  | 4   |
| Semester Total Credits   | 13  | Semester Total Credits   | 17  |
| Sophomore  |     |  |     |
| Fall   | Cr. | Spring   | Cr. |
| EC 202 Principles of Economics (Micro) (General Education Social Science) <sup>3</sup> | 3   | AC 206 Principles of Accounting-Managerial <sup>3</sup>              | 4   |
| MA 212 Finite Mathematics (General Education Math)                                     | 3   | EC 201 Principles of Economics (Macro) <sup>3</sup>                  | 3   |
| AC 205 Principles of Accounting-Financial <sup>3</sup>                                 | 4   | EN 204 Professional and Technical Writing                            | 3   |
| EN 112 Public Speaking   | 3   | MG 309 Management of Organizations                                   | 3   |
| General Education Lab Science  | 4   | QM 213 Business and Economic Statistics I                            | 3   |
| Semester Total Credits   | 17  | Semester Total Credits   | 16  |
| Junior   |     |  |     |
| Fall   | Cr. | Spring   | Cr. |
| CS 300 Management Information Systems  | 3   | EC 310 Money and Banking   | 3   |
| FN 311 Corporate Finance   | 3   | General Education Arts & Humanities                                  | 3   |
| MG 310 Production/Operations Management  | 3   | General Education Literature   | 3   |
| MG 314 Marketing Management  | 3   | Major/Concentration Elective   | 3   |
| PH 322 Business Ethics (General Education Ethics)                                      | 3   | Major/Concentration Elective   | 3   |
| Semester Total Credits   | 15  | Semester Total Credits   | 15  |
| Senior   |     |  |     |
| Fall   | Cr. | Spring   | Cr. |
| MG 319 International Dimensions of Business  | 3   | MG 449 Administrative Policy and Strategy (Capstone)                 | 3   |
| MG 341 Business Law I  | 3   | Major/Concentration Elective   | 3   |
| Major/Concentration Elective   | 3   | Major/Concentration Elective   | 3   |
| Major/Concentration Elective   | 3   | Free Elective  | 3   |
| Free Elective  | 3   | Free Elective  | 3   |
| Semester Total Credits   | 15  | Semester Total Credits   | 15  |
| Total Credits For This Major: 123  |     |  |     |

<sup>1</sup> Must be taken first year. Upper level students without credit for these courses will substitute with an Elective Course from a School of Business & Management subject area. This must be done via a petition.

<sup>2</sup> If MA 103 is required by Placement Test results, a grade of C or higher is required in MA 103 prior to taking MA 107.

<sup>3</sup> Grade of C or higher required.

### Concentrations

#### Computer Information Systems Concentration 2016-2017 Catalog

|   |   |    |
|---|---|----|
| CS 100  | Foundations of Computer Science and Information Assurance | 3  |
| CS 140  | Programming and Computing <sup>2</sup>                    | 4  |
| CS 301  | Software Engineering <sup>2</sup>                         | 3  |
| IA 342  | Management of Information Assurance                       | 3  |
| Major/Concentration Elective (see below) <sup>4</sup> |   | 3  |
| Major/Concentration Elective (see below) <sup>4</sup> |   | 3  |
| Total Cr.   |   | 19 |

- 4 Choose from the subjects/courses listed below:  
AC, CN, CP, CS, DF, EC, FN, FR, GR, IA, MG, QM, SP, AS 311, AS 312, AS 411, AS 412, MS 311, MS 312, MS 411, MS 412, NS 321, NS 342, NS 421, NS 422, PY 210

### Financial Economics Concentration 2016-2017 Catalog

|   |  |    |
|---|--|----|
| EC 419                                    | International Economics                      | 3  |
| FN 407                                    | Corporate Finance II                         | 3  |
| FN 412                                    | Investments                                  | 3  |
| QM 370                                    | Quantitative Methods for Marketing & Finance | 3  |
| Major/Concentration Elective <sup>1</sup> |  | 3  |
| Major/Concentration Elective <sup>1</sup> |  | 3  |
| Total Cr.                                 |  | 18 |

- <sup>1</sup> Choose from the subjects/courses listed below:  
AC, CN, CS, DF, EC, FN, FR, GR, MG, QM, SP AS 311, AS 312, AS 411, AS 412, CJ 341, CJ 442, MA 240, MA 318, MA 370, MS 311, MS 312, MS 411, MS 412, NS 321, NS 342, NS 421, NS 422, PY 210

### Leadership Concentration 2016-2017 Catalog

|   |                            |       |
|---|----------------------------|-------|
| PY 210                                    | Psychology of Leadership   | 3     |
| MG 351                                    | Organizational Behavior    | 3     |
| MG 408                                    | Human Resources Management | 3     |
| MG 409                                    | Organizational Leadership  | 3     |
| Major/Concentration Elective <sup>1</sup> |                            | 3     |
| Major/Concentration Elective <sup>1</sup> |                            | 3     |
| Total Cr.                                 |                            | 17-18 |

- <sup>1</sup> Choose from the subjects/courses listed below:  
CM 436, EG 450, EN 244, PH 303, PH 305, PH 324, PH 350, AS 311, AS 312, AS 411, AS 412, CJ 341, CJ 442, MA 240, MA 318, MA 370, MS 311, MS 312, MS 411, MS 412, NS 321, NS 342, NS 421, NS 422

### Marketing Concentration 2016-2017 Catalog

|   |  |    |
|---|--|----|
| MG 411                                    | Consumer Behavior                            | 3  |
| MG 441                                    | Integrated Marketing Communications          | 3  |
| MG 416                                    | Advanced Marketing                           | 3  |
| QM 370                                    | Quantitative Methods for Marketing & Finance | 3  |
| Major/Concentration Elective <sup>1</sup> |  | 3  |
| Major/Concentration Elective <sup>1</sup> |  | 3  |
| Total Cr.                                 |  | 18 |

- <sup>1</sup> Choose from the subjects/courses listed below:  
AC, CN, CS, DF, EC, FN, FR, GR, MG, QM, SP AS 311, AS 312, AS 411, AS 412, CJ 341, CJ 442, MA 240, MA 318, MA 370, MS 311, MS 312, MS 411, MS 412, NS 321, NS 342, NS 421, NS 422, PY 210

### Sports Management Concentration 2016-2017 Catalog

|                          |   |       |
|--------------------------|---|-------|
| MG 441                   | Integrated Marketing Communications                   | 3     |
| MG Elective <sup>1</sup> |   | 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  |
| Total Cr.                |   | 21-27 |

- <sup>1</sup> Choose from the subjects/courses listed below:  
AC, CN, CS, DF, EC, FN, FR, GR, MG, QM, SP AS 311, AS 312, AS 411, AS 412, CJ 341, CJ 442, MA 240, MA 318, MA 370, MS 311, MS 312, MS 411, MS 412, NS 321, NS 342, NS 421, NS 422, PY 210

## Marketing Minor

Charles A. Dana Professor Michael Puddicombe; Professors Mich Kabay and Mehdi Mohaghegh; Associate Professors Najiba Benabess, David Blythe, David Jolley and Huw Read and Thomas Yandow; Assistant Professor Alex Chung; Lecturers Stephen Pomeroy and Kris Rowley.

The Business and Management 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.

**Goals:**

- Understand the marketing process and its role in the profitable growth of a firm.
- Learn how to develop and translate marketing plans into executable marketing actions.
- Develop critical thinking skills for solving marketing problems in business situations.

**Outcomes:**

- Practice marketing from the perspective of the marketing team of a major consumer products firm.
- Apply the key concepts of marketing strategy development in a realistic simulation environment.
- Brand positioning and product design to execute a strategic marketing plan the success of which will be measured by sales revenue, net profit and the return on marketing investment.
- Understand how consumers make decisions regarding the purchase and use of products and services.
- Understand the social-psychological basis of the consumer's decision process and the internal and external factors that influence this process.
- Understand how consumer behavior is used in the development of marketing strategies.
- Understand the principles behind marketing communications and how to develop the key components of an integrated messaging strategy.
- Understand the purpose of traditional and digital communication media, when to use them and in what combination, to effectively achieve marketing and communication objectives.
- Be able to think critically in the evaluation of marketing problems for drawing sound conclusions about what actions company management needs to take based on insights from the research findings.
- Develop your ability to define marketing problems, translate them into research objectives and testable hypotheses using the appropriate research methodology and statistical analyses, and present your recommendations to management.

**Careers for this Minor:**

- Sales
- Marketing Associate
- Public Relations Coordinator
- Consulting
- Social Media
- Advertising
- Market research
- Communications

**Marketing Minor Curriculum Map 2016-2017 Catalog**

- Students seeking a minor in Marketing must obtain the approval of the School Director
- Must complete 6 courses with a grade of C or higher.

|  |  |          |
|--|--|----------|
| MG 314                                   | Marketing Management                         | 3        |
| MG 416                                   | Advanced Marketing                           | 3        |
| MG 441                                   | Integrated Marketing Communications          | 3        |
| PY 211                                   | Introduction to Psychology                   | 3        |
| <b>Any two of the following courses:</b> |  | <b>6</b> |
| 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 370                                   | Quantitative Methods for Marketing & Finance | 3        |

Total Cr. 18

**Mathematics**

Professors Cathy Frey, Gerard LaVarnway, Daniel McQuillan, and Robert Poodiack (Chair); Associate Professors Christine Latulippe, Jocelyn Latulippe, Darlene Olsen, Jeffrey Olson, and Waclaw Timoszyk; Assistant Professors Addie Armstrong and Sean Kramer; Lecturer Min Ku.

**Mission:**

The Norwich University Department of Mathematics seeks to promote interest in mathematics and to serve as a resource for the university community on current advances in mathematical knowledge and application. The department educates mathematics majors in preparation for civilian or military careers, and for future study in graduate schools.

The department seeks to accomplish this mission through the following activities:

- offering a sequence of courses that introduce undergraduate students in the liberal arts and social sciences to the techniques, methods, and applicability of mathematics;
- offering a basic calculus sequence to provide computer science, mathematics, science, and engineering students with the tools of mathematical analysis;
- offering introductory calculus and quantitative analysis courses to support major programs in architecture, accounting and business administration;
- integrating the use of technology in mathematics education as a tool for solving applied problems;
- offering advanced courses in mathematical theory and application leading to a major in mathematics for a Bachelor of Science degree in mathematics;
- offering a minor in mathematics that complements the major programs of study that a student may select;
- engaging students in experiential education opportunities including undergraduate research, independent study and pre-professional activities;

- offering colloquia and seminars to promote dialogue between members of the department and others of the university community;
- offering math education coursework to support students seeking secondary education licensure;
- offering financial mathematics coursework to support students seeking employment in actuarial science.

**Goals:**

- Prepare mathematics majors for graduate work in mathematics or careers in computer science, engineering, industry, business, actuary science, or teaching;
- Support the curricula in all disciplines;
- Supply the students with the mathematics courses necessary to qualify for teacher licensure.

**Outcomes:**

- Graduates will have the ability to formulate problems in the application of mathematics to various disciplines, and analyze, solve, and model solutions to these problems.
- Graduates will have a good understanding and broad knowledge of mathematics including single and multivariable calculus, linear and abstract algebra. Students will demonstrate competency in theoretical, applied, routine, and non-routine problems.
- Graduates will be prepared for successful employment in a profession employing mathematics or a profession of their choice and be well prepared for graduate or professional school.

**Careers for this Major:**

- Mathematician
- Statistician
- Actuary
- Data Scientist
- University Professor
- Finance
- Government

**B.S. in Mathematics - Curriculum Map 2016-2017 Catalog**

Print PDF Curriculum Map

| <b>Freshman</b>   |            |  |            |
|---|------------|--|------------|
| <b>Fall</b>   | <b>Cr.</b> | <b>Spring</b>  | <b>Cr.</b> |
| EN 101 Composition and Literature I                                     |            | 3 EN 102 Composition and Literature II                                     | 3          |
| General Education Lab Science   |            | 4 General Education Lab Science  | 4          |
| MA 121 Calculus I (General Education Math) <sup>c1</sup>                | 4          | MA 122 Calculus II (General Education Math) <sup>c1</sup>                  | 4          |
| Free Elective   |            | 3 MA 241 Mathematical Computation and Modeling                             | 3          |
| Semester Total Credits  | 14         | Semester Total Credits   | 14         |
| <b>Sophomore</b>  |            |  |            |
| <b>Fall</b>   | <b>Cr.</b> | <b>Spring</b>  | <b>Cr.</b> |
| EN 201 World Literature I (General Education Literature)                | 3          | EN 202 World Literature II   | 3          |
| General Education History <sup>1</sup>                                  | 3          | General Education Arts & Humanities  | 3          |
| MA 223 Calculus III <sup>c1</sup>                                       | 4          | MA 224 Differential Equations <sup>c1</sup>                                | 4          |
| MA 306 Discrete Mathematics <sup>c2</sup>                               | 3          | MA 310 Linear Algebra <sup>c2</sup>  | 3          |
| PS 211 University Physics I   | 4          | PS 212 University Physics II   | 4          |
| Semester Total Credits  | 17         | Semester Total Credits   | 17         |
| <b>Junior</b>   |            |  |            |
| <b>Fall</b>   | <b>Cr.</b> | <b>Spring</b>  | <b>Cr.</b> |
| General Education Social Science  | 3          | MA 304 Advanced Calculus II or 312 Statistical Methodology II <sup>3</sup> | 3          |
| MA 303 Advanced Calculus I or 309 Algebraic Structures <sup>2, c2</sup> | 3          | Math Elective (300-400 level) <sup>c2</sup>                                | 3          |
| MA 311 Statistical Methodology <sup>c2</sup>                            | 3          | Math Elective (300-400 level) <sup>c2</sup>                                | 3          |
| Free Elective   | 3          | PH 303 Survey of Ethics or 350 Medical Ethics (General Education Ethics)   | 3          |
| Free Elective   | 3          | Free Elective  | 3          |
|   |            | MA 250 Communication in Mathematics  | 1          |
| Semester Total Credits  | 15         | Semester Total Credits   | 16         |
| <b>Senior</b>   |            |  |            |
| <b>Fall</b>   | <b>Cr.</b> | <b>Spring</b>  | <b>Cr.</b> |
| MA 309 Algebraic Structures or 303 Advanced Calculus I <sup>2, c2</sup> | 3          | Mathematics Elective (300-400 level) <sup>c2</sup>                         | 3          |
| MA 411 Senior Seminars (General Education Capstone) <sup>c2</sup>       | 3          | Mathematics Elective (300-400 level) <sup>c2</sup>                         | 3          |
| Free Elective   | 3          | Free Elective  | 3          |
| Free Elective   | 3          | Free Elective  | 3          |
| Free Elective   | 3          | Free Elective  | 3          |
| Semester Total Credits  | 15         | Semester Total Credits   | 15         |
| Total Credits For This Major: 123                                       |            |  |            |

<sup>1</sup> This may be any history course except HI 209.

<sup>2</sup> MA 303 and MA 309 alternate as fall semester courses; both courses are required. For years these courses are offered, see Course Descriptions.

<sup>3</sup> MA 304 and MA 312 alternate as spring semester courses; one of the two courses is required.

<sup>c1</sup> Grade of C or higher required in 3 of the 4 courses.

<sup>c2</sup> Grade of C or higher in at least 6 Math courses at the 300/400 level (other than MA 360)

**B.S. in Mathematics-Actuarial Science Concentration - Curriculum Map 2016-2017 Catalog**

Print PDF Curriculum Map

| <b>Freshman</b>  |            |  |            |
|--|------------|--|------------|
| <b>Fall</b>  | <b>Cr.</b> | <b>Spring</b>  | <b>Cr.</b> |
| EN 101 Composition and Literature I  |            | 3 EN 102 Composition and Literature II                                     | 3          |
| General Education History <sup>1</sup>   |            | 3 General Education Lab Science  | 4          |
| General Education Lab Science  |            | 4 MA 122 Calculus II (General Education Math) <sup>C1</sup>                | 4          |
| MA 121 Calculus I (General Education Math) <sup>C1</sup>                                 |            | 4 MA 241 Mathematical Computation and Modeling                             | 3          |
| Semester Total Credits   | 14         | Semester Total Credits   | 14         |
| <b>Sophomore</b>   |            |  |            |
| <b>Fall</b>  | <b>Cr.</b> | <b>Spring</b>  | <b>Cr.</b> |
| EC 201 Principles of Economics (Macro) (General Education Social Science) <sup>b,c</sup> |            | 3 EC 202 Principles of Economics (Micro) <sup>b,c</sup>                    | 3          |
| EN 201 World Literature I (General Education Literature)                                 |            | 3 EN 202 World Literature II   | 3          |
| MA 223 Calculus III <sup>c1</sup>  |            | 4 MA 224 Differential Equations <sup>C1</sup>                              | 4          |
| MA 306 Discrete Mathematics  |            | 3 MA 310 Linear Algebra  | 3          |
| PS 211 University Physics I  |            | 4 PS 212 University Physics II   | 4          |
| Semester Total Credits   | 17         | Semester Total Credits   | 17         |
| <b>Junior</b>  |            |  |            |
| <b>Fall</b>  | <b>Cr.</b> | <b>Spring</b>  | <b>Cr.</b> |
| General Education Arts & Humanities  |            | 3 MA 312 Statistical Methodology II <sup>b,c</sup>                         | 3          |
| MA 212 Finite Mathematics <sup>C</sup>   |            | 3 Mathematics Elective   | 3          |
| MA 303 Advanced Calculus I or 309 Algebraic Structures <sup>2</sup>                      |            | 3 Mathematics Elective   | 3          |
| MA 311 Statistical Methodology <sup>b,c</sup>  |            | 3 PH 303 Survey of Ethics or 350 Medical Ethics (General Education Ethics) | 3          |
| Free Elective  |            | 3 Free Elective  | 3          |
|  |            | MA 250 Communication in Mathematics  | 1          |
| Semester Total Credits   | 15         | Semester Total Credits   | 16         |
| <b>Senior</b>  |            |  |            |
| <b>Fall</b>  | <b>Cr.</b> | <b>Spring</b>  | <b>Cr.</b> |
| MA 309 Algebraic Structures or 303 Advanced Calculus I <sup>2</sup>                      |            | 3 MA 321 Financial Mathematics <sup>C</sup>                                | 3          |
| MA 411 Senior Seminars (General Education Capstone)                                      |            | 3 Mathematics Elective   | 3          |
| Free Elective  |            | 3 Free Elective  | 3          |
| Free Elective  |            | 3 Free Elective  | 3          |
| Free Elective  |            | 3 Free Elective  | 3          |
| Semester Total Credits   | 15         | Semester Total Credits   | 15         |
| Total Credits For This Major: 123  |            |  |            |

<sup>1</sup> This may be any history course except HI 209.

<sup>2</sup> MA 303 and MA 309 alternate as fall semester courses; both courses are required. For years these courses are offered, see Course Descriptions.

<sup>b</sup> Grade of B- or higher to meet the Society of Actuaries Validation by Educational Experience requirement.

<sup>c</sup> Grade of C or higher required.

<sup>c1</sup> Grade of C or higher required in 3 of the 4 courses.

**B.S. in Mathematics-Education Concentration - Curriculum Map 2016-2017 Catalog**

Print PDF Curriculum Map

| <b>Freshman</b>   |            |  |            |
|---|------------|--|------------|
| <b>Fall</b>   | <b>Cr.</b> | <b>Spring</b>  | <b>Cr.</b> |
| ED 104 Foundations of Education   |            | 3 EN 102 Composition and Literature II                                       | 3          |
| EN 101 Composition and Literature I                                     |            | 3 General Education Lab Science  | 4          |
| General Education Lab Science   |            | 4 MA 122 Calculus II (General Education Math) <sup>C1</sup>                  | 4          |
| MA 121 Calculus I (General Education Math) <sup>C1</sup>                |            | 4 MA 241 Mathematical Computation and Modeling                               | 3          |
| PY 211 Introduction to Psychology                                       |            | 3 PY 220 Developmental Psychology  | 3          |
| Semester Total Credits  | 17         | Semester Total Credits   | 17         |
| <b>Sophomore</b>  |            |  |            |
| <b>Fall</b>   | <b>Cr.</b> | <b>Spring</b>  | <b>Cr.</b> |
| ED 234 Learning and Teaching Strategies                                 |            | 4 EN 202 World Literature II   | 3          |
| EN 201 World Literature I (General Education Literature)                |            | 3 MA 224 Differential Equations <sup>C1</sup>                                | 4          |
| MA 223 Calculus III <sup>c2</sup>                                       |            | 4 MA 310 Linear Algebra <sup>c2</sup>  | 3          |
| MA 306 Discrete Mathematics <sup>c2</sup>                               |            | 3 PS 212 University Physics II   | 4          |
| PS 211 University Physics I   |            | 4 ED 315 Special Needs Child   | 3          |
| Semester Total Credits  | 18         | Semester Total Credits   | 17         |
| <b>Junior</b>   |            |  |            |
| <b>Fall</b>   | <b>Cr.</b> | <b>Spring</b>  | <b>Cr.</b> |
| General Education History <sup>1</sup>                                  |            | 3 ED 363 Reading and Writing in the Content Area                             | 4          |
| MA 303 Advanced Calculus I or 309 Algebraic Structures <sup>2, c2</sup> |            | 3 General Education Arts & Humanities  | 3          |
| MA 311 Statistical Methodology <sup>c2</sup>                            |            | 3 Mathematics Elective   | 3          |
| PY 324 Adolescent Psychology  |            | 3-4 Mathematics Elective   | 3          |
| PY 352 Learning and Memory  |            | 4 MA 304 Advanced Calculus II or 312 Statistical Methodology II <sup>3</sup> | 3          |

|  |            |                                     |            |
|--|------------|-------------------------------------|------------|
| MA 361 Teaching Mathematics at the Secondary Level (OR Mathematics Elective) | 3          | MA 250 Communication in Mathematics | 1          |
| Semester Total Credits   | 19-20      | Semester Total Credits              | 17         |
| <b>Senior</b>  |            |                                     |            |
| <b>Fall</b>  | <b>Cr.</b> | <b>Spring</b>                       | <b>Cr.</b> |
| ED 368 Curriculum & Methods in Secondary Subjects                            | 4          | ED 425 Student Teaching             | 12         |
| General Education Ethics   | 3          |                                     |            |
| MA 309 Algebraic Structures or 303 Advanced Calculus <sup>1,2, c2</sup>      | 3          |                                     |            |
| MA 411 Senior Seminars (General Education Capstone) <sup>c2</sup>            | 3          |                                     |            |
| MA 361 Teaching Mathematics at the Secondary Level (OR Mathematics Elective) | 3          |                                     |            |
| Semester Total Credits   | 16         | Semester Total Credits              | 12         |
| Total Credits For This Major: 133-134  |            |                                     |            |

- 1 This may be any history course except HI 209.
- 2 MA 303 and MA 309 alternate as fall semester courses; both courses are required. For years 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.
- c1 Grade of C or higher required in 3 of the 4 courses.
- c2 Grade of C or higher in at least 6 Math courses at the 300/400 level (other than MA 360).

### Mathematics Minor Curriculum Map 2016-2017 Catalog

Students self-design this minor so the classes chosen blend with their major, with the advice of the Math Department.

All courses require a grade of C or higher.

|                                    |    |
|------------------------------------|----|
| Math Elective (higher than MA 121) | 3  |
| Math Elective (higher than MA 121) | 3  |
| Math Elective (higher than MA 121) | 3  |
| Math Elective (300-400 level)      | 3  |
| Math Elective (300-400 level)      | 3  |
| Math Elective (300-400 level)      | 3  |
| Total Cr.                          | 18 |

## Mechanical Engineering

Professors R. Danner Friend and Donald Wallace; Associate Professor Jeffrey Mountain (Chair); Assistant Professors Brian Bradke and Karen Supan; Lecturer Martin Rolland

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.

### Mission:

The Mission of the Mechanical Engineering Program 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.

### Goals:

Graduates of the Mechanical Engineering program will:

- Apply engineering principles and modern tools to conceive, analyze and implement engineering solutions.
- Hold positions of progressive responsibility leading teams in a variety of mechanical engineering fields including: energy conversion and transfer, materials and manufacturing, and mechanical systems design.
- 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.
- Work effectively as a team member and lead multidisciplinary teams.
- Design components, systems or processes in the mechanical engineering field and effectively communicate those designs 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.

### Outcomes:

Students in the Mechanical Engineering Program will demonstrate an ability to:

- Apply scientific and fundamental engineering knowledge based upon a strong foundation in advanced math, chemistry, physics, and the engineering sciences.
- Design and conduct hands-on experiments, use mechanical/electrical hardware, and analyze and interpret data.
- Design a component, system or process in the mechanical engineering field that meets performance, cost, time, safety, quality, materials, and manufacturing requirements.

- Function as a member of a multidisciplinary team and be able to assume leadership roles on the team.
- Identify, formulate, critically analyze, and solve engineering problems in energy conversion and transfer, materials and manufacturing, and mechanical systems design.
- Recognize and achieve a high level of professional and ethical conduct in all aspects of engineering work.
- Formulate and deliver effective written and verbal communications of laboratory, analytical, and design project work to a variety of audiences.
- Understand and incorporate non-technical considerations into an engineering solution including safety, environmental, social, economic, and global issues.
- Recognize the need for mechanical engineers to engage in lifelong learning and begin the process by taking the FE exam.
- Be knowledgeable of contemporary issues in mechanical engineering and related fields.
- Utilize techniques, skills and modern engineering tools (including CAD/CAM) necessary for mechanical engineering practice.
- Develop broad based technical skills and knowledge, strong work ethic, integrity, and leadership skills that will lead to successful careers in a wide variety of engineering and non-engineering positions in industrial, military, government, and academic settings.

### Careers for this Major:

- 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)
- Control of environmental pollution for automobiles and industry
- Graduate school.

The American Society of Mechanical Engineers (ASME International) is the largest professional organization devoted specifically to Mechanical Engineering; serving the general Mechanical Engineering profession and a variety of associated fields. To learn more about employment opportunities in Mechanical Engineering, please visit <http://jobboard.asme.org>.

### Accreditation:

The Mechanical Engineering Program is accredited by the Engineering Accreditation Commission (EAC) of ABET, <http://www.abet.org>, 415 N. Charles Street, Baltimore, MD 21201, Telephone (410) 347-7700.

### B.S. in Mechanical Engineering - Curriculum Map 2016-2017 Catalog

Print PDF Curriculum Map

| Freshman  |     |   |     |
|---|-----|---|-----|
| Fall  | Cr. | Spring  | Cr. |
| CH 103 General Chemistry I (General Education Lab Science)                      | 4   | CH 104 General Chemistry II (General Education Lab Science)                     | 4   |
| EG 109 Introduction to Engineering I  | 3   | EN 102 Composition and Literature II  | 3   |
| EN 101 Composition and Literature I   | 3   | EG 110 Introduction to Engineering II   | 3   |
| MA 121 Calculus I   | 4   | General Education Elective: History/Literature/Arts & Humanities/Social Science | 3   |
|   |     | MA 122 Calculus II (General Education Math)                                     | 4   |
| Semester Total Credits  | 14  | Semester Total Credits  | 17  |
| Sophomore   |     |   |     |
| Fall  | Cr. | Spring  | Cr. |
| EE 204 Electrical Circuits I  | 3   | EE 240 Electrical Concepts and Applications                                     | 3   |
| EG 201 Engineering Mechanics (Statics, Dynamics)                                | 3   | EG 202 Engineering Mechanics (Statics, Dynamics)                                | 3   |
| MA 223 Calculus III (General Education Math)                                    | 4   | EG 206 Thermodynamics I   | 3   |
| ME 211 Mechanical Engineering Tools I   | 2   | MA 224 Differential Equations   | 4   |
| PS 211 University Physics I   | 4   | PS 212 University Physics II  | 4   |
| Semester Total Credits  | 16  | Semester Total Credits  | 17  |
| Junior  |     |   |     |
| Fall  | Cr. | Spring  | Cr. |
| EG 203 Materials Science  | 3   | EG 303 Fluid Mechanics  | 3   |
| EG 301 Mechanics of Materials   | 3   | ME 356 Manufacturing Processes  | 4   |
| ME 307 Thermodynamics II  | 3   | ME 368 Design of Machine Elements   | 3   |
| ME 311 Mechanical Engineering Tools II  | 2   | ME 370 Mechanical Systems Design  | 3   |
| ME 363 Kinematic and Kinetic Synthesis  | 3   | ME 382 Mechanical Engineering Laboratory II                                     | 1   |
| ME 381 Mechanical Engineering Laboratory I                                      | 2   | General Education Elective: History/Literature/Arts & Humanities/Social Science | 3   |
| Semester Total Credits  | 16  | Semester Total Credits  | 17  |
| Senior  |     |   |     |
| Fall  | Cr. | Spring  | Cr. |
| EE 321 Embedded Systems   | 4   | ME 468 Mechanical Engineering Design II (Capstone)                              | 3   |
| EG 044 Conference   | 0   | EG 043 Conference (General Education Ethics)                                    | 0   |
| General Education Elective: History/Literature/Arts & Humanities/Social Science | 3   | General Education Elective: History/Literature/Arts & Humanities/Social Science | 3   |
| ME 435 Mechanical Control Systems   | 3   | Mechanical Engineering (ME) Elective <sup>3</sup>                               | 3   |
| ME 465 Heat Transfer  | 3   | General Education Elective <sup>2</sup>   | 3   |
| ME 467 Mechanical Engineering Design I (Capstone)                               | 3   | Math or Science or Engineering Elective <sup>1</sup>                            | 3   |
| ME 487 Mechanical Engineering Laboratory III                                    | 2   |   |     |
| Semester Total Credits  | 18  | Semester Total Credits  | 15  |
| Total Credits For This Major: 130   |     |   |     |

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 Director of the David Crawford School of Engineering).

- 1 Courses approved for Math/Science/Engineering Electives: CE 348, CH 205, CH 225, CH 327, EE 303, EE 325, EE 357, MA 241, MA 306, MA 309 MA 310, MA 370 MA 407, PS 232, PS 334, PS 341, PS 426, PS 428, and any ME 400 level course not specifically listed as a degree requirement.  
Two different ME 490 courses covering different topics can be used to satisfy the ME elective and the Math/Science/Engineering elective.  
Other 200 level (or higher) 3+ credit courses offered by College of Science and Mathematics or the David Crawford School of Engineering may be approved subject to completion of the course prerequisites and a positive recommendation from the student's academic advisor and the Mechanical Engineering department chair.
- 2 A fifth General Education Elective is required, choose from History, Literature, Arts & Humanities or Social Science General Education courses.
- 3 Two different ME 490 courses covering different topics can be used to satisfy the ME elective and the Math/Science/Engineering elective.

## Music

Music offers courses in music appreciation and history, as well as instruction and performance opportunities for singing and instrumental work.

**Note: Three sections of a 1-credit course may be combined to fulfill one 3-credit free elective towards graduation. No more than one free elective may be earned in this manner.**

## Neuroscience

### Faculty:

Professors Lauren Howard and Karen Hinkle; Associate Professor Scott Page (Chair), Assistant Professors Megan Doczi (Neuroscience Program Director), Allison Neal and Simon Pearish; Lecturers Virginia Kunkel and Kylie Cowens

The Neuroscience major exposes students to a rapidly growing field at the intersection of biology and psychology. Educating students about the human nervous system in health and disease prepares them for managing the public health challenges of our global population, while exposing them to interdisciplinary learning at the earliest stages of their undergraduate careers. Neuroscience graduates draw knowledge from a variety of specialties, effectively mastering the human nervous system from cellular, molecular, biochemical, cognitive, and behavioral perspectives.

Through the inherently diverse nature of the Neuroscience field, students engage in a broad-based curriculum spanning multiple disciplines. During the first year of study, the Neuroscience curriculum introduces students to fundamental concepts in biology, psychology, chemistry, and mathematics, while developing communication skills through concurrent introductory English courses. Successful students will progress to intermediate level courses designed to provide a thorough background in the anatomy and physiology of the human nervous system, with an emphasis on cellular and molecular biology, and carbon compounds. The third year of the Neuroscience major builds upon the knowledge gained in previous years by engaging students in applied research methods courses, coupled with an analytical reasoning of the natural properties of the physical world. The third and fourth year curricula seek to refine the students' understanding through specialized courses detailing the human nervous system through health and disease. With five free electives, the third and fourth years of study also offer the flexibility for students to pursue a minor in a discipline of their choice.

### Mission:

The mission of the Neuroscience curriculum is to provide undergraduate students with a working knowledge of the human brain and nervous system, while emphasizing a strong foundation in the natural sciences.

### Goals:

- To educate students about the human nervous system in health and disease
- To prepare students to manage the public health challenges of our global population

### Outcomes:

- Acquire a basic proficiency for information literacy and exercise effective written and oral communication skills.
- Conduct hands-on, experiential laboratory research, effectively exposing students to common experimental methodology, approach, and design within the Neuroscience discipline.
- Demonstrate a fundamental competency in Neuroscience via an array of disciplines including biology, psychology, chemistry, physics, and mathematics.

### Careers for this Major:

- Healthcare
- Education
- Biotechnology
- Research and Development
- Pharmaceutical Industry
- Neuroimaging
- Neuropsychology
- Science Writing
- Medical Liaison

### B.S. in Neuroscience - Curriculum Map 2016-2017 Catalog

Print as PDF Curriculum Map

| Freshman  |  |     |
|---|--|-----|
| Fall  | Cr. Spring   | Cr. |
| EN 101 Composition and Literature I                     | 3 EN 102 Composition and Literature II             | 3   |
| BI 101 Principles of Biology I                          | 4 PY 211 Introduction to Psychology                | 3   |
| CH 103 General Chemistry I                              | 4 CH 104 General Chemistry II                      | 4   |
| MA 107 Precalculus Mathematics (General Education Math) | 4 MA 108 Applied Calculus (General Education Math) | 4   |
| Semester Total Credits                                  | 15 Semester Total Credits                          | 14  |

| <b>Sophomore</b>                                   |            |   |            |
|--|------------|---|------------|
| <b>Fall</b>  | <b>Cr.</b> | <b>Spring</b>                           | <b>Cr.</b> |
| BI 215 Human Anatomy & Physiology I                |            | 4 BI 306 Cell Biology                   | 4          |
| BI 202 Genetics                                    |            | 4 MA 232 Elementary Statistics          | 3          |
| CH 225 Organic Chemistry I                         |            | 4 PY 263 Perception                     | 3          |
| PY 230 Biopsychology                               |            | 3 General Education Literature          | 3          |
|  |            | Free Elective                           | 3          |
| Semester Total Credits                             | 15         | Semester Total Credits                  | 16         |
| <b>Junior</b>                                      |            |   |            |
| <b>Fall</b>  | <b>Cr.</b> | <b>Spring</b>                           | <b>Cr.</b> |
| BI 370 Introduction to Neuroscience                |            | 4 PY 344 Cognition                      | 4          |
| PS 201 General Physics I                           |            | 4 PS 202 General Physics II             | 4          |
| BI 300-400 Elective OR                             |            | 4-3 General Education History           | 3          |
| PY 313 Experimental Psychology I                   |            | BI 300-400 Elective OR                  | 3-4        |
| Free Elective                                      | 3          | PY 314 Experimental Psychology II       |            |
|  |            | Free Elective                           | 3          |
| Semester Total Credits                             | 15-14      | Semester Total Credits                  | 17-18      |
| <b>Senior</b>                                      |            |   |            |
| <b>Fall</b>  | <b>Cr.</b> | <b>Spring</b>                           | <b>Cr.</b> |
| BI 415 Neuroanatomy                                |            | 4 BI 420 Diseases of the Nervous System | 4          |
| BI 401 Senior Seminar ( OR )                       |            | 3 BI Elective                           | 4          |
| PY 401 Senior Seminar (General Education Capstone) |            | General Education Arts & Humanities     | 3          |
| PH 303 Survey of Ethics (OR )                      |            | 3 Free Elective                         | 3          |
| PH 350 Medical Ethics                              |            |   |            |
| PY Elective  | 3          |   |            |
| Free Elective                                      | 3          |   |            |
| Semester Total Credits                             | 16         | Semester Total Credits                  | 14         |
| Total Credits For This Major: 122                  |            |   |            |

### Neuroscience Minor Curriculum Map 2016-2017 Catalog

The Neuroscience option is a Concentration for the Psychology major, a minor for all other students.

All courses must be passed with a C or higher.

|   |                              |       |
|---|------------------------------|-------|
| BI 215  | Human Anatomy & Physiology I | 4     |
| BI 370  | Introduction to Neuroscience | 4     |
| PY 230  | Biopsychology                | 3     |
| PY 344  | Cognition                    | 4     |
| Choose one Biology course from below: <sup>1</sup>    |                              |       |
| BI 302  | Embryology                   | 4     |
| or BI 304   | Physiology                   |       |
| Choose one Psychology course from below: <sup>1</sup> |                              |       |
| PY 212  | Abnormal Psychology          | 3     |
| PY 220  | Developmental Psychology     | 3     |
| PY 263  | Perception                   | 3     |
| PY 352  | Learning and Memory          | 4     |
| Total Cr.   |                              | 22-23 |

<sup>1</sup> 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 additional prerequisites: CH 103, CH 104 and either CH 205, CH 226 or concurrent enrollment in CH 226.

## Nursing

Professor Paulette Thabault (director); Assistant Professors Kate Healy, Llyne Kiernan, and Jessica Wood; Lecturers Lisa Hardy, Sara Kawasaki, Lili Martin, and Lorraine Pitcher.

The Nursing Department offers a four-year program leading to the Bachelor of Science in Nursing (BSN) and eligibility to take the National Council Licensure Examination for Registered Nurses (NCLEX-RN). (<https://www.ncsbn.org/nclex.htm>) The first year of the BSN program is dedicated to courses in the Humanities, Sciences, Social Sciences and two 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 ([http://www.heart.org/HEARTORG/CPRAndECC/CPR\\_UCM\\_001118\\_SubHomePage.jsp](http://www.heart.org/HEARTORG/CPRAndECC/CPR_UCM_001118_SubHomePage.jsp))" certification in cardiopulmonary resuscitation (CPR) upon entering the sophomore year and through all subsequent nursing courses. All immunizations must be up to date and tuberculosis skin test done annually.

### Goals:

- Integrate knowledge derived from nursing science, health related sciences, and humanities when designing and providing patient-centered care.
- Provide patient centered care in which the dignity, spirituality, and rights of the individual family and community are respected.
- Promote the profession's obligation to legal, ethical and moral standards.
- Lead based on the values of commitment, collaboration, critical thinking and creativity.
- Employ informatics to communicate, manage knowledge, mitigate error, and support decision-making.

- Communicate effectively in a manner that fosters respectful and collaborative decision making, thus enhancing patient satisfaction and health outcomes.
- Integrate political awareness, critical thinking, social justice and participation in the policy process with professional role behavior.
- Use the best current evidence coupled with clinical reasoning to minimize risk and improve quality and safety of patient care.
- Value the pursuit of practice excellence, lifelong learning, and professional engagement to foster professional growth and development.

### Outcomes:

- Ethical behavior and clinical reasoning, promoting advocacy, collaboration and leadership in the patient care setting
- Professional accountability for nursing practice with emphasis on patient safety
- Evidence Based Practice skills with the ability to conduct basic research
- Patient centeredness with emphasis on families and communities.
- Connectedness, with strong peer advocacy in the work place environment

### Accreditation:

The BSN Program is accredited by the Commission on Collegiate Nursing Education (CCNE) (<http://www.aacn.nche.edu/ccne-accreditation/accredited-programs>) One Dupont Circle, NW, Suite 530, Washington, DC 20036, (202)-887-8476 and approved by the Vermont State Board of Nursing (<http://vtprofessionals.org/opr1/nurses>), Office of Professional Regulations, 89 Main Street 3rd Floor, Montpelier, VT 05520-2482, (802) 828-2396.

### 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.

### Admission standards:

In addition to the university General Admission Requirements, nursing applicants must:

- Meet or exceed the SAT requirement of 1050 for Math and Reading combined
- Complete 4 years of high school (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
- Online science courses are not transferable
- College level GPA must be at a minimum of 3.0
- Transfer students must submit a letter of reference from 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 101 , CH 102 , MA 232 and MA 235 to progress within the program. Only **one** failed nursing course may be repeated during the program. A student must receive a grade of C+ or higher in the repeated nursing course in order to progress in the program. In nursing courses with both theory and clinical components, the clinical component of the course is graded as a letter grade. Because the clinical component of the course is an integral component to the course, the student must successfully complete the clinical component of the course in order to pass the course. If the student does not successfully complete the clinical portion of the course, a grade of **F** will be recorded for the course and the clinical. Students must pass both the theory and clinical components of a nursing course in order to pass the course. If the students fails one component and passes the other, the course is failed. 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

### Clinical Warning/Suspension:

In all nursing courses, with a clinical component, a written clinical warning may be given to students who clinical performance is unsafe/unsatisfactory.

When a student has, in the professional judgement of a clinical instructor, performed so as to endanger a client or is unsafe/inappropriate to provide clinical care, the clinical instructor will immediately remove the student from the clinical setting. See the Nursing Handbook for further information.

### Dismissal from the Nursing program:

Students will be dismissed from the School of Nursing for any of the following:

- Earning a grade of C+ or less in two Nursing courses during the student's enrollment in the Nursing program.
- Failure to achieve a minimum grade of C+ in any repeated Nursing course.
- Failure to maintain a cumulative 2.0 GPA
- Unsafe laboratory/clinical practice as defined by the School of Nursing
- Unprofessional behavior, as defined by the ANA Code of Ethics and ANA Standards of Practice
- Failure to earn a grade of C+ on a second attempt of BI 215, BI 216, BI 220 ,CH 102 CH 101, MA 232 and MA 235

### B.S. in Nursing - Curriculum Map 2016-2017 Catalog

Print PDF Curriculum Map

| Freshman  |     |   |     |
|---|-----|---|-----|
| Fall  | Cr. | Spring  | Cr. |
| BI 215 Human Anatomy & Physiology I (General Education Lab Science) <sup>C+</sup>             | 4   | BI 216 Human Anatomy & Physiology II <sup>C+</sup>                          | 4   |
| EN 101 Composition and Literature I   | 3   | CH 101 Introduction to General Chemistry <sup>C+</sup>                      | 4   |
| General Education History   | 3   | EN 102 Composition and Literature II  | 3   |
| NR 104 Focus on Nursing <sup>C+</sup>   | 3   | MA 232 Elementary Statistics (General Education Math) <sup>C+</sup>         | 3   |
| PY 211 Introduction to Psychology (General Education Social Science)                          | 3   | NR 105 Promoting Healthy Individuals <sup>C+</sup>                          | 3   |
| Semester Total Credits  | 16  | Semester Total Credits  | 17  |
| Sophomore   |     |   |     |
| Fall  | Cr. | Spring  | Cr. |
| CH 102 Introduction to Organic and Biochemistry (General Education Lab Science) <sup>C+</sup> | 4   | BI 220 Introductory Microbiology <sup>C+</sup>                              | 4   |
| MA 235 Clinical Mathematical Methods (General Education Math) <sup>C+</sup>                   | 3   | NR 215 Client, Psy/Mental Health Prob <sup>C+</sup>                         | 3   |
| NR 206 Health Assessment Across the Lifespan <sup>C+</sup>                                    | 3   | NR 215L Client, Psy/Mental Health Prob <sup>C+ *</sup>                      | 2   |
| NR 204 Nursing Informatics <sup>C+</sup>  | 1   | NR 225 Research For Evidence-Based Practice <sup>C+</sup>                   | 3   |
| PY 220 Developmental Psychology   | 3   | NR 219 Simulations for Clinical Practice <sup>C+ *</sup>                    | 2   |
| SO 216 Soc of Health, Wellness & Med  | 3   |   |     |
| Semester Total Credits  | 17  | Semester Total Credits  | 14  |
| Junior  |     |   |     |
| Fall  | Cr. | Spring  | Cr. |
| NR 314 Technological Innovations in Clinical Nursing <sup>C+</sup>                            | 1   | General Education Literature  | 3   |
| NR 316 Care of the Adult 1 <sup>C+</sup>  | 3   | NR 321 Nursing Leadership <sup>C+</sup>                                     | 3   |
| NR 316L Care of the Adult 1 Practicum <sup>C+ *</sup>   | 3   | NR 331 Care of Women and Childbearing Family <sup>C+</sup>                  | 3   |
| NR 399 Pathopharmacology for Nursing <sup>C+</sup>  | 4   | NR 331L Care of Women-Childbearing Family Prac <sup>C+ *</sup>              | 3   |
| PH 350 Medical Ethics (General Education Ethics)  | 3   | NR 341 Care of Children&Child Rearing <sup>C+</sup>                         | 3   |
| SO 316 Aging in Society   | 3   | NR 341L Care of Children&Child Rearing <sup>C+ *</sup>                      | 2   |
|   |     | NR 351 Family Centered Nursing <sup>C+</sup>                                | 1   |
| Semester Total Credits  | 17  | Semester Total Credits  | 18  |
| Senior  |     |   |     |
| Fall  | Cr. | Spring  | Cr. |
| General Education Arts & Humanities   | 3   | NR 421 Coordinator of Care <sup>C+</sup>                                    | 3   |
| MG 360 Health Economics & Policy  | 3   | NR 421L Coordinator of Care Practicum <sup>C+ *</sup>                       | 4   |
| NR 416 Care of the Adult II <sup>C+</sup>   | 4   | NR 431 Promoting Health in Communities <sup>C+</sup>                        | 3   |
| NR 416L Care of Adult II <sup>C+ *</sup>  | 4   | NR 431L Promoting Health in Communities: Clinical Practicum <sup>C+ *</sup> | 2   |
| NR 420 Care at End of Life <sup>C+</sup>  | 2   | NR 441 Nursing Capstone <sup>C+</sup>                                       | 4   |
| Semester Total Credits  | 16  | Semester Total Credits  | 16  |
| Total Credits For This Major: 131   |     |   |     |

C+ This course requires a grade of C+ or higher.

\* These courses link theory and clinical and requires a grade of C+ or higher to progress in the program. Also a grade of C+ or better in clinical to progress in the program

Nursing, science, and math courses must be taken in order presented in the curriculum map. Deviation requires department permission. A letter grade of C+ or better is required in all nursing practical courses.

## Philosophy

Philip A. Gauss Professor Robert McKay, Assistant Professor Brian Glenney

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.

The minor in philosophy provides a chance to engage in open-ended, critical thinking about basic ideas in ethics, politics, religion and science, both in relation to current debates, and as they have developed since the beginnings of philosophy in ancient Greece.

### Philosophy Minor Curriculum Map 2016-2017 Catalog

All requirements require a grade of C or higher.

|             |   |    |
|-------------|---|----|
| PH 210      | Foundations of Western Thought I: The Ancient World | 3  |
| PH Elective |   | 3  |
| Total Cr.   |   | 18 |

## Physical Education Teacher Education

**Faculty:** Assistant Professors Thomas Roberge and Amanda Tepfer; Lecturer Kylie Cowens

A major in Physical Education emphasizes principles, problems and procedures for the improvement of individual and community health. The program provides an introduction to the Physical Education profession, and includes historical and philosophical implications and modern trends in program design with an emphasis on the study of the human body. Professional ethics, client privacy and liability issues are stressed throughout

the program. Students have access to the facilities and equipment of the Department of Biology and Physical Education. There are various courses designed to develop the students' interest in both pedagogy and the fitness related field

### Goals:

- Prepare students for teaching Physical Education in both elementary and secondary schools
- Show commitment to a standards-based approach in the development of beginning educators
- Recognize and incorporate safe programs and facilities, such as risk management and liability considerations within school-based programs
- Develop and implement assessment plans consistent with national and/or state standards
- Be knowledgeable in the area of accommodations for physical education programs to meet the needs of all individuals

### Outcomes:

- Each student choosing to become a teacher is responsible for developing a portfolio for licensure. The portfolio is constructed throughout the tenure of the undergraduate experience thus demonstrating individual learning and growth to become proficient Vermont State regulations and standards for teacher preparation.

### Careers for this Concentration:

- Elementary/Secondary Physical Education Teachers

### B.S. in Physical Education-Teacher Education Curriculum Map 2016-2017 Catalog

Print PDF Curriculum Map

| Freshman   |     |  |     |
|--|-----|--|-----|
| Fall   | Cr. | Spring   | Cr. |
| EN 101 Composition and Literature I (General Education English)                          | 3   | EN 102 Composition and Literature II (General Education English)                               | 3   |
| BI 101 Principles of Biology I (General Education Lab Science)                           | 4   | PE 107 Foundations of Physical Education <sup>C</sup>  | 3   |
| MA 101 Mathematics: A Liberal Art (General Education Math)                               | 3   | PE 265 Lifelong Motor Development <sup>C</sup>   | 3   |
| PE 260 Personal and Community Health <sup>C</sup>  | 3   | PY 211 Introduction to Psychology (General Education Social Science)                           | 3   |
| PE 161 Physical Fitness & Wellness Assessment <sup>C</sup>                               | 3   | MA 232 Elementary Statistics (General Education Math)  | 3   |
| Semester Total Credits   | 16  | Semester Total Credits   | 15  |
| Sophomore  |     |  |     |
| Fall   | Cr. | Spring   | Cr. |
| BI 215 Human Anatomy & Physiology I (General Education Lab Science)                      | 4   | BI 216 Human Anatomy & Physiology II   | 4   |
| PE 223 Motor Skills Development I <sup>C</sup>   | 3   | BI 253 Foods and Nutrition   | 4   |
| PE 261 Foundations in Health Education <sup>C</sup>                                      | 4   | PE 224 Motor Skills Development II <sup>C</sup>  | 3   |
| PE 306 Outdoor Physical Education I <sup>C</sup>   | 3   | PE 243 Instructional Design in Physical Education <sup>C</sup>                                 | 3   |
| General Education Literature   | 3   | PE 307 Outdoor Physical Education II <sup>C</sup>  | 3   |
| Semester Total Credits   | 17  | Semester Total Credits   | 17  |
| Junior   |     |  |     |
| Fall   | Cr. | Spring   | Cr. |
| PE 341 Instructional Strategies for Physical Education in Elementary School <sup>C</sup> | 4   | PE 342 Instructional Strategies for Physical Education in Middle-Secondary School <sup>C</sup> | 4   |
| PE 355 Coaching:Leadership in Sports (General Education Ethics) <sup>C</sup>             | 3   | PE 371 Physiology of Exercise <sup>C</sup>   | 4   |
| PE 365 Kinesiology <sup>C</sup>  | 4   | PE 373 Activities and Programs for the Disabled and Aging <sup>C</sup>                         | 3   |
| General Education History  | 3   | PE 432 Organization and Administration in Physical Education <sup>C</sup>                      | 3   |
| Semester Total Credits   | 14  | Semester Total Credits   | 14  |
| Senior   |     |  |     |
| Fall   | Cr. | Spring   | Cr. |
| PE 406 Readings in Physical Education (Capstone) <sup>C</sup>                            | 3   | ED 425 Student Teaching or PE 426 Internship <sup>C</sup>                                      | 12  |
| PE 441 Advanced Exercise Physiology and Prescription <sup>C</sup>                        | 4   |  |     |
| SO 214 Racial and Cultural Minorities  | 3   |  |     |
| SO 320 Drugs and Society   | 3   |  |     |
| General Education Humanities   | 3   |  |     |
| Semester Total Credits   | 16  | Semester Total Credits   | 12  |
| Total Credits For This Major: 121  |     |  |     |

### Coaching Minor Curriculum Map 2016-2017 Catalog

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 higher.

|   |  |            |
|---|--|------------|
| PE 161                                      | Physical Fitness & Wellness Assessment                                     | 3          |
| PE 224                                      | Motor Skills Development II  | 3          |
| PE 355                                      | Coaching:Leadership in Sports  | 3          |
| PE 432                                      | Organization and Administration in Physical Education                      | 3          |
| <b>Two courses from the following list:</b> |  | <b>7-8</b> |
| PE 223                                      | Motor Skills Development I   | 3          |
| 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 Cr. |                       | 41-43 |

### Health Minor Curriculum Map 2016-2017 Catalog

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 higher.

|  |  |            |
|--|--|------------|
| PE 161   | Physical Fitness & Wellness Assessment   | 3          |
| PE 260   | Personal and Community Health            | 3          |
| BI 253   | Foods and Nutrition                      | 4          |
| <b>Three additional courses from the following list:</b> |  | <b>7-8</b> |
| BI 220   | Introductory 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          |
| PY 211   | Introduction to Psychology               | 3          |
| PY 220   | Developmental Psychology                 | 3          |
| PY 324   | Adolescent Psychology                    | 3-4        |
| SM 220   | Care and Prevention of Athletic Injuries | 4          |
| SO 320   | Drugs and Society                        | 3          |
| Total Cr.  |  | 57-59      |

## Physics

Professors: Richard Hyde (Chair); Assistant Professors: K. Tabetta Hole, Robert Knapik and Arthur Pallone; Lecturer Elisabeth Atems

Physics is a mathematical science and as such is rigorous and demanding. It presents a challenge found in few other disciplines. At Norwich University, the Bachelor of Science in Physics is offered to students desiring an excellent schooling in the fundamentals of physics. The program encompasses a complete curriculum comprised of classical and quantum physics ranging from the properties of particles to the dynamics of the universe. All disciplines in science and engineering turn to physics to address the foundation of their fields.

Hallmarks of a Norwich education include experiential learning and leadership development. The Department of Physics therefore not only accentuates laboratory work but also insists upon peer collaboration throughout the curriculum. Physics majors, having the advantage of a 3-to-1 student-to-faculty ratio, develop close working relationships with their faculty mentors culminating in original research conducted in a faculty laboratory. Physics majors regularly present the results of their research at regional and national conferences. Currently, the research interests of the faculty include particle physics, material science, astrophysics and geophysical fluid dynamics.

### Goals:

- The Department is committed to developing the maximum potential of every individual majoring in physics. It is devoted to the proposition that physics majors will, upon graduation, have a well-founded understanding of the physics that underlies all aspects of the physical universe. Such an education will insure that Norwich graduates have open to them and are successful in a full range of satisfying career opportunities.

### Outcomes:

- Because of its importance to so many fields, physics serves as an ideal springboard for a rich diversity of careers in the sciences, mathematics and engineering. The training necessary to become a physicist develops analytical skills that allow graduates to branch out into a wide variety of technological professions that value the interdisciplinary talent that physicists have in understanding fundamental physical processes through experimentation.

Because it is one of the most challenging programs at any school, including Norwich, the personal reward of a degree in physics is great. The intellectual growth that is realized opens many doors including: pursuit of the Masters and Doctorate degrees leading to an academic position; a career as a research scientist in a laboratory of industry or government; the profession of education in high school; employment as a scientific consultant to lawyers and politicians; or service in technical branches of the military.

### Careers for this Major:

- Industry
- Government
- Graduate work in physics and other physical sciences
- Military

### B. S. in Physics - Curriculum Map 2016-2017 Catalog

Print PDF Curriculum Map

| Freshman   |     |   |     |
|--|-----|---|-----|
| Fall   | Cr. | Spring  | Cr. |
| EN 101 Composition and Literature I                        | 3   | EN 102 Composition and Literature II                        | 3   |
| MA 121 Calculus I (General Education Math)                 | 4   | MA 122 Calculus II (General Education Math)                 | 4   |
| CH 103 General Chemistry I (General Education Lab Science) | 4   | CH 104 General Chemistry II (General Education Lab Science) | 4   |
| PS 107 Introductory Solar System Astronomy                 | 4   | PS 108 Stellar and Galactic Astronomy                       | 4   |
| Semester Total Credits                                     | 15  | Semester Total Credits                                      | 15  |
| Sophomore  |     |   |     |
| Fall   | Cr. | Spring  | Cr. |
| EN 201 World Literature I (General Education Literature)   | 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          |
| General Education Ethics  | 3          | General Education History   | 3          |
|   |            | General Education Social Science                                    | 3          |
| Semester Total Credits  | 14         | Semester Total Credits  | 17         |
| <b>Junior</b>   |            |   |            |
| <b>Fall</b>   | <b>Cr.</b> | <b>Spring</b>   | <b>Cr.</b> |
| PS 334 Classical Mechanics or 356 Thermodynamics & Statistical <sup>1</sup> | 3          | PS 444 Quantum Physics or 428 Electrodynamics & Optics <sup>1</sup> | 3          |
| PS 341 Modern Physics or PE 426 Internship <sup>1</sup>                     | 3          | PS 374 Junior Laboratory II   | 2          |
| PS 373 Junior Laboratory I  | 2          | Mathematics Elective <sup>2</sup>                                   | 3          |
| Mathematics Elective <sup>2</sup>   | 3          | General Education Arts & Humanities                                 | 3          |
| Free Elective   | 3          | Free Elective   | 3          |
|   |            | Free Elective   | 3          |
| Semester Total Credits  | 14         | Semester Total Credits  | 17         |
| <b>Senior</b>   |            |   |            |
| <b>Fall</b>   | <b>Cr.</b> | <b>Spring</b>   | <b>Cr.</b> |
| PS 356 Thermodynamics & Statistical or 334 Classical Mechanics <sup>1</sup> | 3          | PS 428 Electrodynamics & Optics or 444 Quantum Physics <sup>1</sup> | 3          |
| PS 426 Electricity and Magnetism or 341 Modern Physics <sup>1</sup>         | 3          | PS 452 Seminar II (Capstone)  | 1          |
| PS 451 Seminar I  | 1          | PS 474 Senior Laboratory II   | 3          |
| PS 473 Senior Laboratory I  | 3          | Free Elective   | 3          |
| Free Elective   | 3          | Free Elective   | 3          |
| Free Elective   | 3          |   |            |
| Semester Total Credits  | 16         | Semester Total Credits  | 13         |
| Total Credits For This Major: 121   |            |   |            |

<sup>1</sup> This course is offered in alternate years. Both courses listed are required. For the years these courses are offered, see Course Descriptions.

<sup>2</sup> The approval of the Department of Physics is required.

### Physics Minor Curriculum Map 2016-2017 Catalog

|                                   |                       |    |
|-----------------------------------|-----------------------|----|
| PS 211                            | University Physics I  | 4  |
| PS 212                            | University Physics II | 4  |
| PS Elective                       |                       | 3  |
| PS Elective                       |                       | 3  |
| PS Elective (300 level or higher) |                       | 3  |
| PS Elective (300 level or higher) |                       | 3  |
| Total Cr.                         |                       | 20 |

## Political Science

Program Coordinator: Jason F. Jagemann

Professor Andrea Talentino; Associate Professors Michael Andrew and Jason Jagemann; Assistant Professor Yangmo Ku.

### Mission:

The Political Science program emphasizes 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.

### Goals:

- Develop skills which enable students to have successful and rewarding careers.
- Provide students with a working knowledge of the vocabulary, concepts, ethics, and strategies of politics as well as an appreciation of how politics and public policy impact the lives of people locally, nationally, and globally.
- Give students the opportunity to do independent research and develop their own ideas in the field of political science by being mentored by professional political scientists.

### Outcomes:

- Students initiate and complete research projects as well as cogently present research findings.
- Students apply the skills they learn in the classroom to understand and evaluate political and policy processes and outcomes.
- Students demonstrate an understanding of the political and policy processes in a variety of domestic and international settings.
- Students are prepared for the job market and/or graduate or law school.

### Careers in this Major:

- Military Officer
- Lawyer
- Intelligence Officer
- Political Scientist
- Public Administrator
- Policy Analyst
- Foreign Service Officer

## Internships:

The Political Science Program has a strong record of supervising internships for students throughout the United States. The intent of the internship is to provide students with opportunities to apply their classroom learning and to enhance their academic program through practical experience. Students find internships as an invaluable experience through which they can explore potential careers and examine the links between the theory and practice of politics and government.

Norwich University also maintains an institutional affiliation with **The Washington Semester Program (WSP)**, which is the oldest, most prestigious, and well-known experiential education program in the world. This is a dynamic program that takes you outside of the classroom and into the real world. You *gain experience* and *contacts* to jump-start your *career* and get a taste of professional life while you *experience* the bustling pace of the capital city. Whatever your career interests, the WSP **offers a variety of unique and intensive programs** that will provide you with a learning opportunity that challenges your mind and will change your life.

## B.A. in Political Science - Curriculum Map 2016-2017 Catalog

Print PDF Curriculum Map

| Freshman   |     |  |     |
|--|-----|--|-----|
| Fall   | Cr. | Spring   | Cr. |
| EN 101 Composition and Literature I  | 3   | EN 102 Composition and Literature II   | 3   |
| Modern Language 111  | 6   | Modern Language 112  | 6   |
| PO 105 American Politics <sup>1,6,9</sup>  | 3   | PO 106 Introduction to Public Policy and Administration <sup>1,9</sup>   | 3   |
| Free Elective  | 3   | Free Elective  | 3   |
| Semester Total Credits   | 15  | Semester Total Credits   | 15  |
| Sophomore  |     |  |     |
| Fall   | Cr. | Spring   | Cr. |
| EN 201 World Literature I (BA Requirement)   | 3   | EC 201 Principles of Economics (Macro) or 202 Principles of Economics (Micro) (General Education Social Science) | 3   |
| General Education Math   | 3   | EN 202 World Literature II (BA Requirement)  | 3   |
| HI 121 American History Survey I (General Education History Elective) <sup>1</sup> | 3   | HI 122 American History Survey II <sup>1</sup>   | 3   |
| PO 215 International Relations <sup>1,7,9</sup>                                    | 3   | MA 232 Elementary Statistics (General Education Math)  | 3   |
| PO 220 Research Methods <sup>1,9</sup>   | 3   | PO 202 Introduction to Comparative Politics <sup>1,8,9</sup>   | 3   |
| Semester Total Credits   | 15  | Semester Total Credits   | 15  |
| Junior   |     |  |     |
| Fall   | Cr. | Spring   | Cr. |
| EN 112 Public Speaking   | 3   | PO International Relations Elective <sup>2,7,9</sup>   | 3   |
| General Education Ethics   | 3   | PO American Politics Elective <sup>3,6,9</sup>   | 3   |
| General Education Lab Science  | 4   | General Education Arts & Humanities Elective   | 3   |
| PO 303 Political Philosophy or 330 American Citizenship <sup>1</sup>               | 3   | General Education Lab Science Elective   | 4   |
| Free Elective  | 3   | HI (Non-Western) Elective  | 3   |
| Semester Total Credits   | 16  | Semester Total Credits   | 16  |
| Senior   |     |  |     |
| Fall   | Cr. | Spring   | Cr. |
| BA Arts & Humanities Elective  | 3   | General Education Literature   | 3   |
| PO Comparative Politics Elective <sup>1,8,4,9</sup>                                | 3   | PO Elective (300 or 400 level) <sup>5,9</sup>  | 3   |
| Free Elective  | 3   | PO Elective (300-400 level) <sup>5,9</sup>   | 3   |
| Free Elective  | 3   | PO 410 Capstone Seminar in Political Science (Capstone) <sup>1,9</sup>   | 3   |
| Free Elective  | 3   | Free Elective  | 3   |
| Semester Total Credits   | 15  | Semester Total Credits   | 15  |
| Total Credits For This Major: 122  |     |  |     |

- 1 Grade of C or higher required.
- 2 International Relations Elective: Choose one from PO 301, PO 305, PO 405, PO 415 or PO 412. Grade of C or higher required.
- 3 American Politics Elective: Choose one from PO 312, PO 313, PO 314, PO 315, PO 321 or PO 331. Grade of C or higher required.
- 4 Comparative Politics Elective: Choose one from PO 310, PO 320, PO 333, PO 340 or PO 348. Grade of C or higher required.
- 5 Must be PO 300 or higher. Grade of C or higher required.
- 6 PO 105: Pre-requisite for American Politics Electives
- 7 PO 215: Pre-Requisite for International Relations Electives.
- 8 PO 202: Pre-Requisite for Comparative Politics Electives.
- 9 100 Level courses open to freshmen except by permission of department chair or if a requirement for another major or program. 200 Level courses closed to freshmen except by permission of department chair. 300 Level classes for upperclass students, except by permission of department chair. 400 Level classes require permission.

## Pre-Health Professions

### Preprofessional Programs

Preprofessional programs are those in which a student completes college as a prerequisite for admission to a professional school. **Preprofessional programs are career choices, not majors.** Most preprofessional course requirements can be met at any accredited college or university. However, preprofessional advising at Norwich University is one of the strengths of the Preprofessional Program. The university maintains a strong advising program for preprofessional students. The advisor and student will develop a list of appropriate electives along with the major curriculum map and

extra-curricular activities. The preprofessional advising program it is designed to enhance professional school admission opportunities and facilitate a student's transfer into professional school.

The Preprofessional Program implements structured curricula and specialized advising for numerous career areas. Each curriculum incorporates the courses required by the professional schools into the strong Norwich University liberal arts curriculum. These courses facilitate development of reading, writing, and critical thinking skills that provide the key to successful performance in professional schools and life-long learning. Sound preprofessional advising, the accessibility of the individual advisers, and frequent contact with professional school representatives keep students well informed about the admission requirements and the application process for each program.

## Choosing a Major

### Preprofessional programs are career choices, not majors.

The majors that successful professional school applicants select are as diverse as the students themselves. Very few professional schools require, or even necessarily prefer, that applicants come from any particular undergraduate major. However, the liberal arts education that students receive at Norwich is an asset to any professional school applicant.

Preprofessional students should major in a subject that they enjoy and are thus more likely to perform well academically. A wise choice of major should take into account (1) what field holds the most interesting career prospects in the event that professional school plans do not materialize, and (2) the fact that majoring in something one enjoys, rather than feels compelled to pursue, is likely to stimulate the superior academic performance that is of utmost importance in professional school admission.

| Pre-Professional Concentration | Suggested Majors  |
|--------------------------------|---|
| Pre-Medicine                   | Any major is acceptable; Biology & Biochemistry are popular |
| Pre-Dentistry                  | Any major is acceptable; Biology & Biochemistry are popular |
| Pre-Physician Assistant        | Any major is acceptable; Biology & Biochemistry are popular |
| Pre-Anesthesiologist Assistant | Any major is acceptable; Biology & Biochemistry are popular |
| Pre-Medical Technology         | Biology, Biochemistry or Chemistry                          |
| Pre-Pharmacy                   | Biochemistry or Chemistry                                   |
| Pre-Occupational Therapy       | Health Sciences   |
| Pre-Physical Therapy           | Biology or Health Sciences                                  |
| Pre-Optometry                  | Biology or Chemistry  |
| Pre-Veterinary Medicine        | Biology   |

## Psychology

Charles A Dana Professors Carole Bandy and Melvin Miller; Professors Kevin Fleming (Chair) and Johnnie Stones; Associate Professor Diane Byrne; Assistant Professors Sharon Goodvin and Matthew Thomas; Lecturer Mark Stefani.

### Mission:

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 may explore the discipline from experimental, personality/social, developmental, and/or clinical perspectives. A research-based senior thesis is required, along with an oral presentation at a regional undergraduate research conference. Upper level practica, internships, or field placements that provide practical work experience in a special interest area are encouraged.

### Goals:

- To expose students to the full range of ideas in the field of Psychology.
- To give students the opportunity to experience the process of being and acting like a professional in the field of Psychology.
- To prepare students for lifelong career development.

### Outcomes:

- To demonstrate understanding and knowledge of the content of Psychology including its major concepts, theoretical perspectives, empirical findings, and historical trends.
- To perform research independently and competently in the process of literature review, experimental design, data collection, and statistical analysis, as well as completion of the written and oral senior thesis.
- To communicate effectively in both written and oral formats at local and regional undergraduate research conferences.
- To prepare for successful graduate work and/or employment in professions requiring a Psychology background and/or in professions requiring critical thinking.

### Graduate School Preparation:

The Psychology Major is an excellent preparation for most professional schools in:

- Law
- Medicine
- Education
- Business
- Psychology

### Careers for this Major:

Careers at the BA level include:

- Army Mental Health Specialist

- Child Development Specialist
- Employee Relations Specialist
- Probation/Parole Officer
- Substance Abuse Counselor

### Careers with advanced degrees include:

- Applied Statistician
- Clinical Social Worker
- Guidance Counselor
- Military Counselor
- Neuropsychologist
- School Psychologist
- Speech Pathologist

### B.A. in Psychology - Curriculum Map 2016-2017 Catalog

Print PDF Curriculum Map

Courses noted with a C must be completed with a grade of 'C' or higher. Courses noted with an S must be passed with a grade of 'S.'

| Freshman   |     |  |     |
|--|-----|--|-----|
| Fall   | Cr. | Spring   | Cr. |
| EN 101 Composition and Literature I  | 3   | EN 102 Composition and Literature II   | 3   |
| PY 211 Introduction to Psychology <sup>C</sup>   | 3   | PY 220 Developmental Psychology <sup>C</sup>   | 3   |
| General Education Math   | 3   | MA 232 Elementary Statistics (General Education Math)  | 3   |
| Modern Language 111 (If 205 is taken, then an additional 3 credit elective must be taken here and the total credits must be 6) | 6   | Modern Language 112 (If 206 is taken, then an additional 3 credit elective must be taken here and the total credits must be 6) | 6   |
| Semester Total Credits   | 15  | Semester Total Credits   | 15  |
| Sophomore  |     |  |     |
| Fall   | Cr. | Spring   | Cr. |
| BI 101 Principles of Biology I (General Education Lab Science)   | 4   | General Education Lab Science  | 4   |
| EN 201 World Literature I (BA Requirement)   | 3   | EN 202 World Literature II (BA Requirement)  | 3   |
| PY 230 Biopsychology   | 3   | PY 241 Introduction to Personality Theory  | 3   |
| PY 240 Introduction to Social Psychology   | 3   | PY 263 Perception  | 3   |
| PY 313 Experimental Psychology I <sup>C</sup>  | 3   | PY 314 Experimental Psychology II <sup>C</sup>   | 3   |
| Semester Total Credits   | 16  | Semester Total Credits   | 16  |
| Junior   |     |  |     |
| Fall   | Cr. | Spring   | Cr. |
| PY 212 Abnormal Psychology or 324 Adolescent Psychology  | 3   | PY 344 Cognition   | 4   |
| General Education Literature   | 3   | PY 398 Thesis Preparation <sup>C</sup>   | 3   |
| General Education Arts & Humanities  | 3   | PY 402 Conference <sup>S</sup>   | 0   |
| General Education Social Science   | 3   | General Education History  | 3   |
| BA Elective Arts & Humanities  | 3   | BA Elective Arts & Humanities  | 3   |
|  |     | Free Elective  | 3   |
| Semester Total Credits   | 15  | Semester Total Credits   | 16  |
| Senior   |     |  |     |
| Fall   | Cr. | Spring   | Cr. |
| PY 360 History and Systems of Psychology (General Education Ethics) <sup>C</sup>   | 3   | PY 401 Senior Seminar (General Education Capstone) <sup>C</sup>  | 3   |
| PY 498 Senior Thesis <sup>C</sup>  | 3   | PY 403 Presentation <sup>S</sup>   | 0   |
| Free Elective  | 3   | Free Elective  | 3   |
| Free Elective  | 3   | Free Elective  | 3   |
| Free Elective  | 3   | Free Elective  | 3   |
| Semester Total Credits   | 15  | Semester Total Credits   | 12  |
| Total Credits For This Major: 120  |     |  |     |

### Cross-Cultural Psychology Minor Curriculum Map 2016-2017 Catalog

|        |                                   |   |
|--------|-----------------------------------|---|
| PY 211 | Introduction to Psychology        | 3 |
| PY 236 | Cross-Cultural Psychology         | 3 |
| PY 240 | Introduction to Social Psychology | 3 |
| PY 344 | Cognition                         | 4 |
| SO 214 | Racial and Cultural Minorities    | 3 |
| SO 212 | Cultural Anthropology             | 3 |

#### Choose ONE of the following:

|        |                                    |   |
|--------|------------------------------------|---|
| PY 241 | Introduction to Personality Theory | 3 |
| PY 263 | Perception                         | 3 |
| PY 321 | Organizational Psychology          | 3 |
| PY 352 | Learning and Memory                | 4 |

Total Cr.

22-23

### Engineering Psychology Minor Curriculum Map 2016-2017 Catalog

|        |                            |   |
|--------|----------------------------|---|
| PY 211 | Introduction to Psychology | 3 |
| PY 232 | Engineering Psychology     | 3 |

|                                    |                                    |       |
|------------------------------------|------------------------------------|-------|
| PY 344                             | Cognition                          | 4     |
| PY 350                             | Environmental Psychology           | 3     |
| <b>Chose ONE of the following:</b> |                                    |       |
| PY 230                             | Biopsychology                      | 3     |
| PY 263                             | Perception                         | 3     |
| PY 352                             | Learning and Memory                | 4     |
| <b>Chose ONE of the following:</b> |                                    |       |
| 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 Cr.                          |                                    | 19-20 |

**Forensic Psychology Minor Curriculum Map 2016-2017 Catalog**

|                                    |                                    |       |
|------------------------------------|------------------------------------|-------|
| PY 211                             | Introduction to Psychology         | 3     |
| PY 234                             | Forensic Psychology                | 3     |
| PY 355                             | Psychology and the Law             | 3     |
| <b>Chose TWO of the following:</b> |                                    |       |
| PY 212                             | Abnormal Psychology                | 3     |
| PY 220                             | Developmental Psychology           | 3     |
| PY 240                             | Introduction to Social Psychology  | 3     |
| PY 241                             | Introduction to Personality Theory | 3     |
| <b>Chose TWO of the following:</b> |                                    |       |
| PY 230                             | Biopsychology                      | 3     |
| PY 263                             | Perception                         | 3     |
| PY 344                             | Cognition                          | 4     |
| PY 352                             | Learning and Memory                | 4     |
| Total Cr.                          |                                    | 21-23 |

**Political Psychology Minor Curriculum Map 2016-2017 Catalog**

|                                    |  |    |
|------------------------------------|--|----|
| PY 211                             | Introduction to Psychology                           | 3  |
| PY 238                             | Political Psychology                                 | 3  |
| PY 240                             | Introduction to Social Psychology                    | 3  |
| PY 344                             | Cognition  | 4  |
| PO 105                             | American Politics                                    | 3  |
| <b>Chose ONE of the following:</b> |  |    |
| PO 315                             | Public Opinion and Political Behavior                | 3  |
| PO 333                             | American Foreign Policy                              | 3  |
| <b>Chose ONE of the following:</b> |  |    |
| CM 304                             | Principles and Practices of Corporate Communications | 3  |
| PY 241                             | Introduction to Personality Theory                   | 3  |
| Total Cr.                          |  | 22 |

**Psychology Minor Curriculum Map 2016-2017 Catalog**

|  |                                    |       |
|--|------------------------------------|-------|
| PY 211   | Introduction to Psychology         | 3     |
| PY 313   | Experimental Psychology I          | 3     |
| <b>Chose TWO of the following; one 200 level, one 300-400 level:</b> |                                    |       |
| 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     |
| Total Cr.  |                                    | 18-24 |

## Sociology

Associate Professor Aimee Vieira; Assistant Professor Min Li

The Sociology minor provides students with a distinctive social perspective on the realities of everyday life and the relationships within societies, institutions, organizations, and groups. Students are introduced to methods of social science research and the social, cultural, and political dimensions of domestic and global issues. Students are also exposed to the interstices between sociology and other social and behavioral sciences.

**Sociology Minor Curriculum Map 2016-2017 Catalog**

|                       |                                    |   |
|-----------------------|------------------------------------|---|
| SO 201                | Introduction to Sociology          | 3 |
| SO 202                | Problems of Modern Society         | 3 |
| Choose 1 course from: |                                    |   |
| SO/CJ 209             | Methods of Social Science Research | 4 |

|  |                                    |       |
|--|------------------------------------|-------|
| HI 209   | Historical Methods                 | 3     |
| PO 220   | Research Methods                   | 3     |
| PY 313   | Experimental Psychology I          | 3     |
| PY 314   | Experimental Psychology II         | 3     |
| SO 212   | Cultural Anthropology <sup>1</sup> | 3     |
| or SO 214  | Racial and Cultural Minorities     |       |
| Two Sociology electives including SO 300 Selected Topics |                                    | 6     |
| Total Cr.  |                                    | 18/19 |

<sup>1</sup> If not taken previously.

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

## Spanish

Professor H. Stewart Robertson; Associate Professor Judith Stallings-Ward (Program Director); Assistant Professor Gina Sherriff

The Spanish student pursuing the major or the minor has access to a wide range of courses designed to build a solid foundation in the language, perfect speaking and compositional skills, teach literature in tandem with the culture of both Spain and Hispanoamerica, focus on special topics in Latino studies, cinema, women authors, or literary genres, and culminate in a senior capstone course, typically dealing with an eminent writer, such as Cervantes or García Márquez. The senior portfolio incorporates assessment of writing and speaking proficiency with samples of student work toward the major. All students are encouraged to participate in the program's on-campus cultural activities and to study abroad for a summer or semester in an approved overseas program to experience language immersion and explore *in situ* a Hispanic culture. The foreign language placement test is required before any student registers for a first course in the program.

### Goals:

Students achieve advanced language proficiency, expand their cultural understanding of the Hispanic world, develop critical expertise in works of literature written in Spanish, strengthen critical thinking skills, and experience personal transformation. This educational growth will empower students to connect with and impact a diverse world in a meaningful way.

### Outcomes:

At graduation, Spanish majors will present test results and written work in a senior portfolio showing the abilities

- To listen, speak, and write with advanced proficiency and produce different styles of writing;
- To read literary and popular texts in Spanish and discern moral, cultural, aesthetic values, literary movements, and historical periods informing the conditions in which those works are produced;
- To demonstrate a comprehension and appreciation of the differences and similarities among the three Hispanic cultures Spain, Latin America, and the U.S. Latino population as they compare to other cultures;
- To conduct research on and think critically about works of literature, film, and art produced by Hispanic cultures and identify leadership qualities and discuss ethical questions in the works.

### Graduate School Preparation:

The Spanish major strengthens verbal and critical thinking skills, cultural awareness, international experience, and foreign language competency necessary to excel in graduate study in all professional schools.

### Careers for this Major:

The Spanish major provides a competitive edge in the national and international job markets where Spanish is the second widest spoken language in the world. When combined with a second major, it doubles the value of the college degree and strengthens the curriculum vitae. Among the many job opportunities awaiting the Spanish major are those found in

- Law Enforcement
- Military Service
- Diplomacy
- Education
- Business
- Social Services
- Health Care
- Politics
- Environmental Science
- Advertising and Mass Media

### B.A. Spanish - Curriculum Map 2016-2017 Catalog

Print PDF Curriculum Map

| Freshman   |     |   |     |
|--|-----|---|-----|
| Fall   | Cr. | Spring  | Cr. |
| SP 111 Beginning Spanish I (If SP 205 or higher is taken, an additional 3 credit elective must be taken; total credits must be 6) <sup>C</sup> | 6   | SP 112 Beginning Spanish II (If SP 205 or higher is taken, an additional 3 credit elective must be taken; total credits must be 6) <sup>C</sup> | 6   |
| EN 101 Composition and Literature I  | 3   | General Education Social Science  | 3   |
| General Education History  | 3   | EN 102 Composition and Literature II  | 3   |
| General Education Math   | 3   | General Education Math  | 3   |
| Semester Total Credits   | 15  | Semester Total Credits  | 15  |

| <b>Sophomore</b>                             |            |  |            |
|--|------------|--|------------|
| <b>Fall</b>                                  | <b>Cr.</b> | <b>Spring</b>  | <b>Cr.</b> |
| SP 205 Intermediate Spanish I <sup>C</sup>   | 3          | SP 206 Intermediate Spanish II <sup>C</sup>  | 3          |
| EN 201 World Literature I (B.A. Requirement) | 3          | EN 202 World Literature II (B.A. Requirement)  | 3          |
| General Education Ethics                     | 3          | General Education Arts & Humanities  | 3          |
| General Education Lab Science                | 4          | General Education Lab Science  | 4          |
| Free Elective                                | 3          | Free Elective  | 3          |
| Semester Total Credits                       | 16         | Semester Total Credits   | 16         |
| <b>Junior</b>                                |            |  |            |
| <b>Fall</b>                                  | <b>Cr.</b> | <b>Spring</b>  | <b>Cr.</b> |
| SP 301 Advanced Spanish I <sup>C</sup>       | 3          | SP 302 Advanced Spanish II <sup>C</sup>  | 3          |
| SP Elective <sup>C</sup>                     | 3          | SP 300-level literature elective (General Education Literature                                     | 3          |
| EC or HI or PO or PY or SO Elective          | 3          | BA Arts & Humanities Elective  | 3          |
| BA Arts & Humanities Elective                | 3          | EC or HI or PO or PY or SO Elective  | 3          |
| Free Elective                                | 3          | Free Elective  | 3          |
| Semester Total Credits                       | 15         | Semester Total Credits   | 15         |
| <b>Senior</b>                                |            |  |            |
| <b>Fall</b>                                  | <b>Cr.</b> | <b>Spring</b>  | <b>Cr.</b> |
| SP Elective <sup>C</sup>                     | 3          | SP 415 Seminar: Topics in Spanish or Latin-American Literature and Culture (Capstone) <sup>C</sup> | 3          |
| SP Elective <sup>C</sup>                     | 3          | SP Elective <sup>C</sup>   | 3          |
| EC or HI or PO or PY or SO Elective          | 3          | Free Elective  | 3          |
| Free Elective                                | 3          | Free Elective  | 3          |
| Free Elective                                | 3          | Free Elective  | 3          |
| Semester Total Credits                       | 15         | Semester Total Credits   | 15         |
| Total Credits For This Major: 122            |            |  |            |

<sup>c</sup> Course must be completed with a C or higher.

**Strongly recommended: Study abroad for one semester in a Spanish-speaking country; see Spanish program director.**

#### Spanish Minor Curriculum Map 2016-2017 Catalog

All courses require a grade of C or higher. The courses required to complete the minor depend on the foreign-language proficiency level of the incoming student. See tracks A and B below:

#### A. The following is the track to complete the minor for those who enter Norwich at or below the intermediate level:

|                             |                         |    |
|-----------------------------|-------------------------|----|
| SP 205                      | Intermediate Spanish I  | 3  |
| SP 206                      | Intermediate Spanish II | 3  |
| SP Elective (250 or higher) |                         | 3  |
| SP Elective (301 or higher) |                         | 3  |
| SP Elective (301 or higher) |                         | 3  |
| SP Elective (301 or higher) |                         | 3  |
| Total Cr.                   |                         | 18 |

#### B. Track B is to be completed by students who place above the intermediate level:

|                             |  |    |
|-----------------------------|--|----|
| SP Elective (301 or higher) |  | 3  |
| SP Elective (301 or higher) |  | 3  |
| SP Elective (301 or higher) |  | 3  |
| SP Elective (301 or higher) |  | 3  |
| SP Elective (301 or higher) |  | 3  |
| SP Elective (301 or higher) |  | 3  |
| Total Cr.                   |  | 18 |

## Sports Management Minor

Associate Professor Jolley, Assistant Professor Roberge, Adjunct Instructor Tanjian Liang

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 Minor Curriculum Map 2016-2017 Catalog

- Students seeking a minor in Sports Management must obtain the approval of the School Director.
- All 6 courses require a grade of C or higher.

|                          |  |       |
|--------------------------|--|-------|
| AC 201                   | Introduction to Accounting and Financial World | 3     |
| MG 314                   | Marketing Management                           | 3     |
| MG 441                   | Integrated Marketing Communications            | 3     |
| MG Elective <sup>1</sup> |  | 3     |
| PE 333                   | Management Sports Facilities                   | 3     |
| PE 426                   | Internship (Sports Management Placement)       | 6,12  |
| Total Cr.                |  | 21-27 |

- 1 Choose from the subjects/courses listed below:  
AC, CN, CS, DF, EC, FN, FR, GR, MG, QM, SP AS 311, AS 312, AS 411, AS 412, CJ 341, CJ 442, MA 240, MA 318, MA 370, MS 311, MS 312, MS 411, MS 412, NS 321, NS 342, NS 421, NS 422, PY 210

## Studies in War and Peace

Program Coordinator: Steve Sodergren

### Mission:

The Studies in War and Peace (SWAP) program examines the origins and development of military institutions and the impact of these institutions upon the social order. Intellectually, the program promotes critical analysis of phenomena relating to military and diplomatic affairs. This academic program is equally suitable for civilian students or cadets; 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.

### Goals:

- Develop the skills which enable students to have successful and rewarding careers.
- Develop understandings of how global political, economic, and social forces affect the growth and interplay of military and political institutions.
- Acquire an understanding of how different cultures engage in warfare and seek to create the conditions for peace.

### Outcomes:

- All graduates will have a broad understanding of how global political, economic, and social developments affects the growth and interplay of military institutions.
- All graduates will have a solid understanding of critical thinking skills as demonstrated in an original research paper.
- Graduates will be satisfied with the overall quality of the program and that the program provided a good preparation for the job market and/or additional education and training.

### Careers in this Major:

- Military Officer
- Lawyer
- Historical or Political Scientist
- Teacher
- Intelligence Officer
- Any career that requires critical thinking, analytical, problem solving, and communications skills.

### B.A. Studies in War and Peace – Curriculum Map 2016-2017 Catalog

Print PDF Curriculum Map

| Freshman   |     |  |     |
|--|-----|--|-----|
| Fall   | Cr. | Spring   | Cr. |
| EN 101 Composition and Literature I  | 3   | BA Arts & Humanities   | 3   |
| HI 107 The History of Civilization I or 121 American History Survey I (General Education History) <sup>1</sup> | 3   | Modern Language 112  | 6   |
| Modern Language 111  | 6   | EN 102 Composition and Literature II   | 3   |
| PO 105 American Politics (General Education Social Science) <sup>1</sup>                                       | 3   | HI 108 The History of Civilization II or 122 American History Survey II <sup>1</sup> | 3   |
| Semester Total Credits   | 15  | Semester Total Credits   | 15  |
| Sophomore  |     |  |     |
| Fall   | Cr. | Spring   | Cr. |
| EN 201 World Literature I (B.A. Requirement)   | 3   | EN 202 World Literature II (B.A. Requirement)  | 3   |
| General Education Arts & Humanities  | 3   | External Elective <sup>2</sup>   | 3   |
| General Education Math   | 3   | General Education Math   | 3   |
| HI 235 Military History I <sup>1,6</sup>   | 3   | HI 236 Military History II <sup>1,6</sup>  | 3   |
| PO 202 Introduction to Comparative Politics or 215 International Relations <sup>1,8</sup>                      | 3   | Free Elective  | 3   |
| Semester Total Credits   | 15  | Semester Total Credits   | 15  |
| Junior   |     |  |     |
| Fall   | Cr. | Spring   | Cr. |
| Core Elective <sup>1,3,6,8</sup>   | 3   | Core Elective <sup>1,3,6,8</sup>   | 3   |
| General Education Lab Science  | 4   | General Education Lab Science  | 4   |
| International Affairs Elective <sup>1,4,6</sup>  | 3   | General Education Literature   | 3   |
| PH Elective (General Education Ethics)   | 3   | Free Elective  | 3   |
| Free Elective  | 3   | Free Elective  | 3   |
| Semester Total Credits   | 16  | Semester Total Credits   | 16  |
| Senior   |     |  |     |
| Fall   | Cr. | Spring   | Cr. |
| Capstone Seminar <sup>1,5,7</sup>  | 3   | Core Elective <sup>1,3,6,8</sup>   | 3   |
| Core Elective <sup>1,3,6,8</sup>   | 3   | International Affairs Elective <sup>1,4,6</sup>                                      | 3   |
| International Affairs Elective <sup>1,4,6</sup>  | 3   | Free Elective  | 3   |
| Free Elective  | 3   | Free Elective  | 3   |

|                                   |    |                        |    |
|-----------------------------------|----|------------------------|----|
| Free Elective                     | 3  | Free Elective          | 3  |
| Semester Total Credits            | 15 | Semester Total Credits | 15 |
| Total Credits For This Major: 122 |    |                        |    |

- 1 Grade of C or higher required.
- 2 Choose one of the following: EN 112, EC 106 EC 201, EC 202, SO 201, CM 261.
- 3 Choose four of the following
  - Chose at least one from: HI 334 HI 338 HI 339 HI 341 HI 355 HI 371 HI 372 HI 373
  - Choose at least two from: PO 305, PO 310, PO 330, PO 333 PO 340, PO 348, PO 405 PO 415, SO 330
  - HI Colloquia may also be used if designated as SWAP electives.
- 4 Choose three from European History, Non-Western History, or Pre-Modern History, one of which may be a 200 level HI course and one must be either Pre-Modern or Non-Western History.
  - European History: HI 322, HI 326, HI 329HI 361, HI 431.
  - Non-Western History: HI 315HI 317, HI 319, HI 345HI 363, HI 433.
  - Pre-Modern History (prior to 1600 C.E.): HI 303 HI 304, HI 321 HI 362 HI 432
- 5 SWAP Capstone may NOT double-count as Capstone for another major. Choose one of the following: IN 410 HI 491 HI 43X SWAP designated seminar, PO 491, PO 41X SWAP designated seminar. Note: HI 490 is a pre-requisite for HI 491 and PO 490 is a pre-requisite for PO 491
- 6 Students must complete a 200 level HI course with a final grade of "C" or higher, or have instructor's permission to take 300 and 400 level HI courses.
- 7 Permission required.
- 8 PO 202 Comparative Politics and PO 215 International Relations are prerequisites for 300 and 400 level PO courses in Comparative Politics and International Relations.

## Transnational Crime

Non-state actors engaged in organized and transnational crime—i.e. the corruption of government officials; trafficking in persons, drugs, and arms; money laundering; international terrorism—threaten the security of the US and key economic partners. This minor will prepare recipients for positions in law enforcement and security agencies working to neutralize these threats. International crimes are those violations against the law of nations for which there is universal jurisdiction, and which are typically tried by international war crimes tribunals—genocide, for example. Transnational crimes are those which a domestic jurisdiction will prosecute when they are impacted, regardless of where they occur—terrorism, for example. A study of these two areas will interest students from a wide variety of disciplines within the University.

### Transnational Crime Minor Curriculum Map 2016-2017 Catalog

- Students must earn a total of 18 credits for this minor.
- Students must earn a grade of C or higher in CJ 101 prior to declaring this minor

#### Required Course

|  |  |    |
|--|--|----|
| CJ 318   | Transnational Crime <sup>1</sup>                 | 3  |
| <b>Choose one course from:</b> <sup>2</sup>  |  |    |
| CJ 330   | Terrorism  | 3  |
| CJ 341   | Cyber Law and Cyber Crime                        | 3  |
| CJ 421   | Comparative Criminal Justice Systems             | 3  |
| CJ 430   | Homeland Security                                | 3  |
| <b>Choose one course in International Relations, Economics or Accounting from:</b> |  |    |
| PO 202   | Introduction to Comparative Politics             | 3  |
| PO 215   | International Relations                          | 3  |
| EC 106   | The Structure and Operation of the World Economy | 3  |
| EC 202   | Principles of Economics (Micro)                  | 3  |
| AC 201   | Introduction to Accounting and Financial World   | 3  |
| <b>Choose one course in Regional Exploration from:</b>                             |  |    |
| HI 212   | Modern East Asian Civilizations                  | 3  |
| HI 214   | History of the Middle East                       | 3  |
| HI 218   | Survey of Sub-Sahara Africa                      | 3  |
| HI 224   | Modern European History                          | 3  |
| HI 371   | Nation-Building <sup>3</sup>                     | 3  |
| SO 212   | Cultural Anthropology                            | 3  |
| <b>Choose a Modern language course 205 or higher</b> <sup>4</sup>                  |  |    |
| <b>Internship (3 credits - 120 hours)</b>  |  |    |
| CJ 405   | Internship <sup>5</sup>                          | 3  |
| Total Cr.  |  | 18 |

- 1 Students must meet the CJ 101 prerequisite with a grade of C or higher to enroll in this course.
- 2 Students must meet the prerequisites for each of the criminal justice courses listed.
- 3 Course prerequisite, a 200 level History course with a grade of C or higher.
- 4 While not a requirement for the Transnational Crime minor, language studies beyond an intermediate level (206 or higher) is encouraged. Language competency is required for special hiring consideration and foreign language proficiency pay with federal law enforcement and security agencies. It is advised for freshmen, who place into more advanced language courses to enroll in the advanced course and then advance to the highest level of language skill while at Norwich. Students should also engage in a study abroad experience.

- 5 This internship 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, minors and students declaring this minor.

## Undeclared

The Undeclared major is designed for students who have a wide variety of backgrounds and interests and are considered capable of being successful with college-level programs. It is understood that entry as an Undeclared student will likely require more than four years to complete graduation requirements. Students will be given exposure to several areas of interest to move appropriately toward choosing a major.

Undeclared students must indicate majors of interest; they will be admitted into the College that houses at least one of their majors of interest. There are three Undeclared major designations: ULA (Undeclared College of Liberal Arts), UPS (Undeclared College of Professional Schools), USM (Undeclared College of Science & Math).

Students are required to declare a major prior to accumulating 45 attempted credits (this includes transfer credits). Students, who fail to declare a major prior to accumulating 45 attempted credits, will have a registration prevention hold placed on his/her record until a Major Declaration form is submitted to the Registrar's Office.

### Typical First Year Courses for Undeclared Students

#### For those indicating an interest in a major in the College of Liberal Arts:

- English Composition & Literature (EN 101 & 102)
- Modern Language 111 or 112 (Chinese, French, German or Spanish) or Lab Science
- Math: A Liberal Art I (MA 101) or Elementary Statistics (MA 232)
- Introductory courses in possible major
- ROTC courses

#### For those indicating an interest in a major in the College of Professional Schools or the College of Science & Math:

- English Composition & Literature (EN 101 & 102)
- Two Lab Science courses (BI, CH, ES, GL, PS)
- Precalculus Math (MA 107) or Calculus (MA 121)
- Introductory courses in possible major
- History course
- ROTC courses

## Writing

The Writing Minor or Concentration exposes students to a plethora of cross-disciplinary writing opportunities. Students will develop the skills necessary for writing in all realms: civic life, employment, graduate school, and beyond. They will increase their creativity and innovation in all writing undertakings. Students will gain experience in collaboration, problem solving, innovation, and new media literacy. This minor/concentration permits students to document formally their acquisition of these rhetorical skills.

### Writing Concentration and Writing Minor 2016-2017 Catalog

The writing concentration is offered to English majors who wish to focus their studies on writing. Although the requirements are the same, English majors will pursue a Writing concentration, rather than a Writing minor.

Communications majors who pursue a Writing minor may only use three courses that satisfy both the Communications major and the Writing minor.

Complete the following 200 level courses:

|        |                                  |   |
|--------|----------------------------------|---|
| EN 203 | Advanced Composition             | 3 |
| EN 274 | Introduction to Creative Writing | 3 |

And ONE of the following 300 level course:

|        |                               |   |
|--------|-------------------------------|---|
| EN 362 | Rhetorical Criticism          | 3 |
| EN 364 | Intermediate Creative Writing | 3 |

Plus THREE courses from the following:

|        |                                    |   |
|--------|------------------------------------|---|
| EN 204 | Professional and Technical Writing | 3 |
| EN 272 | Veterans' Literature and Writing   | 3 |
| EN 278 | Writing for the Web                | 3 |
| EN 276 | Environmental Writing              | 3 |

EN 362 (if not taken above)

EN 364 (if not taken above)

|        |   |   |
|--------|---|---|
| CM 207 | Journalism I: News Gathering                      | 3 |
| CM 208 | Journalism II: Advanced News Gathering and Design | 3 |
| CM 209 | Broadcast Writing                                 | 3 |
| CM 335 | Television Criticism                              | 3 |

|           |  |    |
|-----------|--|----|
| Total Cr. |  | 18 |
|-----------|--|----|

## Course Descriptions

### Accounting (AC)

#### Courses

##### **AC 201 Introduction to Accounting and Financial World 3 Cr.**

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 Cr.**

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 Cr.**

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 reinforced throughout the course. Prerequisite: AC 205.

##### **AC 335 Intermediate Accounting I 3 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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.

### Architecture (AP)

#### Courses

##### **AP 106 Architectural Drafting 3 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 Cr.****AP 411 Architectural Design V 5 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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: AP 114, AP 325, or approval of instructor. Cross listed with AP 520.

**AP 431 Design Thinking and Innovation 3 Cr.**

This course explores the experience and practice of innovation by examining creativity as the ability to turn ideas into action. It examines the development, management, evolution, and broad context of emerging technologies and associated ventures. Students will complete innovation challenges from start to finish and leave with an understanding of the key tenets of design thinking and a sense for ways they can incorporate them into their work. This 'hands-on', project-based course involves students in the design and development of 'visual brand languages' for emerging technologies, foundation exercises in creativity, and case studies based on pivotal products from the past 50 years. Prerequisite: Not open to freshmen students.

**AP 434 Architectural Seminar in Process 3 Cr.**

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 Cr.**

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 Cr.**

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 Cr.****AP 499 Sketching School 3 Cr.****AP 499L Advanced Seminar: Sketching 0 Cr.****AP 501 Architectural Theory 3 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 Architectural Seminar in Design 3 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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.

**AP 599 Advanced Seminar: Sketching 3 Cr.****AP 599L Advanced Seminar: Sketching 0 Cr.****AP X1X Vertical Architecture Studio 5 Cr.**

This problem-oriented studio offers an opportunity for students from various design levels to interact and contribute toward solutions of common topical architectural problems and issues. A maximum of two vertical studios may be taken in place of AP312, AP411, or AP412. Offered summers only. Prerequisite: AP118 or approval of instructor.

## Aerospace Studies (AS)

### Courses

**AS 101 The Foundations of the United States Air Force 1 Cr.**

Basic introduction to the United States Air Force and Air Force Reserve Officer Training Corps. Topics: mission and organization of the Air Force, officership and professionalism, military customs and courtesies, Air Force opportunities, group leadership problems and communication skills. One hour lecture. Corequisite: Students pursuing an Air Force commission must also register for AS 101 LL1 (which includes 2 hours of Leadership Laboratory and 3 hours of Physical Training, weekly).

**AS 102 The Foundations of the United States Air Force 1 Cr.**

A continuation of AS101, introducing the United States Air Force and Air Force Reserve Officer Training Corps. Topics: mission and organization of the Air force, officership and professionalism, military customs and courtesies, Air Force opportunities, group leadership problems and communication skills. One hour lecture. Corequisite: Students pursuing an Air Force commission must also register for AS 102 LL1 (which includes 2 hours of Leadership Laboratory and 3 hours of Physical Training, weekly). Prerequisite: Students pursuing an Air Force commission must have completed AS 101 (or equivalent) with a C- or higher.

**AS 201 The Evolution of USAF Air and Space Power 1 Cr.**

A focus on the history of airpower and the military doctrine for its employment. Topics: Air Force heritage, Air Force leaders, general aspects of air and space power and communication skills. One hour lecture. Corequisite: Students pursuing an Air Force commission must also register for AS 201 LL1 (which includes 2 hours of Leadership Laboratory and 3 hours of Physical Training, weekly). Prerequisite: Students pursuing an Air Force commission must have completed AS 102 (or equivalent) with a C- or higher.

**AS 202 The Evolution of USAF Air and Space Power 1 Cr.**

A continuation of AS 201, focusing on the history and uses of airpower through the late 20th century and into the 21st century. Topics: airpower doctrine and strategy, and communication skills. One hour lecture. Corequisite: Students pursuing an Air Force commission must also register for AS 202 LL1 (which includes 2 hours of Leadership Laboratory and 3 hours of Physical Training, weekly). Prerequisite: Students pursuing an Air Force commission must have completed AS 201 (or equivalent) with a C- or higher.

**AS 311 Air Force Leadership Studies 3 Cr.**

A study of leadership and management fundamentals, professional knowledge, ethics and communication skills required of an Air Force officer. Three hour lecture. Corequisite: Students pursuing an Air Force commission must also register for AS 311 LL1 (which includes 2 hours of Leadership Laboratory and 3 hours of Physical Training, weekly). Prerequisite: Students pursuing an Air Force commission must have completed AS 202 with a C- or higher.

**AS 312 Air Force Leadership Studies 3 Cr.**

A continuation of AS 311 focusing on leadership and management fundamentals, professional knowledge, ethics and communication skills. Three hour lecture. Corequisite: Students pursuing an Air Force commission must also register for AS 312 LL1 (which includes 2 hours of Leadership Laboratory and 3 hours of Physical Training, weekly). Prerequisite: Students pursuing an Air Force commission must have completed AS 311 with a C- or higher.

**AS 411 National Security Affairs/Preparation for Active Duty 3 Cr.**

Examines the national security process, regional studies, advanced leadership ethics and Air Force doctrine. Topics: officership as a profession, military justice, civil-military relations, preparation for active duty and current issues affecting the military profession. Three hour lecture. Corequisite: Students pursuing an Air Force commission must also register for AS 411 LL1 (which includes 2 hours of Leadership Laboratory and 3 hours of Physical Training, weekly). Prerequisite: Students pursuing an Air Force commission must have completed AS 312 with a C- or higher.

**AS 412 National Security Affairs/Preparation for Active Duty 3 Cr.**

A continuation of AS 411 focusing on the national security process, regional studies, advanced leadership ethics and Air Force doctrine. Topics: officership as a profession, military justice, civil-military relations, preparation for active duty and current issues affecting the military profession. Three hour lecture. Corequisite: Students pursuing an Air Force commission must also register for AS 412 LL1 (which includes 2 hours of Leadership Laboratory and 3 hours of Physical Training, weekly). Prerequisite: Students pursuing an Air Force commission must have completed AS 411 with a C- or higher.

## Biology (BI)

### Courses

**BI 101 Principles of Biology I 4 Cr.**

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 Cr.**

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 122 Concepts in Biology 4 Cr.**

A lab science course designed exclusively for non-science majors that aims to give students an appreciation of the major concepts and current topics in biology. Concepts may include cell structures, photosynthesis, cellular respiration, genetics and ecology as well as human anatomy and physiology. Current topics may include stem cell research, nutrition, diseases, steroid abuse, traumatic brain injury, global climate change, and other pertinent issues. The course meets the general education requirement for laboratory science, but cannot be counted towards a biology major or minor. Credit may not be earned for both BI 101 and BI 122. Classroom 3 hours, laboratory 2 hours. Offered spring semesters.

**BI 1XL Biology Lab Elective 4 Cr.****BI 1XX Biology Elective 3 Cr.****BI 201 Comparative Vertebrate Anatomy 4 Cr.**

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 Cr.**

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 Cr.**

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 & Physiology I 4 Cr.**

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, integumentary, and nervous. Dissection of preserved animals is required. Classroom 3 hours, laboratory 2 hours. Offered fall semesters.

**BI 216 Human Anatomy & Physiology II 4 Cr.**

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 Cr.**

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. Offered spring semesters.

**BI 240 Environmental and Food Microbiology 4 Cr.**

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 Cr.**

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 Ornithology 4 Cr.**

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, laboratory 2 hours. Offered spring semesters.

**BI 275 Environmental Biology 4 Cr.**

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. Prerequisites: BI 101, BI 102 or permission of the instructor. Offered even-numbered spring semesters.

**BI 2XL Biology Lab Elective 4 Cr.****BI 2XX Biology Elective 3 Cr.****BI 302 Embryology 4 Cr.**

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 Cr.**

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 Biomedical Techniques 4 Cr.**

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 molecular 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 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 364 Pathophysiology in Sports Medicine 4 Cr.**

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 Cr.**

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 399 Topics in Biology 4 Cr.****BI 3XL Biology Lab Elective 4 Cr.****BI 3XX Biology Elective 3 Cr.****BI 401 Senior Seminar 3 Cr.**

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 Cr.**

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.

**BI 405 Ecology 4 Cr.**

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 semesters.

**BI 415 Neuroanatomy 4 Cr.**

The anatomy of the brain and nervous system, with an emphasis on human neuroanatomy. Gross and microscopic anatomy is covered, with in depth treatments of physical and functional organization, and major neural pathways. Classroom 3 hours, laboratory 2 hours. Prerequisites: BI 370.

**BI 418 Medical Microbiology 4 Cr.**

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 420 Diseases of the Nervous System 4 Cr.**

An in-depth study of the biological basis of neurological and psychiatric disorders. Topics include, but are not limited to, developmental disorders, impairments of higher function, and the underlying mechanisms of neurodegenerative disease. Drug development and other therapeutic treatment strategies will be discussed using current scientific literature. Classroom 4 hours. Prerequisite: BI 370. Offered spring semesters.

**BI 424 Woodland Ecology and Management 4 Cr.**

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 Cr.**

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 Internship in Biology 3,4 Cr.**

Internship in Biology.

**BI 4XX Evolution 4 Cr.**

## Civil Engineering (CE)

### Courses

**CE 211 Surveying 3 Cr.**

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 Cr.**

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 Engineering work will be introduced and employed extensively on student projects. Classroom 3 hours, laboratory 3 hours. Prerequisite: CE 211.

**CE 220 Introduction to Environmental Technology 4 Cr.**

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. Not open to engineering students.

**CE 264 Specifications and Estimating 1 Cr.**

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. Co-requisites: CE 211.

**CE 318 Soil Mechanics 3 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 336 Introduction to Transportation Engineering 3 Cr.**

An introduction to different modes of transportation with emphasis on roadway and traffic engineering. Topics include transportation planning, highway geometric and pavement design, drainage, construction, traffic-control devices, traffic operations and management, and highway capacity analysis. Classroom 3 hours. Prerequisites: CE 211: Surveying.

**CE 348 Structural Analysis 3 Cr.**

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 3 hours. Prerequisite: EG 301.

**CE 351 Statics and Mechanics of Materials 4 Cr.**

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 Introduction to Transportation Engineering 3,4 Cr.****CE 419 Foundation Engineering 3 Cr.**

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 Environmental Engineering 4 Cr.**

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. Co-requisite: CE 211.

**CE 422 Waste and Water Treatment 3 Cr.**

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 Cr.**

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 441 Transportation Engineering 3 Cr.**

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 Steel Structures 3 Cr.**

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 Cr.**

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 446 Soils in Construction 4 Cr.**

This is the first course in geotechnical engineering, one of the sub-disciplines of Civil Engineering. Its purpose is to impart knowledge of the engineering properties and behavior of soils that are used for construction of foundations and earth structures. Classroom 3 hours, laboratory 2 hours. Prerequisite: Junior standing or higher.

**CE 450 Air Pollution Control 3,4 Cr.**

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 Cr.**

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 Cr.**

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 455 Structures I 3 Cr.**

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 Cr.**

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 Cr.**

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. This course introduces the students to applications - 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 Cr.**

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 Cr.**

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 475 Senior Project Planning 1 Cr.**

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 Cr.**

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 Cr.**

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.

**Chemistry (CH)****Courses****CH 100 Introduction to Forensic Science 4 Cr.**

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 101 Introduction to General Chemistry 4 Cr.**

CH 101 is the first of a two semester course series in chemistry covering topics in General, Organic and Biochemistry (GOB). It is a fundamental course in general chemistry, introducing students to the principles of chemical structure and reactivity. Topics include accuracy and precision in measurement, atomic and molecular structure, chemical bonding and reactions, and chemical equilibrium. The laboratory element complements the lecture material with emphasis placed on collaborative problem solving. Prerequisite: Math placement score of 001 or higher. Not more than one of CH 101 or CH 103 may count as degree credit. Lecture 3 hours, laboratory 3 hours. Offered spring semesters.

**CH 102 Introduction to Organic and Biochemistry 4 Cr.**

CH 102 is the second part of a two semester course series in chemistry covering topics in General, Organic and Biochemistry (GOB). This course introduces students to the nomenclature, structure and reactivity of organic compounds and the structure and function of the major classes of biological compounds and their role in metabolic pathways. Laboratory exercises compliment the lecture material. Prerequisites: CH 101 or CH 103. Not more than one of CH 102 or CH 104 may count as degree credit. CH 102 may not be taken for credit after successful completion of CH 205. Lecture 3 hours, laboratory 3 hours. Offered fall semesters.

**CH 103 General Chemistry I 4 Cr.**

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 101 - CH 102, or CH 103 - CH 102. Prerequisites: One year of high school chemistry and a score of 2 or higher on the Norwich University Mathematics Placement Test or a "C" or higher in MA 103. Offered fall semesters.

**CH 104 General Chemistry II 4 Cr.**

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 101 - CH 102, or CH 103 - CH 102. Prerequisites: CH 103. Offered spring semesters.

**CH 1XL Chemistry Lab Elective 4 Cr.****CH 1XX Chemistry Elective 3 Cr.****CH 204 Quantitative Analysis 4 Cr.**

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 4 hours. Prerequisites: CH 103, CH 104. Offered fall semesters of even numbered years.

**CH 205 Survey of Organic Chemistry 4 Cr.**

An Introduction to the chemistry of carbon-containing compounds and the instrumentation of organic chemistry. An introduction to the chemistry of carbon-containing compounds and the instrumentation of organic chemistry. 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 104. Offered spring semesters of even numbered years.

**CH 214 Communication in Chemistry 1 Cr.**

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.

**CH 225 Organic Chemistry I 4 Cr.**

An introduction to the study of carbon compounds; preparation and identification of typical compounds. Lecture 3 hours, laboratory 3 hours. Prerequisites: CH 104 or by petition. Offered fall semesters.

**CH 226 Organic Chemistry II 4 Cr.**

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 2XX Chemistry Elective 3 Cr.****CH 314 Instrumental Methods 3 Cr.**

A course on the Theory of Modern Instrumental Methods. Lecture 3 hours. Prerequisites: CH 204. Offered spring semesters of odd numbered years.

**CH 315 Analysis Laboratory 1 Cr.**

A course that provides upper class laboratory experience in chemical methods of measurement and analysis. Laboratory 3 hours. Prerequisite: CH 204. Offered spring semesters of odd numbered years.

**CH 324 Biochemistry I 4 Cr.**

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: BI 101, CH 226. Offered fall semesters.

**CH 325 Biochemistry II 4 Cr.**

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 spring semesters.

**CH 327 Physical Chemistry I 3 Cr.**

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: CH 104; MA 122 (required) college physics (recommended). Offered even numbered fall semesters.

**CH 328 Physical Chemistry II 3 Cr.**

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 Cr.**

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 fall semesters of even numbered years.

**CH 338 Physical Chemistry Laboratory II 1 Cr.**

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 spring semesters of odd numbered years.

**CH 413 Chemistry Seminar 1 Cr.**

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: Junior 2 Chemistry and Biochemistry majors only.

**CH 421 Chemical Synthesis and Examination I 3 Cr.**

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: open to senior CH and BCH students. Offered fall semesters.

**CH 422 Chemical Synthesis and Examination II 3 Cr.**

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: open to senior CH and BCH students. Offered spring semesters.

**CH 425 Thesis 1-3 Cr.**

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 226 and permission of the department. The student may re-enroll in CH 425 for up to 6 credits.

**CH 438 Advanced Inorganic Chemistry 3 Cr.**

A course on the chemistry of the elements: properties, characteristics, and behavior. Lecture 3 hours. Prerequisites: CH 327 - CH 328. Offered spring semesters of even numbered years.

**CH 439 Advanced Organic Chemistry 3 Cr.**

An advanced and thorough development of topics introduced in CH 226. Lecture 3 hours. Prerequisites: CH 226. Offered on occasion.

**CH 450 Topics in Chemistry 3 Cr.**

A course in which a selected limited topic in advanced chemistry is covered in depth. Offered on occasion. Prerequisite: permission of the instructor.

## Criminal Justice (CJ)

### Courses

**CJ 101 Introduction to Criminal Justice 3 Cr.**

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 semester.

**CJ 102 Substantive Criminal Law 3 Cr.**

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 1XX Criminal Justice Elective 3 Cr.****CJ 201 Criminology 3 Cr.**

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 semester.

**CJ 209 Methods of Social Science Research 4 Cr.**

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 2XX Criminal Justice Elective 3 Cr.****CJ 300 Topics in Criminal Justice 3 Cr.**

Selected topics offered on occasion.

**CJ 301 Criminal Procedure 3 Cr.**

This course addresses the legal procedure connected with arrest, search and seizure, identification and questioning, bail setting, indictments, and plea bargaining. Offered fall semester.

**CJ 304 Juvenile Delinquency 3 Cr.**

An examination 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. Offered on occasion.

**CJ 305 Juvenile Justice 3 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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. Offered in fall semester.

**CJ 310 The Courts 3 Cr.**

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. Offered in spring semester.

**CJ 312 Corrections 3 Cr.**

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 semester.

**CJ 314 Restorative Justice 3 Cr.**

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 on occasion. Prerequisite: CJ 101 or permission of instructor. 3 credits.

**CJ 316 Criminal Violence 3 Cr.**

This course is designed to provide students with an understanding of the causes, patterns, and interventions related to violent crimes, including: homicide, robbery, assaults, rape, hate crimes, and terrorism, and in different contexts and settings, such as gangs, the family, the workplace, and schools. Attention is also given to measuring and comparing different forms of violence, theoretical perspectives, challenges in studying violence, current events, and future implications for punishment and prevention. Prerequisite: CJ 201 or permission of instructor.

**CJ 318 Transnational Crime 3 Cr.**

An examination of key legal and procedural issues impacting the investigation of transnational crime—issues such as extra-territorial jurisdiction of US law, extradition and extra-judicial rendering, and the collection of evidence abroad. Includes relevant case studies on trafficking, organized crime and money laundering, corruption, and national security crimes. Offered every other year. Prerequisites: CJ 101 with a final grade of a C or higher.

**CJ 320 Drugs and Society 3 Cr.**

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 Cr.**

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 Cr.**

This course includes extensive discussion of the legal constraints, both civil and criminal, that underlie acceptable behavior using computers and networks today. Cross-listed as IA241. Prerequisite: CJ 101 or instructor permission. Offered in fall semester.

**CJ 350 The Death Penalty 3 Cr.**

This course is designed to provide students with an understanding of the death penalty in America, including detailed examination of capital punishment from 1608-modern day, the legal and ethical history of the death penalty, and the administration of the death penalty in America. Topics include issues based on offender and victim race, age, class or sex. Attention is also given to death penalty research trends, current events and future implications. Prerequisite: CJ 101 or permission of instructor. Offered on occasion.

**CJ 3XX Criminal Justice Elective 3 Cr.****CJ 400 Independent Study 3 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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, senior criminal justice minors and non criminal justice students declaring the Transnational Crime minor. Offered fall, spring and summer.

**CJ 410 Senior Seminar 3 Cr.**

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 semester.

**CJ 421 Comparative Criminal Justice Systems 3 Cr.**

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 criminal justice systems inside those traditions. Prerequisite: CJ 101. Offered every other year.

**CJ 422 Civil Liability in the Criminal Justice System 3 Cr.**

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. Open only to juniors and seniors.

**CJ 423 Evidence 3 Cr.**

The course is an in-depth examination of the rules governing the admissibility or exclusion of evidence at trial. 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. Open only to juniors and seniors.

**CJ 424 Murder: Our Killing Culture 3 Cr.**

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 kinds 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. Open only to juniors and seniors.

**CJ 425 Domestic Violence 3 Cr.**

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 perspective 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.

**CJ 430 Homeland Security 3 Cr.**

In this course, students examine the critical issues associated with Homeland Security. Homeland Security is analyzed both from a scholarly and practitioner perspective. Topics include infectious diseases, border security, secure air/sea/ground travel, natural catastrophes, terrorism, and critical infrastructure. Federal, state, and local governmental responsibilities and policies are also examined. Attention is also given to Homeland Security research, trends, current events, and future implications. Offered annually. Prerequisite: CJ 101 and CJ 308 or permission of instructor.

**CJ 442 Introduction to Computer Forensics 4 Cr.**

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 semester.

**CJ 444 Crime Analysis and Mapping 3 Cr.**

This course provides an introduction to crime analysis and crime mapping and examines techniques used to study crime and disorder patterns faced by law enforcement agencies today. The course will discuss the theory, data collection methods, analysis techniques, technology, statistics, and dissemination products used by crime analysts as well as the history of and career opportunities in crime analysis. Students will learn how to use at least two crime analysis and mapping software applications during the course of the semester. A capstone project for the course involves conducting a crime analysis and mapping project for a Vermont criminal justice agency. Prerequisite: CJ 101 and CJ 209. Offered annually.

**CJ 4XX Criminal Justice Elective 3 Cr.****Communications (CM)****Courses****CM 109 Introduction to Mass Media 3 Cr.**

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 Cr.**

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. Students write editor-assigned stories for publication the Norwich Guidon, Norwich University's official hardcopy and online student newspaper.

**CM 208 Journalism II: Advanced News Gathering and Design 3 Cr.**

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. Students write editor-assigned stories for publication the Norwich Guidon, Norwich University's official hardcopy and online student newspaper.

**CM 209 Broadcast Writing 3 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 2XX Communications Elective 1-3 Cr.****CM 303 Advertising 3 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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.

## Chinese (CN)

### Courses

**CN 111 Beginning Chinese I 6 Cr.**

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. Prerequisite: Appropriate score on placement exam.

**CN 112 Beginning Chinese II 6 Cr.**

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 successfully completed CN 205 or higher.

**CN 1XX Chinese Elective 3 Cr.****CN 205 Intermediate Chinese I 3 Cr.**

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 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 Cr.**

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 in Chinese. Classroom 3 hours, laboratory 1 hour. Prerequisite: CN 205 or the equivalent, NU language placement exam. 3 lecture hours.

**CN 2XX Intermediate Chinese Elective 3 Cr.****CN 301 Advanced Chinese I 3 Cr.**

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 Cr.**

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 311 Media Chinese 3 Cr.**

This course builds students' Chinese media literacy by systematically exposing them to Chinese broadcast news, newspapers, online news and videos, and TV shows. This course aims to develop all five language skills areas: listening, speaking, reading, writing, and control of the necessary background information (cultural competency) with particular emphasis on the challenges posed by the rapid pace of radio and TV news broadcasts. Topics include, but are not limited to, daily news broadcasts, economic, cultural and sports news. Each topic integrates authentic audiovisual and print materials from various media resources. Taught in Chinese. Prerequisites: CN 301 (may be taken concurrently) or NU placement test results. 3 lecture hours per week. Fall term even years.

**CN 321 Chinese Literature, Culture and Society I 1911-1949 3 Cr.**

Introduction to major currents in Chinese social, literary, and cultural history from 1911 to 1949. Taught in Chinese. Prerequisite: CN 301 (may be taken concurrently), NU placement, or permission of instructor.

**CN 322 Chinese Literature, Culture and Society II 1949-Present 3 Cr.**

Introduction to major currents in Chinese social, literary, and cultural history from 1949 to present. Taught in Chinese. Classroom: 3 hours. Prerequisite: CN 301 (may be taken concurrently), NU placement, or permission of instructor.

**CN 331 Advanced Chinese Composition and Conversation (I) 3 Cr.**

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 302 (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 Cr.**

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 331 (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 Cr.**

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 301 (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 Cr.**

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 301 (may be taken concurrently), NU language placement test, or permission of the instructor. 3 lecture hours.

CN 399 Topics 3 Cr.

CN 3XX Advanced Chinese Elective 3 Cr.

## (CS) Computer Science

### Courses

#### CS 100 Foundations of Computer Science and Information Assurance 3 Cr.

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. Prerequisites: By permission only for non-computer science and non-CSIA majors.

#### CS 120 Business Applications & Problem Solving Techniques 3 Cr.

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, and presentation tools using professional software packages. Structured problem-solving techniques will be emphasized throughout 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. Not open to CS or CSIA majors.

#### CS 140 Programming and Computing 4 Cr.

An introduction to fundamental computing concepts and programming, designed for students with little programming background. The course uses a high-level language and emphasizes object-oriented design and implementation techniques. Good software engineering practice and language-specific concepts are introduced by means of programming projects that illustrate the importance of software quality attributes. This course serves as the basis for more advanced programming classes. Classroom 3 hours, laboratory 2 hours. Prerequisite: C or higher in IS 100 or CS 100, or by instructor permission.

#### CS 212 Assembly Language & Reverse Engineering 3 Cr.

An introduction to assembly language and reverse engineering, including relationship among machine language, assemblers, disassemblers, compilers, and interpreters. This course provides requisite skills for computer forensics, malware analysis, and cryptology. Prerequisites: 'C' or higher in IS 131 or CS 140.

#### CS 221 GUI Programming 3 Cr.

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.

#### CS 228 Introduction to Data Structures 3 Cr.

An introduction to the basic concepts of algorithm analysis, data representation, and the techniques used to operate on the data. Topics include searching, sorting, linked lists, stacks, queues, trees, hash tables, graphs. Prerequisite: C or higher in IS 131 or CS 140.

#### CS 240 Database Management 3 Cr.

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 including Structured Query Language (SQL). Techniques of system design, system implementation, data security, performance, and usability will be examined. Prerequisite: C or higher in IS 131 or CS 140.

#### CS 250 Virtual Systems Administration 3 Cr.

This course includes a combination of classroom lecture on network and virtualization theory as well as a variety of hands on exercises to provide students with an understanding of how to configure and manage a VMware ESX environment. Students will also learn how to carry out administration tasks specific to the day-to-day operations of the NUCAC-DF. Some of these tasks will include how to build and maintain classroom environments, understanding requirements given by professors and instructors for classrooms, and overall maintenance of the systems in the Center for Advanced Computing and Digital Forensics. Pre-Requisite: by instructor permission.

#### CS 260 Data Communications and Networks 3 Cr.

An introductory study in fundamental concepts of computer networks and data communication including a survey of major protocols, standards, and architectures. Students use concepts and terminology of data communications effectively in describing how software applications and network services communicate with one another. Students read and analyze network traces to monitor communications, diagnose issues, and evaluate protocols. Prerequisite: C or higher in IS 131 or CS 140.

#### CS 270 Operating Systems & Parallelism 3 Cr.

An introduction to the theory and structure of modern operating systems, including hardware abstraction, process management, memory management, system performance, and security. Specific attention to multi-threaded processing, semaphores, locking and interprocess communication. Prerequisites: C or higher in IS 131 or CS 140.

#### CS 300 Management Information Systems 3 Cr.

This course provides 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 is also discussed. Not open to CS or CSIA students.

#### CS 301 Software Engineering 3 Cr.

An in-depth introduction to the software development life cycle, the techniques of information analysis, testing, and the logical specification of software. Particular attention to project management, documentation, and interpersonal communication. Utilizing industry-standard methods, the student progresses 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. Prerequisite C" or higher in IS 131 or CS 140.

#### CS 330 Ethics in Computing and Technology 3 Cr.

The course examines ethical dilemmas resulting from current technological trends, as well as the ethical standards and creeds of a variety of organizations (e.g., Association for Computing Machinery). Students learn to evaluate case studies from an ethical perspective. Students are 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 meets the General Education Ethics requirement.

#### CS 406 Special Topics in Computer Science 3 Cr.

A study of topics chosen from areas of current interest that are not offered as part of the permanent curriculum. Topics are chosen by instructors on a semester-by-semester basis. Students may take the course more than once, provided each semester taken covers a substantively different topic. Prerequisite: By permission of instructor.

#### CS 407 Politics of Cyberspace 3 Cr.

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. Prerequisite: Open to 2nd-semester sophomores or higher, or by instructor permission.

#### CS 410 Computing Internship 3 Cr.

Internships in computing and information technology provide computing majors with the opportunity to apply and expand their knowledge within the computing discipline. Students must be Junior standing, or higher and have good academic standing. The student must have the internship approved beforehand by a computing faculty member and have the written consent of the Chair or Director of Computing. 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. Prerequisites: Good Academic Standing, Junior or higher status.

#### CS 420 Computer Science capstone I 3 Cr.

A two-semester course sequence normally taken in the Senior year. Based on the subject matter mastered during their previous coursework, students (individually or in a group) identify a current topic to study in depth. As part of their studies, they develop either a working software project or produce a substantial data or hardware artifact. This course represents the first semester of a student's work towards such a project. Prerequisites: Junior standing or higher, Computer Science majors only.

#### CS 421 Computer Science Capstone II 3 Cr.

As the second semester of the two-course capstone sequence, this course serves as a continuation of CS 420. Prerequisites: CS 420.

**CS 430 Computer Science Undergraduate Thesis I 3 Cr.**

The computer science undergraduate thesis is a two-semester course sequence normally taken in the Senior year. The course introduces students to the breadth of tasks involved in independent research, including library work, problem formulation, experimentation, and writing and speaking. Based on the subject matter mastered during previous coursework, students (individually or in a group) identify a current topic to study in depth. Students produce an original research paper. This course represents the first semester of a student's work towards such a project. Prerequisites: Junior standing or higher, Computer Science majors only.

**CS 431 Computer Science Undergraduate Thesis II 3 Cr.**

As the second semester of the two-course thesis sequence, this course serves as a continuation of CS 430. Prerequisite: CS 430.

## Digital Forensics (DF)

### Courses

**DF 242 Computer Forensics I 4 Cr.**

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 are covered as students learn to gather evidence in a networked environment and to image and restore evidence properly without destroying its value. Students learn and practice gaining evidence from a computer system while maintaining its integrity and a solid chain of custody. Within the laboratory, students gain hands-on experience in the use of current investigative tools. Classroom 3 hours, laboratory 2 hours. Cross-listed as CJ 442. Prerequisites: CJ 341 or IA 241 and a C or higher in IS 130 or CS 140.

**DF 311 Network Forensics 3 Cr.**

Introduces digital forensic concepts and practices on local area networks, wide area networks and large scale networks such as the Internet. Lectures include topics based on table of contents in (Davidoff and Ham 2012) such as investigative techniques, and how to conduct an investigation, manage evidence and follow a cyber-trail. A large part of the course involves demonstrations and hands-on labs, including: use of network forensic tools such as packet monitors, security information and event managers (SIEMs), tracers, and other tools useful for analyzing events. Many of the labs involve analysis of packet captures of both actual attacks and theoretical malfeasance by offenders. Students have a final lab exercise instead of a final exam and are expected to research and present a final project. Prerequisite: IS 460 or CS 260.

**DF 312 Malware Forensics 3 Cr.**

This predominantly laboratory-based course is an introduction to malware forensics including both static and dynamic analysis. Students study profiling, malware behavior, behavior of malware on computer networks, anti-reversing and anti-debugging techniques, and packers. Prerequisite: CS 212.

**DF 395 Cyber Criminalistics 3 Cr.**

This survey course uses lecture, case studies and hands-on lab exercises in digital investigation and cyber forensics to introduce students to the investigation and analysis of cyber crime and cyber criminals. Topics include: cyber crime typology, cyber criminal profiling, network tracking, introduction to the tools of the cyber criminalist, techniques of cyber crime scene assessment, digital evidence management and analyzing the forensic remnants of a cyber event. During the course of the laboratory exercises, students create a personal lab notebook recording their lab exercises and manage evidence including maintaining a proper chain of custody. Prerequisites: Open to CJ 2nd semester sophomores or higher, or by instructor permission.

**DF 411 Cyber Investigation 3 Cr.**

An introduction to cyber investigation, including elements of cyber crime, cyber warfare and cyber terrorism. The course examines 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. Prerequisites: Open to CS or CSIA 2nd-semester sophomores or higher, or by instructor permission.

**DF 423 Advanced Digital Forensics 3 Cr.**

This course Expands upon concepts learned throughout the digital forensics concentration in the BSCSIA major. It is based upon the Certified Cyber Forensic Professional (CCFP) certification review class and covers the six domains (Ethics and Law, Forensic Science, Investigation, Digital Forensics, Application forensics and Hybrid and Emerging Technologies). Students completing this class successfully are prepared to take the CCFP certification exam and, if they pass, are qualified to become certified either as CCFPs or (ISC) Associates until they achieve three years of field experience. Prerequisite: DF 242, DF 311, DF 411 or permission of instructor.

## Economics (EC)

### Courses

**EC 106 The Structure and Operation of the World Economy 3 Cr.**

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. Prerequisite: This is a freshman course-permission of instructor required for any exception.

**EC 1XX Economics Elective 3 Cr.****EC 201 Principles of Economics (Macro) 3 Cr.**

Description and analysis of the American economic system in terms of basic economic concepts and the determination of national income and its fluctuation. Prerequisite: one semester of college mathematics.

**EC 202 Principles of Economics (Micro) 3 Cr.**

Study of the behavior of individuals in making decisions on the allocation of limited resources. This course examines how these decisions and behaviors affect the markets for goods and services. Prerequisite: one semester of college mathematics.

**EC 300 Topics in Economic History 3 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 104 Foundations of Education 3 Cr.**

This course examines the historical, sociological, and philosophical foundations of the American educational system. Current trends in education will be reviewed and evaluated. Issues affecting the role of the teacher, including school governance and finance, legal foundations, social influences, and educational reform will be explored. This course is a prerequisite course for ED 234 Learning Strategies for Education Majors. Offered Fall and Spring semesters. 3 lecture hours.

**ED 1XX Education Elective 3 Cr.****ED 234 Learning and Teaching Strategies 4 Cr.**

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. Prerequisite: ED 104.

**ED 315 Special Needs Child 3 Cr.**

An introduction to the developmental, emotional, behavioral, and learning characteristics of the special child. Topic areas include learning disabilities, intellectual disabilities, emotional disorders, and 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: ED 234.

**ED 351 Methods of Teaching Science to Elementary Students 3 Cr.**

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 Cr.**

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: ED 234. 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 Cr.**

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 Cr.**

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 401 Topics in Education 1 Cr.**

In this course students are involved in individual investigation, survey, or a project related to education. Offered on demand.

**ED 403 Topics in Education 3 Cr.**

In this course the student has an opportunity to select and read in a specific area of interest in education that is not available through regular course offerings. Offered on demand.

**ED 425 Student Teaching 12 Cr.**

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 component is embedded in this course.

**ED 432 Curriculum and Methods of the Elementary School 4 Cr.**

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 Cr.**

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 algorithms, modular design and documentation. Introduction to object oriented programming concepts. This course is offered once a year.

**EE 204 Electrical Circuits I 3 Cr.**

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 Cr.**

An introductory course on formal design techniques for combinational and sequential logic circuits. Topics include combinational logic networks, minimization techniques, registers, synchronous sequential networks, 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 Cr.**

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 Cr.**

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 hardware. Classroom 3 hours, laboratory 2 hours. Prerequisite: EE 215.

**EE 303 Electromagnetic Field Theory I 3 Cr.**

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 315 Electrical Energy Systems 3 Cr.**

A course on the design and implementation of electrical energy systems. Topics include thermal, wind, solar, and hydro renewable electrical energy facilities, electric transmission and distribution systems, and electrical substations. Introductory topics include basic circuit analysis, transformers, motors and drive systems, and instrumentation. Includes hands-on demonstrations and experiments. Offered to qualified students not majoring in Electrical Engineering. Classroom 3 hours. Prerequisite: MA 122.

**EE 321 Embedded Systems 4 Cr.**

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 323 Computer Architecture 3 Cr.**

Compare different machine architectures – analyze machine performance relationships, do computer classifications, and compare different computer description languages. Consider alternative machine architectures and the software influences on computer design. Topics include digital logic, microarchitecture level, instruction set level, operating system level, assembly language level, parallel computer architectures. Examples are drawn from the Core i7, OMAP4430 and ATmega168, hardware as well as ARM and AVR instruction sets. Classroom 3 hours. Prerequisite: None.

**EE 325 Computer Architecture and Operating Systems 3 Cr.**

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 cache 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, scheduling, memory and device management, file system structure, security, and system performance evaluation. Lecture 3 hours. Offered once per year.

**EE 350 Linear Systems 3 Cr.**

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, Chebyshev, 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 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 Electrical Engineering Topics 3 Cr.****EE 3XX Electrical Engineering 4 Cr.****EE 411 Infrastructure Control Systems 4 Cr.**

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.

**EE 459 Electric Power Systems 3 Cr.**

An introduction to the fundamentals of electric power systems generation, transmission and distribution, with emphasis on current trends, issues and technologies. Topics include a review of ac power fundamentals, per unit quantities, system component models, short-circuit analysis, load flow, smart grid concepts, communications and control, power systems economics, and renewable energy systems. Lecture: 3 hours. Offered once per year.

**EE 463 Communication Systems 4 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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.

## Common Engineering (EG)

### Courses

**EG 043 Conference 0 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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. Corequisites: MA 122 and PS 211.

**EG 202 Engineering Mechanics (Statics, Dynamics) 3 Cr.**

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 Cr.**

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 Cr.**

A study of the fundamental concepts and laws of thermodynamics and of the properties of pure substances, with applications to engineering processes and operations. Classroom 3 hours. Corequisite: MA 122.

**EG 301 Mechanics of Materials 3 Cr.**

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 Cr.**

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 concurrent enrollment: EG 206 or permission of the instructor.

**EG 350 Engineering Economics and Decision Analysis 3 Cr.**

Engineering Economics and Decision Analysis (3cr.) This course focuses on the application of cost benefit analysis to engineering and other technical projects. Time value of money and accounting perspectives are used to evaluate projects. The concept of risk and its importance to financial decision making is also introduced.

**EG 400 Design Thinking and Innovation 3 Cr.**

This course explores the experience and practice of innovation by examining creativity as the ability to turn ideas into action. It examines the development, management, evolution, and broad context of emerging technologies and associated ventures. Students will complete innovation challenges from start to finish and leave with an understanding of the key tenets of design thinking and a sense for ways they can incorporate them into their work. This 'hands-on', project-based course involves students in the design and development of 'visual brand languages' for emerging technologies, foundation exercises in creativity, and case studies based on pivotal products from the past 50 years. Prerequisite: Not open to freshmen students.

**EG 447 Special Projects (Technical Elective) 1-6 Cr.**

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 Cr.**

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.

## Engineering Management (EM)

### Courses

**EM 101 Introduction to Construction Project Management 3 Cr.**

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 Cr.****EM 301 Project Management 3 Cr.**

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 Cr.**

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 Cr.**

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 322 Construction Safety 3 Cr.**

Administration and application of the OSHA Act in the construction industry; includes standards, hazard identification and the development of a safety plan. Fulfills the requirements for the 30-hour OSHA safety training certifications. Classroom 3 hours. Prerequisite: junior or senior status.

**EM 399 Special Construction Systems 3 Cr.****EM 401 Pre-Construction Management 3 Cr.**

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 402 Construction Management Practices 3 Cr.**

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: EM 301 and EM 302.

**EM 499 Topics: 3 Cr.**

## English (EN)

### Courses

**EN 005 Basic English 3 Cr.**

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 Cr.**

EN 101 is devoted chiefly to the principles of written organization, exposition, argumentation, and research. Pre-Requisite: EN 005 or incoming test score.

**EN 102 Composition and Literature II 3 Cr.**

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 Language Learner I 3 Cr.**

A course for intermediate non-native speakers of English that stresses writing, reading, speaking, and listening improvement and provides an introduction to the social and cultural values of the English-speaking world. This course will not meet any degree requirements and cannot be used as an elective. Placement by TOEFL score.

**EN 106 English Language Learner II 3 Cr.**

A course for advanced non-native speakers of English that stresses writing, reading, speaking, and listening improvement and provides an introduction to the conduct, organization and reporting of library research. This course will not meet any degree requirements and cannot be used as an elective. Prerequisite: A grade of C or better in EN 105 or permission of the instructor.

**EN 112 Public Speaking 3 Cr.**

A practical course in the fundamentals of public address and speech analysis.

**EN 1LT English Literature Elective 3 Cr.****EN 1XX English Elective 3 Cr.****EN 201 World Literature I 3 Cr.**

A study of representative literature from across the globe and from the earliest recorded text to the sixteenth century, paying attention to works from outside the European tradition. Students will both explore diverse literary forms in their historical contexts and reflect on the ways culture shapes their own reading practices. EN 201 is not a prerequisite for EN 202. Prerequisite: EN 102. 3 lecture hours. Offered every semester. A required course for the Bachelor of Arts degree; recommended for the fulfillment of General Education requirements in literature and/or Arts and Humanities for the Bachelor of Science degree.

**EN 202 World Literature II 3 Cr.**

A study of representative literature from across the globe and from the sixteenth century to the present, paying attention to works from outside the European tradition. Students will both explore diverse literary forms in their historical contexts and reflect on the ways culture shapes their own reading practices. EN 201 is not a prerequisite for EN 202. Prerequisite: EN 102. 3 lecture hours. Offered every semester. A required course for the Bachelor of Arts degree; recommended for the fulfillment of General Education requirements in literature and/or Arts and Humanities for the Bachelor of Science degree.

**EN 203 Advanced Composition 3 Cr.**

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. Pre-Requisite: EN 102.

**EN 204 Professional and Technical Writing 3 Cr.**

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. Pre-Requisite: EN 102.

**EN 210 Modern Short Story 3 Cr.**

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. Pre-Requisite: EN 102. A recommended literature course for fulfillment of General Education or Bachelor of Arts degree requirements in literature, Arts and Humanities.

**EN 220 Children's Literature 3 Cr.**

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. Pre-Requisite: EN 102. A recommended literature course for fulfillment of General Education or Bachelor of Arts degree requirements in literature, Arts and Humanities.

**EN 225 Survey of British Literature I 3 Cr.**

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. 3 lecture hours. Offered every fall.

**EN 226 Survey of British Literature II 3 Cr.**

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. 3 lecture hours. Offered every spring.

**EN 227 Survey of American Literature I 3 Cr.**

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. 3 lecture hours. Offered every fall.

**EN 228 Survey of American Literature II 3 Cr.**

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. 3 lecture hours. Offered every spring.

**EN 239 Introduction to Theater 3 Cr.**

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. Pre-Requisite: EN 102. Fulfills General Education Humanities requirement but will not serve as literature elective.

**EN 240 Technical Aspects of Theatrical Design 3 Cr.**

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. Pre-Requisite: EN 102.

**EN 241 Acting and Directing 3 Cr.**

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. Pre-Requisite: EN 102.

**EN 242 Play Production 1-3 Cr.**

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 Cr.**

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. Pre-Requisite: EN 102. A recommended literature course for fulfillment of General Education or Bachelor of Arts degree requirements in literature, Arts and Humanities.

**EN 245 Science Fiction Literature 3 Cr.**

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. 3 lecture hours. A recommended literature course for fulfillment of General Education or Bachelor of Arts degree requirements in literature, Arts and Humanities.

**EN 250 Crime in Literature 3 Cr.**

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. Pre-Requisite: EN 102. A recommended literature course for fulfillment of General Education or Bachelor of Arts degree requirements in literature, Arts and Humanities.

**EN 251 Literature of the Sea 3 Cr.**

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. Pre-Requisite: EN 102. A recommended literature course for fulfillment of General Education or Bachelor of Arts degree requirements in literature, Arts and Humanities.

**EN 253 Approaches to Shakespeare 3 Cr.**

A study of Shakespeare themed around discipline, genre, analytical approach, or other topic. May be repeated for credit with a different topic. A recommended literature course for fulfillment of General Education or Bachelor of Arts degree requirements in literature or Arts and Humanities. Pre-requisite: EN 102.

**EN 270 Military Literature 3 Cr.**

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. Pre-Requisite: EN 102. A recommended literature course for fulfillment of General Education or Bachelor of Arts degree requirements in literature, Arts and Humanities.

**EN 272 Veterans' Literature and Writing 3 Cr.**

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 and instructor permission. A recommended literature course for fulfillment of General Education or Bachelor of Arts degree requirements in literature, Arts and Humanities.

**EN 274 Introduction to Creative Writing 3 Cr.**

Introduction to Creative Writing establishes the principles and practices of writing creative nonfiction, fiction, and poetry. In addition to reading works in these three genres as models, students will produce original pieces that apply the theoretical principles of creative writing. 3 lecture hours. Prerequisite: EN 102.

**EN 276 Environmental Writing 3 Cr.**

Environmental Writing invites students to explore environmental issues such as sustainability, conservation, preservation, and wildlife management through creative writing and persuasive writing. Students will analyze how writers of fiction, poetry, and creative nonfiction invite their readers to take action. Students may also conduct independent research, which is often immersive or experiential, on an environmental topic towards the composition of their own creative essays, stories, and poems. Prerequisite: EN 102.

**EN 278 Writing for the Web 3 Cr.**

Writing for the Web examines the ways that digital technologies impact writing. Through experimentation with different written modes, as well as the manipulation and analysis of various media, students will compose and revise content for web-based environments. This course approaches writing from a rhetorical perspective that emphasizes purpose and audience. Students practice using various existing and emerging technologies, but prior technical training is not required. Prerequisite: EN 102.

**EN 282 Literary Methods 3 Cr.**

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 a 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. 3 lecture hours.

**EN 292 American Ethnic Literature & Cultural Literature 3 Cr.**

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 cover as many minority groups as time allows. Prerequisite: EN 102. 3 lecture hours. A recommended literature course for fulfillment of General Education or Bachelor of Arts degree requirements in literature, Arts and Humanities.

**EN 299 Topics in English Studies 3 Cr.**

Topics vary. Designed as a Humanities elective for non-majors. Prerequisite: EN 102. Course may be repeated for credit with a different topic. 3 lecture hours.

**EN 2LT English Literature Elective 3 Cr.****EN 2XX English Elective 3 Cr.****EN 307 The History of the Motion Picture 3 Cr.**

A study of the development of the motion picture from a technological curiosity to a powerful, pervasive vehicle for art and argument. Prerequisite: EN 102. Fulfills General Education Humanities requirement but will not serve as literature elective.

**EN 308 The Motion Picture Director 3 Cr.**

A study, through readings and viewings of representative films, of the work of three great motion picture directors: The emphasis will be on their contributions to the art of the motion picture and their statements as artists viewing their own times. Pre-Requisite: EN 102. Fulfills General Education Humanities requirement but will not serve as literature elective.

**EN 310 The Art of the Motion Picture 3 Cr.**

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. Pre-Requisite: EN 102. Fulfills General Education Humanities requirement but will not serve as literature elective.

**EN 311 American Film Comedy 3 Cr.**

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 may include works by Keaton, Chaplin, the Marx Brothers, W. C. Fields, Jerry Lewis, Stanley Kubrick, Woody Allen and others. Pre-Requisite: EN 102. Fulfills General Education Humanities requirement but will not serve as literature elective.

**EN 320 Literature of the Developing World 3 Cr.**

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. Pre-Requisite: EN 102. A recommended literature course for fulfillment of General Education or Bachelor of Arts degree requirements in literature, Arts and Humanities.

**EN 322 Topics in World Literatures 3 Cr.**

A seminar that focuses on a specific period, genre, region, or topic of interest in the field of World Literatures. Sample topics may include Global Shakespeares, Developing World Literatures, The Trojan War, Caribbean Women Writers, or Global Modernisms. Required texts will be in English translation; foreign language training is neither assumed nor required. Prerequisite: EN 102. 3 lecture hours. Offered once a year. May be repeated for credit with a different topic.

**EN 350 History of the English Language 3 Cr.**

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.

**EN 362 Rhetorical Criticism 3 Cr.**

Rhetorical Criticism provides students with a general understanding of rhetoric and with knowledge of specific rhetorical traditions such as neo-Aristotelian criticism, metaphorical analysis, narrative/cluster criticism, fantasy theme analysis, and genre criticism. The goals of this course are to engage in systematic, prolonged inquiry and to recognize how different persuasive strategies produce specific meanings. EN 362 Rhetorical Criticism further advances the skills initially developed in EN 203 Advanced Composition. Prerequisite: EN 102 and EN 203.

**EN 364 Intermediate Creative Writing 3 Cr.**

Intermediate Creative Writing develops the foundational skills learned in EN 274 Introduction to Creative Writing. Students examine poetry, fiction, and creative nonfiction in order to understand and employ advanced techniques such as flashback, metaphor, and point of view. Genres may also include memoir, the travel essay, free verse poetry, and/or flash (non)fiction. By the end of the semester, students are expected to apply these elements of craft to produce original creative work. Prerequisite: EN 274.

**EN 370 Topics in British Literature 3 Cr.**

A seminar that focuses on a period or a topic of interest in the field of British Literature. May be repeated for credit with a different topic. Prerequisite: EN 102. 3 lecture hours. Offered every semester.

**EN 373 Major Author 3 Cr.**

A course that focuses on the work of a single author to allow a unique depth of study and research. Students will analyze the relationship between authorship, biography, and textual production. Topics may include Geoffrey Chaucer, John Milton, Thomas Mallory, Salman Rushdie, Muriel Spark, and Mark Twain. Offered every year. Prerequisite: EN 102. 3 lecture hours. Can be repeated for credit with a different topic.

**EN 390 Topics in American Literature 3 Cr.**

A seminar that focuses on a period or a topic of interest in the field of American Literature. May be repeated for credit with a different topic. Prerequisite: EN 102. 3 lecture hours. Offered every semester.

**EN 399 Topics in English Studies 3 Cr.**

Topics vary. Designed as an elective for majors and advanced non-majors. Prerequisite: EN 102. Course may be repeated for credit with a different topic. 3 lecture hours.

**EN 3LT English Literature Elective 3 Cr.****EN 3XX English Elective 3 Cr.****EN 420 Thematic Seminar-Literature 3 Cr.**

A seminar that explores a topic of interest in the Humanities. Prerequisite: EN 102.

**EN 425 Directed Study In Literature 3 Cr.**

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. Pre-Requisite: EN 102.

**EN 450 Senior Seminar 3 Cr.**

Required capstone course for the major. Students participate in ongoing scholarly discussions by engaging a selection of literary texts, criticism, and theoretical essays. By the end of the semester, students propose, design, and complete independent research projects that interrogate a specific issue in literary studies. Students demonstrate a mastery of their topics in public presentations. Pre-requisite: senior status English major or minor or permission of the instructor.

## Environmental Science (ES)

### Courses

#### ES 115 Geographic Info. Systems 3 Cr.

Open to all majors; an introduction to Geographic Information Systems (GIS). GIS is a powerful computer mapping tool essential in: the natural, health, and social sciences; engineering; architecture; and the military. It is used for a wide-range of spatial analyses and data management. Students learn basic GIS and cartographic concepts, ArcGIS software, and application of GIS to their own discipline. During the final 4 weeks of the semester students design, implement, and present a GIS project. Offered Fall of odd numbered years.

#### ES 130 Introduction to Environmental Law 3 Cr.

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 1XL Environmental Lab Sci. Elec 4 Cr.

#### ES 1XX Environmental Science Elec. 4 Cr.

#### ES 251 Sophomore Seminar in Environmental Science 1 Cr.

This course introduces the fundamentals of scientific investigation and communication. A research project introduces the Scientific 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 Cr.

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 340 Project Development in Environmental Science 1 Cr.

A course for students majoring in Environmental Science aimed to develop the skills for designing and executing an original scientific research project. Topics include research plan development, literature research to inform methodology, generation of site maps and protocols for collecting field and laboratory data, and generation of a properly formatted research proposal. Prerequisite: Junior-year status and permission of instructor. Offered spring semesters.

#### ES 440 Research Project in Environmental Science 3 Cr.

A capstone original research project under the direction of a faculty member in coordination with others taking this course. Field and laboratory work will generate new data on an expanding base; after analysis and interpretation, data will be presented in a technical format. All aspects of the project will be interpreted in the context of the literature. Prerequisite: ES 340/GL 340 or permission of the instructor. Students cannot receive credit for both ES 440 and GL 440. Offered fall semester.

#### ES 451 Environmental Science Seminar 3 Cr.

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.

#### ES 460 Project Completion in Environmental Science 1 Cr.

Designed to follow senior research work in ES 440, this course provides the support for students to turn their technical product into a professional technical paper in which the research is integrated into the peer-reviewed knowledge base for the subject. The course is writing intensive and self-driven directed, with a student working collaboratively with their research advisor. Prerequisite: ES 440 and permission of the instructor. Offered spring semesters.

## Fine Arts (FA)

### Courses

#### FA 1XX Fine Arts Elective 3 Cr.

#### FA 201 History/Theory of Architecture I 3 Cr.

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 Cr.

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 Cr.

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 Cr.

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 Cr.

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 Cr.

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 Cr.

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 2XX Fine Arts Elective 3 Cr.****FA 308 History/Theory of Architecture III 3 Cr.**

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 era 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 that 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 Architecture IV 3 Cr.**

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.

## Finance (FN)

### Courses

**FN 311 Corporate Finance 3 Cr.**

Development of the basic theoretical framework for decision-making in financial management, emphasizing the time-value of money and the 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 Cr.**

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 Cr.**

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. Prerequisites: QM 213, FN 311. Offered in the spring-even years.

## French (FR)

### Courses

**FR 111 Beginning French I 6 Cr.**

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. Prerequisite: Appropriate score on placement exam.

**FR 112 Beginning French II 6 Cr.**

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 Cr.**

Specialized topics relating to French and Francophone culture, 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. Taught in French.

**FR 150EN Topics Course in English 3 Cr.**

Specialized topics relating to French and Francophone culture, literature, business practices, or language. Topic will be indicated in the schedule of classes. Taught in English. This course does not meet the Modern Language requirement.

**FR 1XX French Elective 3 Cr.****FR 205 Intermediate French I 3 Cr.**

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 Cr.**

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 Cr.**

Specialized topics relating to French and Francophone culture, literature, business practices, or language. Topic will be indicated in the schedule of classes. Taught in French. Prerequisite: FR 206 or permission of the instructor. Counts as Arts & Humanities elective. Course may be repeated for credit if the topic differs.

**FR 250EN Topics Course in English 3 Cr.**

Specialized topics relating to French and Francophone culture, literature, business practices, or language. Topic will be indicated in the schedule of classes. Taught in English. Topics in Literature count as a General Education Literature elective and have EN 102 as a prerequisite; others as a General Education Arts & Humanities elective. This course does not meet the Modern Language requirement.

**FR 2XX Intermediate French Elective 3 Cr.****FR 311 Advanced French I 3 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 since 1900 I 3 Cr.**

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 since 1900 II 3 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

Specialized topics relating to French and Francophone culture, literature, business practices, or language. Topic will be indicated in the schedule of classes. Taught in French. Topics in Literature count as Literature elective; others Arts & Humanities elective. Course may be repeated for credit if the topic differs. Prerequisite: FR 206 or permission of the instructor.

**FR 350EN Topics Course in English 3 Cr.**

Specialized topics relating to French and Francophone culture, literature, business practices, or language. Topic will be indicated in the schedule of classes. Taught in English. Topics in Literature count as a General Education Literature elective and have EN 102 as a prerequisite; others as a General Education Arts & Humanities elective. This course does not meet the Modern Language requirement.

**FR 3XX Advanced French Elective 3 Cr.****FR 415 Seminar: Topics in French Literature 3 Cr.**

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 Cr.**

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.

## Geography (GE)

### Courses

**GE 104 Introduction to Geography 3 Cr.**

A survey of man's occupancy of the earth, his cultures and economies, their distribution and spatial relationships.

**GE 1XX Geography Elective 3 Cr.****GE 2XX Geography Elective 3 Cr.****GE 300 Topics in Geography 3 Cr.**

Select topics offered on occasion.

## Geology (GL)

### Courses

**GL 110 Introduction to Geology 4 Cr.**

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 Cr.**

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 Introduction to Earth Evolution 4 Cr.**

The course introduces the 4600 million year history of the evolution of Earth and life. Data and scientific theories for earth history are presented for major events including: the birth of the planet; plate tectonics and evolution of continents, mountains and ocean basins; evolution of the atmosphere and oceans; long-term climate change; and the evolution of life and mass extinction events. The lab focuses on the rock record, fossil life, and dating methods as they pertain to Earth history. Classroom 3 hours, laboratory 2 hours. Offered spring semester only.

**GL 199 Geology Elective 4 Cr.****GL 1XL Geology Lab Elective 4 Cr.****GL 1XX Geology Elective 4 Cr.**

Temporary course waiting for UCC final approval.

**GL 251 Sophomore Seminar in Geology 1 Cr.**

This course introduces the fundamentals of scientific investigation and communication. A research project introduces the Scientific 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 Cr.**

A course on the origin and evolution of Earth's surface features by geological processes acting upon various earth materials and geological structures. Classroom 2 hours, laboratory and/or field work 4 hours. Prerequisite: GL 110. Offered spring of even-numbered years.

**GL 255 Hydrogeology 3 Cr.**

This course provides examination of the basic principles of groundwater, including its occurrence, flow and development, the assessment and remediation of groundwater contamination, and the protection of groundwater as a natural resource. Offered spring semester. Classroom: 3 hours. Prerequisites: MA 107, and EG 109 or GL 110 or GL 156.

**GL 257 Sedimentation 4 Cr.**

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 110, GL 111 or GL 156. Offered fall of even-numbered years.

**GL 258 Stratigraphy and Tectonics 4 Cr.**

An introduction to the fundamentals of stratigraphy and tectonics. Plate tectonic theory is investigated, from its inception to the present. Stratigraphic concepts are presented, at the general level and in light of tectonics, with focus on Vermont and regional stratigraphy and tectonic history. Classroom 3 hours, laboratory 3 hours. Prerequisite: GL 110. Offered Spring of odd-numbered years.

**GL 260 Projects in Geology 1-4 Cr.**

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 110, GL 111 or GL 156 and permission of the instructor.

**GL 261 Field Geology 4 Cr.**

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 110 or GL 156 or permission of the instructor. Offered fall of even-numbered years.

**GL 262 Structural Geology 4 Cr.**

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: GL 261 or permission of the instructor. Offered spring of odd-numbered years.

**GL 263 Mineralogy 4 Cr.**

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 110 or GL 156 or permission of the instructor. Offered fall of odd-numbered years.

**GL 264 Petrology 4 Cr.**

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 and Paleoclimate 4 Cr.**

The first half of this course covers glaciology and glacial deposits and landforms, with a strong focus on field investigation. The second half of the course presents the data and hypotheses on Quaternary climate change, including traditional glacial chronology and marine and ice core data and resultant chronology. Global climate change, both past and present, is a central theme of the course. Classroom 3 hours, laboratory 3 hours. Prerequisite: GL 110. Offered Fall of odd-numbered years.

**GL 340 Project Development in Geology 1 Cr.**

A course for students majoring in Geology aimed to develop the skills for designing and executing an original scientific research project. Topics include research plan development, literature research to inform methodology, generation of site maps and protocols for collecting field and laboratory data, and generation of a properly formatted research proposal. Prerequisite: Junior-year status and permission of instructor. Offered spring semesters.

**GL 440 Research Project in Geology 3 Cr.**

A capstone original research project under the direction of a faculty member in coordination with others taking this course. Field and laboratory work will generate new data on an expanding base; after analysis and interpretation, data will be presented in a technical format. All aspects of the project will be interpreted in the context of the literature. Prerequisite: ES 340/GL 340 or permission of the instructor. Students cannot receive credit for both ES 440 and GL 440. Offered fall semester.

**GL 451 Geology Seminar 3 Cr.**

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.

**GL 460 Project Completion in Geology 1 Cr.**

Designed to follow senior research work in GL 440, this course provides the support for students to turn their technical product into a professional technical paper in which the research is integrated into the peer-reviewed knowledge base for the subject. The course is writing intensive and self-driven directed, with a student working collaboratively with their research advisor. Prerequisite: GL 440 and permission of the instructor. Offered spring semesters.

## German (GR)

### Courses

**GR 111 Beginning German I 6 Cr.**

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. Prerequisite: Appropriate score on placement exam.

**GR 112 Beginning German II 6 Cr.**

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 Cr.**

Specialized topics relating to culture, 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. Taught in German.

**GR 150EN Topics Course in English 3 Cr.**

Specialized topics relating to culture, literature, business practices, or language. Topic will be indicated in the schedule of classes. Taught in English. This course does not meet the Modern Language requirement.

**GR 1XX German Elective 3 Cr.****GR 205 Intermediate German I 3 Cr.**

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 Cr.**

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 Cr.**

Specialized topics relating to culture, literature, business practices, or language. Topic will be indicated in the schedule of classes. Taught in German. Prerequisite: GR206 or permission of the instructor. Counts as Arts & Humanities elective. Course may be repeated for credit if the topic differs.

**GR 250EN Topics Course in English 3 Cr.**

Specialized topics relating to culture, literature, business practices, or language. Topic will be indicated in the schedule of classes. Taught in English. Topics in Literature count as a General Education Literature elective and have EN 102 as a prerequisite; others as a General Education Arts & Humanities elective. This course does not meet the Modern Language requirement.

**GR 2XX Intermediate German Elective 3 Cr.****GR 321 Survey of German Culture I: From the Beginnings to 1848 3 Cr.**

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 Cr.**

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, Büchner and Heine. Taught in German. Prerequisite: GR 206 or equivalent.

**GR 323 Survey of German Culture II: 1848 to 1945 3 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

Introduction to major texts and literary figures active since the end of World War II, including Borchert, Böll, Celan, Bachmann, Frisch, Dürrenmatt, Grass, Christa Wolf, Peter Schneider, Jurek Becker and others. Taught in German. Prerequisite: GR 206 or equivalent.

**GR 350 Topics Course 3 Cr.**

Specialized topics relating to culture, literature, business practices, or language. Topic will be indicated in the schedule of classes. Taught in German. Prerequisite: GR 206 or permission of the instructor. Topics in Literature count as General Education Literature elective; others as General Education Arts & Humanities elective. Course may be repeated for credit if the topic differs.

**GR 350EN Topics Course in English 3 Cr.**

Specialized topics relating to culture, literature, business practices, or language. Topic will be indicated in the schedule of classes. Taught in English. Topics in Literature count as a General Education Literature elective and have EN 102 as a prerequisite; others as a General Education Arts & Humanities elective. Course may be repeated for credit if the topic differs. This course does not meet the Modern Language requirement.

**GR 3XX Advanced German Elective 3 Cr.****GR 415 Seminar on a Topic in German Literature and Culture 3 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

A continuing survey of multiple facets of American Civilization as presented in HI 121, 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 1XX History Elective 3 Cr.****HI 201 Ancient Greece and Rome 3 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 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 Cr.**

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 Cr.**

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 Vermont Regional Material Culture 3 Cr.**

A survey of the human-manipulated landscape of Vermont from the time of European settlement in the mid-18th century to the present. The course will trace the impact of economic, social, cultural, and technological forces on the landscape. Students will observe, through extensive field observations, how those forces have shaped the environment of the region. Prerequisite: Sophomore standing or higher and permission of the instructor. 3 lecture hours.

**HI 218 Survey of Sub-Sahara Africa 3 Cr.**

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. Prerequisite: Sophomore standing or higher.

**HI 223 Europe's Age of Revolution. 1500 -1800 3 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

The history of Norwich University placed within the context of the history of higher education and the wider framework of U.S. cultural history. Prerequisite: Sophomore standing or higher. Offered on occasion. 3 lecture hours.

**HI 235 Military History I 3 Cr.**

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 Cr.**

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 Cr.**

Topics will vary.

**HI 2XX History Elective 3 Cr.****HI 303 Colloquium in Ancient History 3 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 social - 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 Cr.**

A study of the settlement and development of the British colonies from their origins to 1763. Offered alternate years. Prerequisite: C or better in one 200 level history course or instructor permission. 3 lecture hours.

**HI 332 The American Revolution 3 Cr.**

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. Prerequisite: C or better in one 200 level history course or instructor permission. 3 lecture hours.

**HI 333 Colloquium in Early American History 3 Cr.**

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 Cr.**

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. Prerequisite: C or better in one 200 level history course or instructor permission. 3 lecture hours.

**HI 335 20th Century U.S. History 3 Cr.**

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 Cr.**

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. Prerequisite: C or better in one 200 level history course or instructor permission. 3 lecture hours.

**HI 339 U.S. Diplomatic History, 1914-present 3 Cr.**

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. Prerequisite: C or better in one 200 level history course or instructor permission. 3 lecture hours.

**HI 340 Colloquium in Twentieth Century United States History 3 Cr.**

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 Cr.**

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. Prerequisite: C or better in one 200 level history course or instructor permission. 3 lecture hours.

**HI 345 Colloquium in the History of the Middle East & Northeast Africa 3 Cr.**

The colloquium will be an intensive reading, research and writing course focusing on selected historical topics relating to this region of the world. Possible topics include, but are not limited to, the rise and expansion of Islam, the Medieval Middle East, the Axum Empire, European Imperialism and Colonialism, the Ottoman Empire, and the Arab-Israeli Conflict. Prerequisite: C or higher in one 200 level history course or instructor permission. May be repeated for credit with different topic.

**HI 355 Colloquium in Modern Military History 3 Cr.**

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 Cr.**

Topics vary. Prerequisite: C or better in one 200 level history course or instructor permission.

**HI 361 Topics in Modern European History 3 Cr.**

Topics vary. Prerequisite: C or better in one 200 level history course or instructor permission.

**HI 362 Topics in Pre Modern History 3 Cr.**

Topics vary. Prerequisite: C or better in one 200 level history course or instructor permission.

**HI 363 Topics in Non-Western History 3 Cr.**

Topics vary. Prerequisite: C or better in one 200 level history course or instructor permission.

**HI 371 Nation-Building 3 Cr.**

This course provides an exposure to the challenges of creating 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 Cr.**

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 Cr.**

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 3XX History Elective 3 Cr.****HI 400 Independent Study 3 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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. 3 lecture hours.

**HI 490 Honors in History I 3 Cr.**

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 Cr.**

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 Cr.**

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 Thesis Preparation: Research Proposal 3 Cr.**

A reading and writing intensive course in which students will prepare for an implementation of the Honors Thesis/Project by working through the process of a research proposal development and writing. Offered every fall semester. Prerequisites: enrollment in the Honors Program and permission of the Director of the Honors Program. 3 lecture hours.

**Information Assurance (IA)****Courses****IA 241 Cyberlaw and Cybercrime 3 Cr.**

This course includes extensive discussion of the legal constraints, both civil and criminal, that underlie acceptable behavior using computers and networks today. Cross-listed as CJ341. Prerequisite: CJ 101 or instructor permission.

**IA 340 Introduction to Information Assurance 3 Cr.**

This course introduces the foundations of information assurance, with focus on concepts and terminology used in describing, analyzing, and implementing information security. Topics include the history and mission of information assurance, history of computer crime, modern and historical cryptology, information warfare, penetrating computer systems and networks, malware, social engineering, spam, phishing, physical and facilities security, network security, identification and authentication, securing stored data, data backups and archives, patch management, and protecting digital rights. 3 hours; laboratory 2 hours. Prerequisite: C or higher in IS 131 or CS 140 or permission of instructor.

**IA 342 Management of Information Assurance 3 Cr.**

This course focuses 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: IS 340 or IA 340 or permission of instructor.

**IA 360 Network Security 3 Cr.**

This course focuses on the concepts, terminology and practice of network security. Topics include the fundamental goals of network security and practical applications of wired and wireless network security techniques such as applications of cryptology in network protocols, authentication, access control, network security devices such as firewalls and intrusion detection and prevention systems, incident response, log analysis, honeypots and honeynets. Classroom 3 hours, laboratory 2 hours. Prerequisite: IS 460 or CS 260.

**IA 455 Contemporary Issues in Information Assurance 3 Cr.**

A capstone seminar for Computer Security and Information Assurance majors which will vary every term in accordance with the current issues of the time. Students work with the instructor as they explore today's issues and trends in preparation of a thesis or project. Emphasis is placed on critical thinking, research and evaluation of current issues. A comprehensive computer security exam is included in this course. Prerequisites: IA 340, IA 342. Open to CSIA Junior 2 or higher, or by instructor permission.

**IA 456 Cyber Defense Practicum 3 Cr.**

This course provides practical application of the concepts learned over the course of the CSIA program. This is the technical capstone for the program and is a required course. The class is divided into three teams. Each team rotates through red (attack), blue (defend) and white (monitor/analyze) cells over the semester. Network attack analysis, intrusion detection systems and the use of network forensics in attaché analysis and defense are covered. Several open source and commercial tools during the class are used. Scenarios on a variation of the virtual network are ran. Blue teams harden the devices on the network to resist attack and are scored on how successful they are. Red teams develop a suite of attacks that allow completion of the scenario and are scored on the completeness of attack preparations. White teams analyze the red attacks and the blue responses and present analysis to the class at the close of the exercise. The scenario changes slightly for the iterations presented. This is a 100% lab class. Prerequisites: IS 340 or IA 340 and IS 460 or CS 260.

**Interdisciplinary (ID)****Courses****ID 110 Ecology and Geology of the Connecticut River Valley 4 Cr.**

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 Cr.**

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 220 Interdisciplinary Studies 3 Cr.**

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 Cr.**

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 1XX International Studies Elective 3 Cr.****IN 2XX International Studies Elective 3 Cr.****IN 350 Topics in International Studies 3 Cr.**

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 Cr.**

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 Cr.**

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.

## Leadership (LD)

### Courses

#### LD 101 Norwich Principles of Leadership Mastery 1 Cr.

This course addresses the foundational aspects of leadership in developing collaborative relationships within today's organizations. The topics covered will include: defining and understanding leadership, the examination of personal leadership mastery, development of interpersonal relationships and effective teams, and how to effectively adapt one's personal capacity for leading today. Required for graduation.

## Mathematics (MA)

### Courses

#### MA 005 Preparatory Mathematics 3 Cr.

A comprehensive review of the fundamentals of arithmetic and a presentation of the basic algebraic skills and concepts. Topics include basic arithmetic with signed numbers, proportions, percent, geometry, linear equations and graphing of linear equations. Applications are included throughout the course. Students assigned to MA005 must satisfactorily complete it before enrolling in any other mathematics course. If required, MA 005 must be completed by the end of the first year of study. This course will not meet any degree requirements and cannot be used as an elective. 3 lecture hours.

#### MA 101 Mathematics: A Liberal Art 3 Cr.

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 Cr.

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 Cr.

A comprehensive study of algebraic topics, this course provides a strong foundation for subsequent mathematics-based courses. Topics include introduction to functions, polynomials, factoring, inequalities, systems of linear equations with two variables, integer exponents, and linear, quadratic, radical, and rational equations. Prerequisite: Grade of "C" or better in 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. 3 lecture hours.

#### MA 107 Precalculus Mathematics 4 Cr.

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 Cr.

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 Cr.

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 Cr.

A continuation of MA 121. Transcendental functions, methods of integration, vectors, polar coordinates, indeterminate forms, L'Hopital's Rule, improper integrals, infinite sequences and series. Prerequisite: MA 121 or "C" or better in MA 108 and permission of the department.

#### MA 160 Mathematics for Elementary School Teachers I 3 Cr.

This course will address an advanced perspective of topics in algebra and the real number system as they relate to the teaching and learning of mathematics. Course structure involves an emphasis on problem solving and communication; making, following and assessing mathematical argument; and developing an array of mathematical strategies and understandings which can be extended across K-6 mathematics. This course is open to education majors. Prerequisite: Satisfactory completion of MA 005 or equivalent as determined by departmental placement testing. Offered fall semesters of odd years. 3 lecture hours. This course does not meet Gen Ed Math requirements.

#### MA 161 Mathematics for Elementary School Teachers II 3 Cr.

This course will address an advanced perspective of topics in geometry, measurement, statistics, data analysis, and probability as they relate to the teaching and learning of mathematics. Course structure involves an emphasis on problem solving and communication; making, following and assessing mathematical argument; and developing an array of mathematical strategies and understandings which can be extended across K-6 mathematics. Prerequisite: Grade of C or better in MA 160. Offered spring semesters of even years. 3 lecture hours.

#### MA 1XL Mathematics Lab Elective 4 Cr.

#### MA 1XX Mathematics Elective 4 Cr.

#### MA 212 Finite Mathematics 3 Cr.

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 Cr.

This course explores the use of geometry in art, architecture, and science through the study and application of associated mathematical ideas. Students will learn to represent objects and space in various coordinate systems and geometries as well as recognize mathematics in the surrounding world. Topics include two and three dimensional linear algebra, polar and parametric equations, graph theory, sequences, and Euclidean and Non-Euclidean geometry. Prerequisite: MA 107 or permission of the department.

#### MA 223 Calculus III 4 Cr.

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 Cr.

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 Cr.

A course that covers the study of frequency distributions, averages and standard deviations, normal curve, probability, decision-making, sampling techniques, testing hypotheses, students-t-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 Cr.

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 Cr.**

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 Cr.**

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 Cr.**

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 2XX Mathematics Elective 3 Cr.****MA 303 Advanced Calculus I 3 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 semesters of even numbered years. 3 lecture hours.

**MA 318 Cryptology 3 Cr.**

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 cryptology. 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 Cr.**

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 Cr.**

A course in the content, methods, and materials for the teaching of elementary and middle school mathematics. Prerequisites: grade of C or higher in MA 161. Offered fall semesters of even-numbered year. 3 lecture hours.

**MA 361 Teaching Mathematics at the Secondary Level 3 Cr.**

This course addresses methods, resources, and content useful for the teaching of secondary school mathematics. Investigations in this class will address mathematical thinking, communication and representations, in alignment with state and national standards. Course structure involves readings, writings, activities, assessments, and projects. Prerequisites: MA 108 or MA 121 and ED 104, or consent of instructor. Offered Fall semesters of odd numbered years. 3 lecture hours.

**MA 370 Introduction to Operations Research 3 Cr.**

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 Cr.**

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 Cr.**

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 Cr.****MA 405 Complex Analysis 3 Cr.**

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 Cr.**

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 semesters of odd-numbered years. 3 lecture hours.

**MA 411 Senior Seminars 3 Cr.**

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. Senior standing in mathematics and a grade of C or higher in 4 math 300/400 level courses, or Dept. Chair permission.

**MA 412 Senior Seminars 3 Cr.**

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 Cr.**

A course in the properties of integers, prime numbers, congruencies, Diophantine equations, quadratic reciprocity. Prerequisite: MA 306 or permission of the instructor. Offered Spring 2011 and every third year. 3 lecture hours.

**MA 499 Mathematics Internship 3 Cr.**

## Mechanical Engineering (ME)

### Courses

**ME 211 Mechanical Engineering Tools I 2 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 363 Kinematic and Kinetic Synthesis 3 Cr.**

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 Cr.**

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 Cr.**

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 Laboratory I 2 Cr.**

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 Cr.**

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 Mechanical Control Systems 3 Cr.**

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 Cr.**

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 467 Mechanical Engineering Design I 3 Cr.**

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 Cr.**

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 487 Mechanical Engineering Laboratory III 2 Cr.**

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 Cr.**

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.

## Management and Marketing (MG)

### Courses

**MG 098 Junior Career Conference 1 Cr.**

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 Cr.**

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 Cr.**

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 1XX Management Elective 3 Cr.****MG 224 Principles of Entrepreneurship 3 Cr.**

This course provides an introduction to the creative and innovative managerial practices of successful entrepreneurship. This course reviews the significant economic and social contributions entrepreneurs provide to society, the intense lifestyle commitment, and the skills necessary for entrepreneurial success. This course provides an overview of the entrepreneurial process. Prerequisites: not open to freshmen students.

**MG 2XX Management Elective 3 Cr.****MG 305 Introduction to Sports Management 3 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

A study of the law and legal system as they affect business. Topics include the court system, constitutional law, torts, criminal law and contracts. Students will learn how morality and social responsibility are integrated into our legal system. Students must complete an ethical standards paper in an appropriate context. Prerequisite: Sophomore 1 or higher. "

**MG 346 Business Law II 3 Cr.**

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 Cr.**

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.

**MG 360 Health Economics & Policy 3 Cr.**

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 3XX Management Elective 3 Cr.****MG 408 Human Resources Management 3 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 448 Small Business Strategies 3 Cr.**

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 Cr.**

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 Cr.**

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.

**MG 499 Topics 3 Cr.****MG 4XX Management Elective 3 Cr.**

## Military Science (MS)

### Courses

#### MS 111 Military Science I 1 Cr.

Leader Development and Individual Soldier Skills I – an introduction to Army customs, courtesies, and traditions. An introduction to leadership development, values and ethics of the Army; physical wellness and fitness, and stress management. Laboratory work: Basic land navigation skills, field craft skills, and basic rifle marksmanship. Includes 1 lecture hour and 2 other hours enrolled in MS 111 LL1, plus 3 hours of Physical Training, weekly. United States Armed Service members who have completed Basic Combat Training (BCT) may receive credit for MS 111 and/or MS 112 courses with a JST [Joint Service Transcript]. Norwich Army ROTC office also needs students' DD 214 form [Certificate of Release from Active Duty] or form NGB-22 [Government National Guard Bureau]. Prerequisite: freshmen and sophomores only.

#### MS 112 Military Science I 1 Cr.

Leader Development and Individual Soldier Skills II - Introduction to basic leadership fundamentals: as setting direction, problem-solving, listening, presenting briefs, providing feedback, and using effective writing skills. Exploration of the dimensions of leadership attributes and core leader competencies in the context of practical, hands-on, and interactive exercises. Introduction to the professional challenges and competencies that are needed for effective execution of the profession of arms and Army communication. Class training and labs prepare students to advance basic Soldier skills and tactical techniques. Laboratory work: Advanced land navigation skills, basic rifle marksmanship, and troop leading procedures. Includes 1 lecture hour and 2 other hours enrolled in MS 112 LL1, plus 3 hours of Physical Training, weekly. This requirement may be waived by the Military Science Instructor. United States Armed Service members who have completed both Basic Combat Training (BCT) and an equivalent course may receive credit for MS 111 and/or MS 112 courses with a JST [Joint Service Transcript]. Norwich Army ROTC office also needs students' DD 214 form [Certificate of Release from Active Duty] or form NGB-22 [Government National Guard Bureau]. Prerequisites: MS 111, freshmen and sophomores only.

#### MS 211 Military Science II 2 Cr.

The Principles of Small Unit Tactics-Leadership Laboratory. Explores the dimensions of creative and innovative tactical leadership strategies while examining team dynamics and leadership theories that form the basis of the Army leadership framework. Practical exercises include Operations Orders, briefings, and planning are emphasized in order to develop problem solving abilities and confidence building. Includes 2 lecture hours. United States Armed Service members who have completed both Basic Combat Training (BCT) and an equivalent course may receive credit for MS 111 and/or MS 112 courses with a JST [Joint Service Transcript]. Students pursuing an Army commission must also register for MS 211 LL1, which includes 2 hours of Leadership Lab plus 3 hours of Physical Training, weekly. Prerequisites: MS 111 and MS 112 or equivalent.

#### MS 212 Military Science II 2 Cr.

Principles of Leadership and Small Unit Tactics II – Examines the challenges of leading teams in the complex operational environment. The course highlights dimensions of terrain analysis, patrolling, and operation orders. Further study of the theoretical basis of the Army Leadership Requirements Model explores the dynamics of adaptive leadership in the context of military operations. Cadets develop greater self-awareness as they assess their own leadership styles and practice communication and team building skills. Laboratory work: Small unit tactics, advanced land navigation, physical fitness, and troop leading procedures. Includes 2 lecture hours. United States Armed Service members who have completed both Basic Combat Training (BCT) and an equivalent course may receive credit for MS 111 and/or MS 112 courses with a JST [Joint Service Transcript]. Students pursuing an Army commission must also register for MS 212 LL1, which includes 2 hours of Leadership Lab plus 3 hours of Physical Training, weekly. Prerequisite: MS 211 or equivalent.

#### MS 311 Military Science III 3 Cr.

Training Management and the Warfighting Functions – A comprehensive study and application of the Army Training Management System as well as an introduction to the Army Warfighting Functions. Students will continue to develop oral and written communication skills through preparation and presentation of classes and information briefs as well as develop training plans geared toward individual Soldiers' skills to include land navigation, terrain analysis, and route planning. The course further integrates the Army's problem solving methodology while exhibiting dynamic leadership. Includes 3 lecture hours and students must enroll in MS 311 LL1, which includes 2 hours of Leadership Lab plus 3 hours of Physical Training, weekly. Prerequisite: MS 212 or equivalent.

#### MS 312 Military Science III 3 Cr.

Applied Leadership in Small Unit Operations – A comprehensive study and application of light infantry patrolling operations. Students learn leadership techniques while gaining a comprehensive understanding of the mission and organization of combat and reconnaissance patrols and the methods utilized by effective combat leaders. Explores historical examples to illustrate the critical importance of dynamic leadership. Activities used to demonstrate an understanding of the Army's problem solving processes, fully integrating leadership, technical knowledge, and applying doctrinally sound tactics while conducting full-spectrum operations at the platoon level. Includes 3 lecture hours and students must enroll in MS 312 LL1, which includes 2 hours of Leadership Lab plus 3 hours of Physical Training, weekly. Prerequisite: MS 311 or equivalent.

#### MS 411 Military Science IV 3 Cr.

Transition from Cadet to U.S. Army 2nd Lieutenant -- The first of two senior capstone courses in Military Science. Training includes Army operations, training management, communications and leadership skills; will participate in selected studies of Military History including a visit to the Saratoga battlefield; will attain knowledge and proficiency in several critical areas, as follows: Army training management system, coordinating activities with staffs, and counseling skills. These skills will assist in leading Junior Army ROTC cadets throughout the school year. Instruction will include lecture/seminar, case studies, practical exercises and military laboratories to include field-training exercises. One third of the grade will include a measurement of the student's ability to develop subordinate leaders and personnel. With the addition of MS 412 in the spring, this training assists in the transition to the 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 meaningful understanding of leadership and management. Includes 3 lecture hours and also is required to enroll in MS 411 LL1, which is 2 Leadership Lab hours plus 3 hours of Physical Training, weekly. Prerequisites: MS 312 or equivalent and students pursuing a commission.

#### MS 412 Military Science IV 3 Cr.

Transition from Cadet to U.S. Army 2nd Lieutenant – The second of two senior capstone courses. Study of origins, development, and implementation of U.S. National Security Policy as it applies to the application of land power; focus on understanding and conducting Military Operations, the parameters in which the U.S. will participate, and the role of the military in PKOs. Intense understanding how to prepare and the students' particular organization to ensure their objectives support the National policy; case studies of recent Military Operations; how tactical decisions can affect strategic outcomes, and the study of current events. Further development of individual leadership skills and knowledge through class seminars, leadership laboratories, and field training exercises; will 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 will further develop an understanding of leadership in organizations, team building, counseling subordinates, and the various support systems available to leaders. Advanced oral and written communications skills--preparing written assignments in the military writing style, along with oral presentations. Includes 3 lecture hours and also is required to enroll in MS 412 LL1, which is 2 Leadership Lab hours plus 3 hours of Physical Training, weekly. May be used as part of the six ROTC credits allowed for degree electives. Prerequisite: MS 411 or equivalent and students pursuing a commission.

## Music (MU)

### Courses

#### MU 101 Music Appreciation 3 Cr.

A survey course of western music from the medieval through the contemporary periods.

**MU 200 Applied Music 1 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 Cr.****MU 2XX Music Elective 1-3 Cr.**

## Naval Science (NS)

### Courses

**NS 121 Introduction to Naval Science 2 Cr.**

Required for all freshman midshipmen. Provides a comprehensive overview of the Navy and Marine Corps organization, military courtesies and traditions. 2 lecture hours and (2 lab hours contracted students only).

**NS 122 Sea Power and Maritime Affairs 3 Cr.**

Required for all freshman midshipmen. Provides a comprehensive overview of the Navy's heritage, mission and role in the development of the United States. 3 lecture hours and (2 lab hours contracted students only).

**NS 221 Leadership and Management 3 Cr.**

Required for all sophomore midshipmen. Provides an introduction to the principles of both leadership and management for future leaders. 3 lecture hours and (2 lab hours contracted students only).

**NS 222 Navigation 3 Cr.**

Required for all sophomore Navy midshipmen. Provides an introduction to the principles of navigation and basic seamanship. 3 lecture hours and (2 lab hours contracted students only).

**NS 242 Marine Corps Weapons Systems 2 Cr.**

Required for all sophomore Marine midshipmen. Provides a comprehensive overview of weapons in the Marine Corps inventory. 2 lecture hours and (2 lab hours contracted students only).

**NS 321 Naval Ship Systems I 3 Cr.**

Required for all junior Navy midshipmen (except Nurses). Provides an introduction to basic naval engineering concepts and naval propulsion systems. 3 lecture hours and (2 lab hours contracted students only).

**NS 322 Naval Ship Systems II 3 Cr.**

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 contracted students only).

**NS 331 Evolution of Warfare 3 Cr.**

This course is required for NROTC (Marine option) midshipmen 2nd class and MECEP students. Students trace the development of warfare to the present day. This course covers the causes of continuity and change in the means and methods of warfare. It addresses the influence of political, economic, and societal factors on the conduct of war, with significant attention focused on the role of technological innovation in changing the battlefield. Students will explore the contribution of preeminent military theorists and battlefield commanders to our modern understanding of the art and science of war. 3 lecture hours (plus 2 lab hours for contracted students).

**NS 342 Small Unit Leadership Skills 2 Cr.**

Required for all junior Naval ROTC contracted Marine option Midshipmen and non OCS complete seniors. Optional for Students/Cadets who are approved to attend Officer Candidate School (OCS) through a Marine Corps Recruiting Command commission program. Provides candidates with all basic skills, knowledge, and physical preparation before attending OCS during summer training. Candidates will continue to develop their oral and written communications skills through preparation of warning, fragmentary, and operation orders; and their leadership and management skills through analytical and decision making abilities. Co-Requisite: NS 342L.

**NS 342L Small Unit Leadership Skills Lab 1 Cr.**

Required for all junior Naval ROTC contracted Marine option Midshipmen and non OCS complete seniors. Optional for Students/Cadets, pending medical waivers and approval by the Professor of Naval Science, who are approved to attend Officer Candidate School (OCS) through a Marine Corps Recruiting Command commission program. Lab is also referred to "bulldog training" and will test the physical and mental standards candidates are expected to achieve while attending OCS. Students/Candidates will be evaluated based upon the application of military topics discussed in Small Unit Leadership Skill lecture. In this course students acquire an understanding and application of USMC military terms and small unit level operations. Co-Requisite: NS 342. Pre-Requisite: Naval ROTC contracted members or instructor approval.

**NS 421 Naval Operations and Seamanship 3 Cr.**

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 contracted students only).

**NS 422 Leadership and Ethics 3 Cr.**

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 contracted students only).

**NS 431 Amphibious Warfare 3 Cr.**

Required for all senior Naval ROTC Marine option Midshipmen and MECEP students. Students learn the fundamental terms, concepts, and theories of general warfare and amphibious warfare. These terms, concepts, and theories shall be applied through a historical analysis of amphibious operations, identifying the evolution of amphibious doctrine, tactics, and technology. Focuses on the evolution of the U.S. Marine Corps into a specialized amphibious force, with particular attention devoted to the structure and capabilities of the present day U.S. Marine Corps as a forward deployed and rapid deployment force and the development of Expeditionary Maneuver Warfare concepts. Prerequisite: NS 331 Evolution of Warfare or instructor approval.

## Nursing (NR)

### Courses

**NR 104 Focus on Nursing 3 Cr.**

This survey course introduces the profession of nursing and offers insight into career options, roles and opportunities open to the baccalaureate nurse. This course encourages the student to think broadly about nursing while it provides an introduction to the foundations of the profession. Nursing major only.

**NR 105 Promoting Healthy Individuals 3 Cr.**

This course focuses on the use of basic concepts from nursing, nutrition, integrative therapies and biophysical sciences, as well as Healthy People 2020 to explore the determinates of health, wellness, and illness of individuals. Environmental, and sociocultural economic and lifestyle factors that influence health will be discussed. Students complete a health promotion project for one individual in the community. Evaluation of health information as relevant and reliable will be incorporated as a foundation for health promotion. Prerequisite: NR 104, BI 215, PY 211, EN 101, History Elective, Nursing Majors only.

**NR 204 Nursing Informatics 1 Cr.**

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. NR 104 (C+), NR 105 (C+), MA 232, Freshman 2 Nursing Majors only.

**NR 206 Health Assessment Across the Lifespan 3 Cr.**

Students study age specific approaches to assessment of human health. Focusing on evaluation of health and function of individuals, students acquire knowledge of health assessment and promotion in relation to comprehensive nursing care. The concepts are presented within the context of human growth and development, culture, and environment. Students learn to perform a comprehensive and holistic assessment of the patient including: systematic collection, analysis, and synthesis of health data from patients and secondary sources. Successful students will demonstrate a physical examination on a laboratory partner at the end of the course. 2 hours of lecture and 2 hours of lab. Prerequisites: BI 216, PY 211, NR 104, NR 105 (C+), CH 101, EN 102, MA 232, History Elective. Freshman 2 nursing majors only.

**NR 215 Client, Psy/Mental Health Prob 3 Cr.**

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 CH 102, MA 235, NR 206, NR 204, PY 220, SO 216. Co-requisite NR 215L. Sophomore 1 Nursing majors only.

**NR 215L Client, Psy/Mental Health Prob 2 Cr.**

This immersion course teaches students how to apply current theory and research about contemporary practices in care of patients' with mental health and social health problems. Students demonstrate the 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. Clinical failure will result in overall NR 215 failure regardless of course theory grade. Prerequisites: CH 102, PY 220, NR 206, NR 204, MA 235, SO 216 Corequisite: NR 215. Sophomore 1 nursing majors only.

**NR 219 Simulations for Clinical Practice 2 Cr.**

This revolutionary course provides the student with simulations for clinical practice that are designed to teach novice nursing students how to think like a nurse. The course will cover the essential nursing skills, nursing process, aspects of formation of nursing diagnosis through direct patient simulation. Simulations will be selected that will foster students to think critically about patients, their families, proper nursing interventions. Concept based learning techniques will be incorporated into the course. Students will begin to learn professional nursing cognitive and behavioral practices by learning critical concepts and skills through simulation. Teaching the course in the proposed fashion will allow students to gain beginning competence prior to entering acute care facilities. 6 Hospital simulated clinical hours/week. Prerequisites: NR 204, NR 206, CH 102, MA 235, PY 220, SO 216 and nursing majors only. Sophomore 1 nursing majors only.

**NR 225 Research For Evidence-Based Practice 3 Cr.**

Introduces clinical based nursing information technology. Nurses are expected to provide safe, competent, and compassionate care in an increasingly technical and digital environment. A major theme in healthcare environment is the increase of information systems and technologies to improve the quality and safety of patient care. This course provides foundational informatics competencies that all nurses should possess to meet the standards of providing safe, quality, and competent care. Prerequisites: NR 204, NR 206, MA 235, CH 102, PY 220, SO 216. Sophomore 1 nursing majors only.

**NR 314 Technological Innovations in Clinical Nursing 1 Cr.**

This junior level course introduces the nursing student to clinical based nursing information technology. Nurses are expected to provide safe, competent, and compassionate care in an increasingly technical and digital environment. A major theme in this new healthcare environment is the use of information systems and technologies to improve the quality and safety of patient care. Nurses are directly engaged with information systems and technologies as the foundation for evidence-based practice, clinical-decision support tools, and the electronic health record (EHR). While Nursing Informatics is a highly specialized field, this course provides foundational informatics competencies that all practicing nurses and graduating nursing students should possess to meet the standards of providing safe, quality, and competent care. 1 classroom hour per week. Pre-Reqs: BI 220, NR 105, NR 204 (c+), NR 215, NR 215L, NR 225, NR 219 and NR 204(C+). Co-Req: NR 316L, Sophomore 2 nursing majors only.

**NR 316 Care of the Adult 1 3 Cr.**

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. Pre-requisites: BI 220, NR 105, NR 215 (C+), NR 219, NR 215L, NR 225, Co-Requisite NR 316L. Sophomore 2 nursing major only.

**NR 316L Care of the Adult 1 Practicum 3 Cr.**

This course asks students to 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. Clinical hours 8 hours per week. Prerequisite: BI 220, NR 105, NR 215, NR 215L, NR 219, NR 225. Co-requisite: NR 316. Sophomore 2 nursing majors only.

**NR 321 Nursing Leadership 3 Cr.**

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, NR 399(C+), or permission of the instructor. Sophomore 2 nursing majors only.

**NR 331 Care of Women and Childbearing Family 3 Cr.**

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, NR 316, NR 316L, NR 399, PH 350, SO 316 Co-requisites: NR 331L.

**NR 331L Care of Women-Childbearing Family Prac 1 Cr.**

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, NR 316, NR 316L, NR 399, PH 350, SO 316 Co-requisite: NR 331.

**NR 341 Care of Children&Child Rearing 3 Cr.**

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 314, NR 316, NR 316L, NR 399, PH 350, SO 316 Co-Requisite NR 341L. Junior 1 nursing majors only.

**NR 341L Care of Children&Child Rearing 2 Cr.**

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 314, NR 316, NR 316L, NR 399, PH 350, SO 316 Co-Requisite NR 341. Junior 1 nursing majors only.

**NR 351 Family Centered Nursing 1 Cr.**

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 314, NR 316, NR 316L, NR 399, PH 350, and SO 316. Junior 1 nursing majors only.

**NR 399 Pathopharmacology for Nursing 4 Cr.**

This course builds upon the student's prerequisite Biological and chemical sciences and begins the study of human pathophysiology and the application of pharmacotherapies commonly encountered with each of these disease processes. Epidemiology, disease state presentation with common clinical evaluations, mortality and morbidity will be addressed. At the conclusion of students demonstrate cumulative knowledge of the pathophysiologic and pharmacologic processes utilized in the care of and promotion of health and wellness across the lifespan. Evidence based practice for use, cost, ease of administration, compliance and efficacy will be discussed. Prerequisites: BI 216, BI 220, CH 102, MA 232, NR 206 (C+), NR 215, NR 215L, NR 219 (C+), NR 225 (C+). Sophomore 2 nursing majors only.

**NR 416 Care of the Adult II 4 Cr.**

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 321, NR 331, NR 331L, NR 341, NR 341L, NR 351, NR 399 (C+), Co-Requisite NR 416L. Junior 2 nursing majors only.

**NR 416L Care of Adult II 4 Cr.**

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. Prerequisites: NR 321, NR 331, NR 339 (C+), NR 331L, NR 341, NR 341L, NR 351 Co-Requisite: NR 416. Junior 2 nursing majors only.

**NR 420 Care at End of Life 2 Cr.**

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 321, NR 331, NR 339 (C+), NR 331L, NR 341, NR 341L, NR 351, NR 341, and NR 399 (C+). Junior 2 nursing majors only.

**NR 421 Coordinator of Care 3 Cr.**

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, NR 416L, NR 420, MG 360 Co-Requisite NR 421L. Senior 1 nursing majors only.

**NR 421L Coordinator of Care Practicum 4 Cr.**

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, NR 416L, NR 420, MG 360 Co-Requisite NR 421. Senior 1 nursing majors only.

**NR 431 Promoting Health in Communities 3 Cr.**

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, NR 416L, NR 420, MG 360 Co-requisite: NR 431L. Senior 1 nursing majors only.

**NR 431L Promoting Health in Communities: Clinical Practicum 2 Cr.**

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. . Prerequisites: NR 416, NR 416L, NR 420, MG 360 Co-requisite: NR 431. Senior 1 nursing majors only.

**NR 441 Nursing Capstone 4 Cr.**

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, NR 416L, NR 420, MG 360. Senior 1 nursing majors only.

**NR 499 Promoting Health in Communitie 1 Cr.**

This course introduces students to current theory and research about contemporary practices in community/public health nursing. In population-focused nursing, the group, aggregate, community, or population is the primary unit of care. Epidemiologic studies have shown that lifestyle, environmental and genetic factors are major determinants of population health. Students will work collaboratively with international community agencies in a service-learning model to address population-focused health issues. Prerequisites: Instructor permission.

## Physical Education (PE)

### Courses

**PE 107 Foundations of Physical Education 3 Cr.**

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 Cr.**

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 evaluation 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 exercise 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 Cr.****PE 1XX Physical Education Elective 3 Cr.****PE 223 Motor Skills Development I 3 Cr.**

This course teaches students to apply principles of best practice to the development and delivery of appropriate instructional programs in individual and elementary activities currently being taught in the public schools (e.g. dance, throwing, catching, kicking, and gymnastics). Strong 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. Offered fall semester. 4 hour lab.

**PE 224 Motor Skills Development II 3 Cr.**

This course teaches students to apply principles of best practice to the development and delivery of appropriate instructional programs in team, dual, and secondary activities currently being taught in the public schools (e.g. basketball, volleyball, soccer, racquet sports) as well as non-traditional activities (e.g. Indiaka, Takraw, pateka, tchoukball). Consideration is given to the development of personal performance and skill acquisition in order to 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. Offered spring semester. 4 hour lab.

**PE 243 Instructional Design in Physical Education 3 Cr.**

This course is targeted for students who plan to teach school physical education. Planning and Instructional Design is the introductory course in a sequence of professional teaching skills courses. The emphasis of the course is to identify and develop the beginning teaching skills and planning that are necessary for effective instruction in physical education and other sport settings. Classroom 3 hours. Prerequisites: PE 107 and PE 223 or PE 224. Offered Spring semester.

**PE 260 Personal and Community Health 3 Cr.**

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 Cr.**

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 management 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: PE 260. Offered even-numbered fall semesters.

**PE 265 Lifelong Motor Development 3 Cr.**

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 2XX Physical Education Elective 3 Cr.****PE 306 Outdoor Physical Education I 3 Cr.**

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 Cr.**

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 Cr.**

This course is designed to help prepare students for careers associated with sport facility management. A detailed examination of facility utilization, including safety and security, scheduling, maintenance, and emergencies and emergency response will be applied to a variety of facilities. Additionally the administration of a facility with special attention to preventative supervision, risk management, facility assessment and design, project planning, and staffing will be examined. Facilities covered will include but not be limited to parks, recreation centers, gymnasiums, aquatic facilities, fitness centers, sports arenas, tennis courts, and golf courses. 3 lecture hours. Prerequisites: PE 107 or PE 161. Offered even year fall semesters.

**PE 341 Instructional Strategies for Physical Education in Elementary School 4 Cr.**

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 Cr.**

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 Cr.**

A course with a strong focus on the philosophy, ethics, principles, and techniques of coaching individual and team sports. Identifying and addressing the ethical dilemmas pervading our sport organizations today will be emphasized. This course provides an emphasis on the organization of interscholastic athletics in relation to the achievement of education objectives, and satisfies the university's General Education Ethics requirement. In addition, students will be prepared for the National Federation of State High School coaching certification. 3 lecture hours.

**PE 365 Kinesiology 4 Cr.**

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: BI 215, BI 216 or permission of the instructor.

**PE 371 Physiology of Exercise 4 Cr.**

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: BI 215, BI 216 or permission of the instructor.

**PE 373 Activities and Programs for the Disabled and Aging 3 Cr.**

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 Cr.****PE 406 Readings in Physical Education 3 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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, PE 371, or permission of instructor. Offered Fall semesters.

**PE 450 Exercise Testing and Electrocardiography 4 Cr.**

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, BI 216 and PE 371 or permission of instructor. Offered fall semester.

**PE 499 TEST COURSE 12 Cr.**

## Philosophy (PH)

### Courses

**PH 1XX Philosophy Elective 3 Cr.****PH 210 Foundations of Western Thought I: The Ancient World 3 Cr.**

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 Cr.**

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 299 Comparative Religions 3 Cr.**

Philosophy topics.

**PH 2XX Philosophy Elective 3 Cr.****PH 303 Survey of Ethics 3 Cr.**

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 Cr.**

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 Aristotelian 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 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 argument 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 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 3XX Philosophy Elective 3 Cr.****PH 400 Reading and Research 3 Cr.**

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.

## Political Science (PO)

### Courses

**PO 105 American Politics 3 Cr.**

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. Open to students with freshmen and sophomore standing only, otherwise instructor permission.

**PO 106 Introduction to Public Policy and Administration 3 Cr.**

An introductory examination of theoretical and practical approaches to policymaking and administration, the essential steps in the process, 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. Open to students with freshmen and sophomore standing only, otherwise instructor permission.

**PO 1XX Political Science Elective 3 Cr.****PO 202 Introduction to Comparative Politics 3 Cr.**

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. Open to students with freshmen and sophomore standing only, otherwise instructor's permission.

**PO 215 International Relations 3 Cr.**

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. Open to students with freshmen and sophomore standing only, otherwise instructor's permission.

**PO 220 Research Methods 3 Cr.**

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 2XX Political Science Elective 3 Cr.****PO 300 Special Topics in Politics 3 Cr.**

Select topics offered on occasion. Prerequisite: permission of the instructor.

**PO 301 Special Topics in International Relations 3 Cr.**

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. pre-req of PO 215, C or higher; open to all students.

**PO 303 Political Philosophy 3 Cr.**

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 Sophomore 2 and above, otherwise instructor permission.

**PO 305 Geopolitics 3 Cr.**

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. Pre-req of PO 202 or PO 215, C or higher; open to all students.

**PO 310 European Politics 3 Cr.**

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. Pre-req of PO 202, C or higher; open to all students.

**PO 312 The Presidency 3 Cr.**

A study of the presidential office and its relationship with the major American political institutions. Pre-req of PO 105, C or higher; open to all students.

**PO 313 Political Parties and Interest Groups 3 Cr.**

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. Pre-req of PO 105, C or higher; open to all students.

**PO 314 The Legislative Process 3 Cr.**

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. Pre-req of PO 105, C or higher; open to all students.

**PO 315 Public Opinion and Political Behavior 3 Cr.**

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. Pre-req of PO 105, C or higher; open to all students.

**PO 320 Topics in Area Studies 3 Cr.**

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. Pre-req of PO 202, C or higher; open to all students.

**PO 321 U.S. Constitutional Law 3 Cr.**

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 Sophomore 2 and above, otherwise instructor permission.

**PO 324 Civil Liberties 3 Cr.**

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 Sophomore 2 and above, otherwise instructor permission.

**PO 330 American Citizenship 3 Cr.**

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. Pre-req of PO 105, C or higher; open to all students.

**PO 331 State and Local Politics 3 Cr.**

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. Pre-req of PO 105, C or higher; open to all students.

**PO 333 American Foreign Policy 3 Cr.**

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. Pre-req of PO 105 or PO 202, C or higher; open to all students.

**PO 340 Revolution and Forces of Change 3 Cr.**

A critical analysis of several revolutions that will examine causes, outcomes, and accepted explanations in an attempt to discern generalities applicable to all revolutions. Pre-req of PO 202, C or higher; open to all students.

**PO 348 Asian Politics 3 Cr.**

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. Pre-req of PO 202, C or higher; open to all students.

**PO 3XX Political Science Elective 3 Cr.****PO 400 Independent Study 3 Cr.**

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 Cr.**

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.

**PO 405 International Organizations 3 Cr.**

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. pre-req of PO 215, C or higher; open to all students.

**PO 410 Capstone Seminar in Political Science 3 Cr.**

A research and writing course designed to introduce students to graduate standards of original research and critical writing in political science. Prerequisite: permission of the instructor.

**PO 412 War and Peace 3 Cr.**

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. Prerequisite: permission of the instructor.

**PO 415 International Law 3 Cr.**

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. Pre-req of PO 215, C or higher; open to all students.

**PO 490 Honors in Political Science 3 Cr.**

A substantial, sequential, research and writing project. See description of department honors program. Offered as occasion demands. Prerequisite: permission of the instructor.

**PO 491 Honors in Political Science 3 Cr.**

The second semester of honors in political science. Devoted to writing and defending the honors thesis. Prerequisite: Student must earn a grade of B or higher in PO 490 and permission of the instructor and program coordinator.

**PO 499 Topics: 4 Cr.****Physics (PS)****Courses****PS 100 Elementary Physics 4 Cr.**

A selection of topics from kinematics, dynamics, fluids, energy, acoustics, electricity, optics, and modern physics required of an informed citizenry. Classroom: 3 hours; laboratory: 2 hours. Note: Credit cannot be received for PS100 if credit has been earned in PS 201 or PS 211.

**PS 107 Introductory Solar System Astronomy 4 Cr.**

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. Classroom: 3 hours; laboratory: 2 hours. Does not count as a lab science if taken for 3 credits.

**PS 108 Stellar and Galactic Astronomy 4 Cr.**

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. Classroom: 3 hours; laboratory: 2 hours. Does not count as a lab science if taken for 3 credits.

**PS 110 Physics of Continuous Media 3 Cr.**

An introduction to fluid mechanics, sound and thermal physics. Open only to first year students or by permission of department. Classroom: 3 hours. Pre- or Co-Requisite: MA 108 or MA 121. Offered spring semesters only.

**PS 1XL Physics Lab Elective 4 Cr.****PS 201 General Physics I 4 Cr.**

An algebra-based study of mechanics, sound and heat, with correlated laboratory experiments. Classroom 3 hours, laboratory 2 hours. Prerequisite: MA 107. Note: No student will receive credit for both PS 201 and PS 211, or for both PS 202 and PS 212.

**PS 202 General Physics II 4 Cr.**

An algebra-based study of magnetism, electricity, light, and atomic physics, with correlated laboratory experiments. Classroom: 3 hours; laboratory: 2 hours. Prerequisite: PS 201. Note: Credit cannot be received for both PS 202 and PS 212. Offered spring semesters only.

**PS 205 Basic Instrumentation in the Natural Sciences 4 Cr.**

An introduction to instrumentation theory and measurement technique. Emphasis on identification of and models for the behavior of measuring system components, the combinations of components in typical research equipment and the statistical analysis necessary for interpretation of measurements. Classroom: 3 hours; laboratory: 3 hours. Prerequisite: permission of instructor. Offered fall semester of odd-numbered years only.

**PS 207 Meteorology and Climatology 3,4 Cr.**

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: PS 201 or PS 202 or permission of the instructor. Does not count as a lab science if taken for 3 credits.

**PS 211 University Physics I 4 Cr.**

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. Prerequisite: MA 121. Note: Credit cannot be received for both PS 201 and PS 211. Offered fall semesters only.

**PS 212 University Physics II 4 Cr.**

A calculus-based study of topics in electricity, magnetism, waves and optics. Classroom: 3 hours; laboratory: 2 hours. Prerequisite: PS 211; Pre- or Co-requisite: MA 122. Note: Credit cannot be received for both PS 202 and PS 212. Offered spring semesters only.

**PS 232 University Physics III 3 Cr.**

A study of topics from quantum phenomena, spectroscopy, relativity, nuclear and solid state physics. Classroom 3 hours. Prerequisite: PS 212 or permission of instructor.

**PS 299 Topics in Physics 4 Cr.****PS 2XX Physics Elective 3 Cr.****PS 334 Classical Mechanics 3 Cr.**

A study of Newtonian mechanics including motion of a particle, a system of particles and rigid bodies; gravitation; oscillations; central forces; conservation laws. Introduction to Lagrangian and Hamiltonian formulations of dynamics. Classroom: 3 hours. Offered fall semester of odd-numbered years. Prerequisites: PS 212 and MA 224 or permission of instructor.

**PS 341 Modern Physics 3 Cr.**

A study of the quantum revolution including special relativity, structure and spectra of atoms and molecules, radioactivity, nuclear models, and nuclear interactions. Classroom: 3 hours. Offered fall semester of odd-numbered years. Prerequisites: PS 212 and MA 224 or permission of instructor.

**PS 356 Thermodynamics & Statistical 3 Cr.**

A study of the foundations of thermodynamics and statistical physics: first and second laws of thermodynamics with applications; thermodynamic potentials and applications to systems in equilibrium; statistical mechanics including Boltzmann statistics, quantum statistics and statistical interpretation of entropy. Classroom: 3 hours. Offered fall semester of even-numbered years. Prerequisites: PS 212 and MA 224 or permission of instructor.

**PS 373 Junior Laboratory I 2 Cr.**

A laboratory course devoted to scientific inquiry through a collaborative research project under faculty supervision. Introduction to formulation of research questions, experimental design, system modeling, measurement, data collection and data analysis. Laboratory methodology including safety procedures. Read published literature; communicate research results. Written and oral reports required. Laboratory: 6 hours. Offered fall semesters only. Prerequisites: PS 212 and MA 224 or permission of instructor.

**PS 374 Junior Laboratory II 2 Cr.**

A laboratory course devoted to scientific inquiry through a continuation of the collaborative research project started in Junior Laboratory I. Project culminates in public presentations, written and oral, of research results. Laboratory: 6 hours. Offered spring semesters only. Prerequisite: PS 373 or permission of instructor.

**PS 399 Topics: 4 Cr.****PS 421 Advanced Laboratory I 1-4 Cr.**

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 Cr.**

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 426 Electricity and Magnetism 3 Cr.**

A study of electrical circuits, and electrostatic and magnetostatic fields. Includes RLC circuits; applications of Gauss' Law and Laplace's equation; dielectric theory; magnetic fields; and theory of magnetic materials. Classroom: 3 hours. Offered fall semester of even-numbered years. Prerequisites: PS 212, MA 223 and MA 224 or permission of instructor.

**PS 428 Electrodynamics & Optics 3 Cr.**

This course continues PS 426 (Electricity & Magnetism), combining electricity, magnetism and optics into a unified theory embodied by Maxwell's equations. Includes an introduction to relativistic applications and optical phenomena. Classroom: 3 hours. Offered spring semester of odd-numbered years. Prerequisites: PS 426 or permission of instructor.

**PS 444 Quantum Physics 3 Cr.**

A study of the mathematical structure of quantum mechanics and applications to atomic and nuclear phenomenon. Topics include: postulates of quantum mechanics, operators, Schrödinger's equation, one dimensional potentials, angular momentum, spin, perturbation theory, and identical particles. Classroom: 3 hours. Offered spring semester of even-numbered years. Prerequisites: PS 341 or permission of instructor.

**PS 451 Seminar I 1 Cr.**

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 Cr.**

A continuation of PS 451, 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 Cr.**

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 Cr.**

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.

**PS 473 Senior Laboratory I 3 Cr.**

A laboratory course devoted to scientific inquiry through a collaborative research project under faculty supervision. Introduction to formulation of research questions, experimental design, system modeling, measurement, data collection and data analysis. Laboratory methodology including safety procedures. Read published literature; communicate research results. Written and oral reports required. Students serve as project leaders as well as research investigators. Conference: 1 hour. Laboratory: 6 hours. Offered fall semesters only. Prerequisites: PS 374 or permission of instructor.

**PS 474 Senior Laboratory II 3 Cr.**

A laboratory course devoted to scientific inquiry through a collaborative research project under faculty supervision. Introduction to formulation of research questions, experimental design, system modeling, measurement, data collection and data analysis. Laboratory methodology including safety procedures. Read published literature; communicate research results. Written and oral reports required. Students serve as project leaders as well as research investigators. Conference: 1 hour. Laboratory: 6 hours. Offered fall semesters only. Prerequisites: PS 473 or permission of instructor.

## Psychology (PY)

### Courses

**PY 210 Psychology of Leadership 3 Cr.**

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.

**PY 211 Introduction to Psychology 3 Cr.**

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 Cr.**

A course on the origin and development of psychopathology with emphasis on the biological, social, and psychological determinants. Prerequisite: PY 211 or permission of the instructor.

**PY 220 Developmental Psychology 3 Cr.**

A lifespan study of normal development with emphasis on physical, intellectual, social, and emotional growth. Prerequisite: PY 211 or permission of the instructor.

**PY 230 Biopsychology 3 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

A general survey of theories, methods and research on individual behavior in a social context. Among topics to be considered are: aggression, interpersonal attraction, affiliation, person perception, attitudes, group processes, and social influence. Prerequisite: PY 211.

**PY 241 Introduction to Personality Theory 3 Cr.**

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: PY 211.

**PY 263 Perception 3 Cr.**

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: PY 211 or permission of the instructor.

**PY 299 Leadership at Norwich Univ. 3 Cr.****PY 2XX Psychology Elective 3 Cr.****PY 313 Experimental Psychology I 3 Cr.**

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: PY 211 or permission of the instructor.

**PY 314 Experimental Psychology II 3 Cr.**

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, research methods (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: PY 313, or MA 232, or permission of instructor.

**PY 321 Organizational Psychology 3 Cr.**

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: PY 211 or permission of the instructor.

**PY 324 Adolescent Psychology 3 Cr.**

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. Prerequisite: PY 211.

**PY 344 Cognition 4 Cr.**

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 Cr.**

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: PY 211.

**PY 352 Learning and Memory 4 Cr.**

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 Cr.**

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: PY 211.

**PY 360 History and Systems of Psychology 3 Cr.**

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.

**PY 398 Thesis Preparation 3 Cr.**

The students will prepare a senior thesis prospectus in accordance with the ethical standards of the Human Subjects Committee. This course precedes PY 498. Prerequisites: PY 211, PY 313, PY 314.

**PY 3XX Psychology Elective 3 Cr.****PY 401 Senior Seminar 3 Cr.**

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. Prerequisites: PY 211, PY 313, PY 314.

**PY 402 Conference 0 Cr.**

Each Psychology major, must during his/her tenure at Norwich attend at least one professional Psychology meeting.

**PY 403 Presentation 0 Cr.**

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 Thematic Seminar 3 Cr.**

A seminar course which deals with particular theories or areas of psychology not elsewhere covered in depth or within present course offerings. Prerequisite: PY 211 and permission of the instructor.

**PY 452 Thematic Seminar 3 Cr.**

A seminar course which deals with particular theories or areas of psychology not elsewhere covered in depth or within present course offerings. Prerequisite: PY 211 and permission of the instructor.

**PY 453 Internship 3-9 Cr.**

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: PY 211 and permission of the instructor.

**PY 471 Directed Readings 3 Cr.**

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 Cr.**

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: PY 211, PY 313, PY 314, PY 398.

**PY 4XX Psychology Elective 3 Cr.****Quantitative Methods (QM)****Courses****QM 213 Business and Economic Statistics I 3 Cr.**

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, statistical inference procedures, simple regression and time series analysis, and construction and use of index numbers. Prerequisite or corequisite: MA 107.

**QM 317 Business and Economic Statistics II 3 Cr.**

A course in which the statistical concepts developed in QM 213 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: QM 213. Offered in the fall-even years.

**QM 370 Quantitative Methods for Marketing & Finance 3 Cr.**

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 QM 213. 3 lecture hours.

**Studio Arts (SA)****Courses****SA 103 Introduction to Drawing 3 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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 Cr.**

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: SA 103 or instructor's permission.

**SA 210 The Portrait 3 Cr.**

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: SA 103, or instructor's permission.

**SA 265 Life Drawing 3 Cr.**

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: SA 103, or instructor's permission.

**SA 299 Life Drawing 3 Cr.****SA 299L Inter Studio: Sketching 0 Cr.****SA 300 Advanced Studio 3 Cr.**

This course is for students who have completed SA 100 and SA 200 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.

**Sports Medicine (SM)****Courses****SM 136 Emergency Care, Injury/Illness 3 Cr.**

This course follows the national standards for Advanced First Aid, CPR for Professional Rescuers, and Bloodborne Pathogens. Recognition, care, and temporary treatment of injuries and illness are discussed and the associated skills are practiced. In addition, this course will introduce basic concepts of emergency actions plans and initial injury evaluation. Upon successful completion of the course, students will be awarded national certification cards for: Advanced First Aid, CPR for Professional Rescuers, and Bloodborne Pathogens training. Classroom 2 hours, laboratory 2 hours. Offered fall semesters.

**SM 138 Introduction to Sports Medicine 3 Cr.**

This course provides students with an introduction to the principles of pharmacology, medical terminology, and documentation used in the care of physically active individuals. Offered spring semesters. Prerequisites: Athletic Training (SPA) or Health Science (HLS) standing. Offered Fall Semesters.

**SM 139 Health Science Research Methods 2 Cr.**

This course provides the foundation for understanding basic research methods and the application of research findings to health care. Current literature is used to demonstrate the fundamentals of research design, research ethics, basic biostatistics, and other research-related issues applicable to future health care providers. Classroom 2 hours. Prerequisite: Athletic Training (SPA) or Health Science (HLS) standing. Offered spring semesters.

**SM 199 New Course 3 Cr.****SM 1XX Sports Medicine Elective 3 Cr.****SM 200 Clinical Education in Athletic Training I 1 Cr.**

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: Freshman 2 Athletic Training (SPA) standing, SM 136, SM 138, SM 139 and SM 220. Offered fall semesters.

**SM 201 Clinical Education in Athletic Training II 2 Cr.**

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 200, SM 214 and SM 231. Offered spring semester.

**SM 210 Assessment of Injury and Illness 4 Cr.**

Building on the assessment principles acquired in SM 138 and SM 220; this course focuses on the techniques necessary to evaluate body systems for injury/illness. Classroom 3 hours, laboratory 3 hours. Prerequisites: BI 216. Offered fall semesters.

**SM 212 Health Promotion 3 Cr.**

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. Prerequisites: Sophomore Athletic Training (SPA) or Sophomore Health Science (HLS) standing.

**SM 214 Clinical Anatomy 3 Cr.**

This course is designed to explore musculoskeletal anatomy relating to human performance. Students will be able to identify major anatomical landmarks through palpation and perform range of motion assessments upon completion of the course. Prerequisite/Corequisite: BI 215, BI 216.

**SM 220 Care and Prevention of Athletic Injuries 4 Cr.**

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: SM 136 and SM 138. Offered spring semesters.

**SM 228 Clinical Physiology I 4 Cr.**

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. Prerequisite: SM129.

**SM 229 Clinical Physiology II 4 Cr.**

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 Cr.**

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. Prerequisite: SM 139 and MA 232. Offered spring semesters.

**SM 231 Management of Spine and Pelvic Conditions 3 Cr.**

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. Offered spring semesters. Prerequisite: SM 232, SM 233, SM 214 and Sophomore standing.

**SM 232 Lower Extremity Injuries 3 Cr.**

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. Offered spring semesters. Prerequisite: SM 214 and Sophomore standing.

**SM 233 Upper Extremity Injuries 3 Cr.**

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. Offered fall semesters. Prerequisite: Junior standing.

**SM 299 Topics 1-3 Cr.****SM 300 Clinical Education in Athletic Training III 4 Cr.**

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 201, PE 260, SM 230 and SM 232. Offered fall semesters.

**SM 301 Clinical Education in Athletic Training IV 4 Cr.**

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 300. Offered spring semesters.

**SM 400 Clinical Education in Athletic Training V 4 Cr.**

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 301, PE 371, SM 231, and SM 422. Offered fall semesters.

**SM 401 Clinical Education in Athletic Training VI 4 Cr.**

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 SM 439. Offered spring semester.

**SM 420 Therapeutic Modalities 4 Cr.**

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: Sophomore 2 Athletic Training (SPA) or Health Science (HLS) standing.

**SM 422 Therapeutic Exercise 4 Cr.**

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: Sophomore 2 Athletic Training (SPA) or Health Science (HLS) standing.

**SM 426 Internship 12 Cr.**

A course designed to provide the Sports Medicine students with an intern-type experience in a professional setting appropriate to their career goals. Prerequisite: Athletic Training (SPA) or Health Sciences (HLS) majors.

**SM 439 Leadership & Management in Sports Medicine 3 Cr.**

Part of a two-semester capstone experience in sports medicine/athletic training. This course focuses on leadership, management, and professional ethics in sports medicine. Students will complete a series of organization and administrative projects and papers focused on personal and professional ethics. This course will satisfy General Education Goal 6 requirements. In addition, students will be required to lead the weekly discipline journal club discussion. Classroom 3 hours. Prerequisite: Junior 2 Standing.

**SM 450 Capstone Experience I 1 Cr.**

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. Prerequisite: Junior 2 Athletic Training (SPA) or Health Sciences (HLS) standing.

**SM 451 Capstone Experience II 1 Cr.**

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 Cr.**

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. Prerequisite: Junior 2 Athletic Training standing.

**SM 499 Internship 3 Cr.**

## Sociology (SO)

### Courses

**SO 201 Introduction to Sociology 3 Cr.**

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 Cr.**

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 Cr.**

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 CJ 209. Offered fall semester. Classroom and Laboratory 4 hours.

**SO 212 Cultural Anthropology 3 Cr.**

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 Cr.**

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 Cr.**

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 2XX Sociology Elective 3 Cr.****SO 300 Topics in Sociology 3 Cr.**

Selected topics offered on occasion.

**SO 316 Aging in Society 3 Cr.**

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: SO 216 or SO 201, or by permission of the instructor. 3 lecture hours.

**SO 320 Drugs and Society 3 Cr.**

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 CJ 320. Offered every other year.

**SO 330 Military Sociology 3 Cr.**

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 Cr.**

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 SO 201. 3 lecture hours.

**SO 402 Law and Society 3 Cr.**

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 CJ 402. Offered every other year.

## Spanish (SP)

### Courses

**SP 111 Beginning Spanish I 6 Cr.**

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 SP 205 or higher. Prerequisite: Appropriate score on placement exam.

**SP 112 Beginning Spanish II 6 Cr.**

A continuation of SP 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: SP 111 or equivalent, NU placement. Not open to students who have successfully completed SP 205 or higher.

**SP 150 Topics Course 3 Cr.**

Specialized topics relating to culture, 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. Taught in Spanish.

**SP 150EN Topics Course in English 3 Cr.**

Specialized topics relating to culture, literature, business practices, or language. Topic will be indicated in the schedule of classes. Taught in English. This course does not meet the Modern Language requirement.

**SP 1XX Spanish Elective 3 Cr.****SP 205 Intermediate Spanish I 3 Cr.**

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: SP 112, NU placement, a score of 500 on the CEEB Spanish Reading Test, or permission of instructor.

**SP 206 Intermediate Spanish II 3 Cr.**

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: SP 205 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 Cr.**

Specialized topics relating to culture, literature, business practices, or language. Topic will be indicated in the schedule of classes. Taught in Spanish. Prerequisite: SP 206 or permission of the instructor. Counts as General Education Arts & Humanities elective. Course may be repeated for credit if the topic differs.

**SP 250EN Topics Course in English 3 Cr.**

Specialized topics relating to culture, literature, business practices, or language. Topic will be indicated in the schedule of classes. Taught in English. Topics in Literature count as a General Education Literature elective and have EN 102 as a prerequisite; others as a General Education Arts & Humanities elective. This course does not meet the Modern Language requirement.

**SP 2XX Intermediate Spanish Elective 3 Cr.****SP 301 Advanced Spanish I 3 Cr.**

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: SP 206 or permission of instructor.

**SP 302 Advanced Spanish II 3 Cr.**

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: SP 206 or permission of instructor.

**SP 318 Spanish American Short Stories 3 Cr.**

An examination of Spanish American short stories from the 19th century through the present day by the authors Horacio Quiroga, Juan Rulfo, Gabriel García Márquez, Julio Cortázar, Ricardo Piglia, and Isabel Allende, among others. Addresses major themes and formal aspects of the short story. Prerequisites: SP 206 and EN 102, or instructor permission. Taught in Spanish.

**SP 321 Introduction to the Literature of Spain I 3 Cr.**

A survey of peninsular Spanish literature from prehistoric Spain to the Modern Age. Lectures, readings, discussion, and written reports in Spanish. Prerequisite: SP 206 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 Cr.**

A survey of peninsular Spanish literature from the Modern Age up through the 20th Century. Lectures, readings, discussion, and written reports in Spanish. Prerequisite: SP 206 or a 300-level course (may be taken concurrently), NU placement, or permission of the instructor.

**SP 327 Hispano-American Literature I 3 Cr.**

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: SP 206 or a 300-level course (may be taken concurrently), NU placement, or permission of the instructor.

**SP 328 Hispano-American Literature II 3 Cr.**

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: SP 206 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 Cr.**

A study of Spanish stylistics, translation into Spanish from modern English texts, oral reports, and discussion in Spanish. Prerequisite: SP 206 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 Cr.**

A study of Spanish stylistics, translation into Spanish from modern English texts, oral reports, and discussion in Spanish. Prerequisite: SP 206 or a 300-level course (may be taken concurrently), NU placement, or permission of the instructor.

**SP 350 Topics Course 3 Cr.**

Specialized topics relating to culture, literature, business practices, or language. Topic will be indicated in the schedule of classes. Taught in Spanish. Prerequisite: SP 206 or permission of the instructor. Topics in Literature count as General Education Literature elective; others as General Education Arts & Humanities elective. Course may be repeated for credit if the topic differs.

**SP 350EN Topics Course in English 3 Cr.**

Specialized topics relating to culture, literature, business practices, or language. Topic will be indicated in the schedule of classes. Taught in English. Topics in Literature count as a General Education Literature elective and have EN 102 as a prerequisite; others as a General Education Arts & Humanities elective. Course may be repeated for credit if the topic differs. This course does not meet the Modern Language requirement.

**SP 354EN El narco 3 Cr.**

This course studies Mexico's violent drug industry--el narco--through its representations in Latin American narrative in the many media comprising an entire narco cultura, and in the symbolic language used by cartel paramilitary assassins to create public terror. The literary and cultural perspective will be augmented by historical analysis. Offered every other year. Counts as a General Education literature elective or as an Arts & Humanities elective. Taught in English. Prerequisite: EN 102 or equivalent, or permission of instructor.

**SP 356 Cinema of Spain 3 Cr.**

An introduction to Spanish cinema spanning the early decades of the twentieth century, influenced by the avant-garde, moving into the period of censorship, under the Franco dictatorship, and finally covering the transition of the post-Franco era that give rise to the Movida madrileña of the 80's. The course will focus on the films of Luis Buñuel, Carlos Saura, and Pedro Almodóvar. Offered every other year. Counts toward the General Education Arts & Humanities requirement. Prerequisites: SP 206 and EN 102, or permission of instructor. Taught in Spanish.

**SP 3XX Advanced Spanish Elective 3 Cr.****SP 415 Seminar: Topics in Spanish or Latin-American Literature and Culture 3 Cr.**

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 Cr.**

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.

## Faculty

### Faculty

*The year after a name indicates the year hired at Norwich University; the date after the academic title indicates year of that title; the year after each degree indicates the year the degree was earned.*

DEBORAH AHLERS (1991) Head of Public Services with rank of Assistant Professor (1991); B.A., 1989, SUNY Binghamton; M.L.S., 1991, SUNY Albany.

NADIA AL-AUBAIDY (2014) Assistant Professor of Construction Management (2015); B.S. 1998, University of Baghdad; M.S. 2005, University of Baghdad; Ph.D. 2015, Civil Engineering, University of Texas.

MICHAEL C. ANDREW (1993) Associate Professor of Political Science (2002); Chair of History and Political Science Department (2015); B.A. 1986, de Sales University; M.A. 1990, de Sales University; Ph.D. 1994, SUNY Binghamton.

CARA ARMSTRONG (2011) Lecturer of Architecture (2013), Director of the School of Architecture & Art (2013); B.E.D. 1991, Miami University; B. Phil. 1991, Miami University; M.F.A. 2013, Drew University; M.Arch. 1994, Columbia University.

ELISABETH ATEMS (2014) Lecturer of Physics (2014); A.B. 1977, University of Michigan; Ph.D. 1993, Wayne State University.

CAROLE L. BANDY (1995) Charles A. Dana Professor of Psychology (2015); B.A. 1970, Rhodes College; M.S. 1973, University of Memphis; Ph.D. 1989, George Washington University.

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

JACQUES N. BENEAT (2002) Professor of Electrical and Computer Engineering (2015); DEA 1990, Universite de Brest; Ph.D. 1993 Worcester Polytechnic Institute; Doctorate 1994, Universite de Bordeaux.

RICHARD B. BENNING JR. (2015) Assistant Professor of Naval Science (2015); B.A. 2010, Texas A&M University; Captain, U.S. Marine Corps.

NATALIA F. BLANK (2005) Associate Professor of Chemistry (2011), Chair of Department of Chemistry and Biochemistry (2015); B.S., M.S. 1996, Nizhegorod State University; Ph.D. 2005 Dartmouth College.

DAVID J. BLYTHE (1991) Associate Professor of Management (2010); B.S. 1981, Rutgers University; J.D. 1986, Vermont Law School.

MATTHEW W. BOVEE (2010) Lecturer in Computer Information Systems (2010); B.S. 1981, Arizona State University; M.A. 1986, The University of Kansas; Ph.D. 2004, The University of Kansas.

JASON P. BOYLE (2015) Military Science Instructor (2015); Staff Sergeant, U.S. Army.

BRIAN S. BRADKE (2014) Assistant Professor of Mechanical Engineering (2015); B.S. 2003, Rensselaer Polytechnic Institute; M.S. 2005, Stanford University; Ph.D. 2014, Rensselaer Polytechnic Institute.

JOHN BROOM (2006) Associate Program Director of Academics, M.A. in Military History program (2008); B.A. 1976, University of Minnesota; M.A. 1989, Norwich University; Ph.D. 1993, Union Institute.

ROWLAND BRUCKEN (2001) Professor of History (2013); B.A. 1991, College of Wooster; M.A. 1993; Ph.D. 1999, Ohio State University.

HEIDI STEINER BURKHARDT (2009) Head of Digital Services with rank of Assistant Professor (2012); B.A., 2005, Oakland University; M.L.I.S., 2008, Wayne State University.

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

ANNE BUTTIMER (2004) Lecturer of Criminal Justice (2010); B.S. 1979, Northeastern University; M.A. 1982, Anna Maria College; J.D. 1993, Vermont Law School.

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

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

FRANCES S. CHEVALIER (1990) Professor of French (2005); Chair of Department of Modern Languages (2014); B.S. 1969, Douglass College; M.A. 1979, Rutgers University; Ph.D. 1995, Rutgers University.

ALEX W.H. CHUNG (2013) Assistant Professor of Economics and Finance (2013); B.A. 1992, Chinese Culture University; M.A. 1995, Chinese Culture University; M.A. 1998, Drexel University; M.A. 2001; Ph.D. 2009, City University of New York.

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, University of Delaware; Ph.D. 1987, University of Delaware.

JAMES CLOSE (2014) Military Science Instructor (2014); Sergeant First Class, U. S. Army.

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

MELISSA CORNWELL (2014) Distance Learning Librarian with rank of Instructor (2014); B.A., 2011, Southern Illinois University; M.L.I.S., 2013, University of Illinois.

FRANCIS BRETT COX (2002) Professor of English (2015); 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; M. Arch. 1989, Colorado State University. Registered Architect.

MICHAEL CROSS (2015) Lecturer of Electrical Engineering (2016); B.S. 1997, Rochester Institute of Technology; M.S. 2000, University of Vermont; Ph.D. 2005, University of Vermont

ELEANOR D'APONTE (2000) Associate Professor of Architecture (2016); B.A. 1988, Barnard College; M.Arch 1991, University of Virginia. Registered Architect.

GARY E. DEDOMINICK (2014) Assistant Professor of Aerospace Science (2015); B.S., Embry Riddle Aeronautical University; M.S. South Dakota State University; NCO, U.S. Air Force.

THOMAS J. DESCOTEAUX (2002) Professor of Civil Engineering (2007); B.S. 1985, University of Connecticut; M.S. 1987, and Ph.D. 1992, University of Connecticut. Registered Professional Engineer.

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

RICHARD K. DUNN (2000) Charles A. Dana Professor of Geology (2014); B.A., B.S. 1987, University of Minnesota Duluth; M.S. 1990, Wichita State University; Ph.D. 1998, University of Delaware.

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

WILLIAM ESTILL (1987) Professor of Communications (2001); B.A. 1976, Loyola University; M.A. 1978, Loyola Marymount University.

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FRANCIS AUMAND III (1998) Adjunct Instructor of Criminal Justice; AS 1974, Greenfield Community College; BS 1987, Hawthorne College; MS 1996, Saint Michael's College.

BRAD BAUERLY (2014) Adjunct Instructor of Sociology; B.A. 2005 Montana State University; M.A. 2007, Boston College; Ph.D. 2008, York University.

JEANNE BECKWITH (2002) Adjunct Instructor of English; B.S. 1968, Eastern Illinois University; M.A. 1974, Indiana University; M.F.A. 1990, University of Georgia; Ph.D. 1994, University of Georgia.

KIMBERLY CAREY (2010) Adjunct Instructor of Nursing (2010); B.S. 2009, Grand Canyon University. Registered Nurse, Vermont.

ALISON CERUTTI (1996) Adjunct Instructor of Music; B.A. 1992, Oberlin Conservatory; M.A. 1996, University of Hartford.

KRISTIN CHANDLER (2006) Adjunct Instructor of Justice Studies; B.A. 1985, Colgate University; J.D. 1992, Seattle University.

LARRY COHEN (2015) Adjunct Instructor of Criminal Justice; B.A. 1971, University of Massachusetts; M.A. 1973, Syracuse University; Ph.D. 1977, Syracuse University; J.D. 1985, Northwestern University.

BARBARA CROWSON (2006) Adjunct Instructor of Criminal Justice; B.A. 2001, Burlington College; MJA 2006, Norwich University;

KATE M. DONLEY (2007) Adjunct Instructor of English; B.A. 1994, Macalester College; M.A. 2001, Northern Arizona University.

ALISA R. DWORSKY (1999) Adjunct Instructor of Architecture & Art; B.A. 1988, Stanford University; M.Arch 1992, Yale University.

TODD EDWARDS (2010) Adjunct Instructor of Music; Director of Bands; B.A. 2005, Wright State University; M.A. 2010, American Military University.

IRENE FACCILOLO (2014) Adjunct Instructor of Architecture; B.A. 1984, Oberlin College; M.A. 1990, University of California.

BRUCE FAULKNER (2011) Adjunct Instructor of Economics; B.A. 1975, Connecticut College; M.B.A. 1976, Columbia University.

ALICIA MORGAN (2012) Adjunct Instructor of Civil Engineering (2013); B.S.C.E. 2009, Norwich University. Registered Professional Engineer.

JON FOGG (2010) Adjunct Instructor of Management; B.A. 1968, Norwich University.

ROGER GOLDENBERG (2016) Adjunct Instructor Art; B.F.A 1991, University of New Hampshire; M.F.A 1995, University of North Carolina.

GREGG GOSSENS (2010) Adjunct Instructor of Architecture; B.A. 1978, University of Wisconsin; M.S. 1980, University of Minnesota.

AUSTIN GRAY (2014) Adjunct Instructor of Political Science; B.A. 1994, Brigham Young University; JD 1998, Temple University School of Law.

LISA KIPPEN (2006) Adjunct Instructor of Art; B.A. 1990, University of California.

GINA LOGAN (1987) Adjunct Instructor of English; B.A. 1986, Regents College; M.F.A. in Writing 1986, Norwich University.

IAIN MACHARG (2005) Adjunct Instructor of Music; B.A. 1996, University of Vermont; M.Ed. 1997, University of Vermont.

BERNARD MANISCALCO (2012) Adjunct Instructor of Sociology; B.A. 2001, Montclair State University; M.A. 2003, Montclair State University.

MONIQUE MATHESON (2010) Adjunct Instructor of English; B.A. 1976, St. Lawrence University; MATSL 2007, Bennington College.

RENATO E. MEROLLI (2014) Adjunct Instructor of Accounting; B.A. 1970, Fairleigh Dickinson University; J.D. 1974, The Columbus School of Law.

EILEEN MURRAY Adjunct Instructor of English; B.A. 1979, Wellesley College; M.A. 1986, Tufts University.

SUSAN NEVINS (2015) Adjunct Instructor of Spanish; B.A. 1986, University of Maryland; M.A. 1990, University of Maryland.

ANNALISA PARENT (2015) Adjunct Instructor of English; B.A. 1997, Middlebury College.

JAY PETRILLO (2015) Adjunct Instructor of English; BFA, 1982, University of Hartford; M.A. 1990, Dartmouth College; M.Ed, 1996; University of Vermont; ,

ROBERT PIASECKI (2004) Adjunct Instructor of English; B.A. 1978, University of Connecticut; M.A. 1983, Boston University.

SUZANNE PICKETT (2010) Adjunct Instructor of Civil Engineering (2010); B.S.C.E. 1999, Norwich University. Registered Professional Engineer.

L. DAN RICHARDS (2001) Adjunct Instructor of English; B.A. 1964, Muskingum College; M.A. 1971, University of Akron.

JAMES ROGLER (2012) Adjunct Instructor of Economics; B.S. 1974, Wagner College; M.B.A. 1982, Fairleigh Dickinson University.

SUSAN ROMANS (2015) Adjunct Instructor of English; B.A. 1966, College of William and Mary; M.A. 1970, University of Maryland; Ph.D. 1980, University of Maryland.

KEVIN RYAN (2014) Adjunct Instructor of Political Science; B.A. 1977, Regis College; M.A. 1979, Princeton University; J.D. 1991, University of Denver

GERALD SCOTT (2013) Adjunct Instructor of Management; B.A. 1980, Westfield State University; M.P.A. 1982, Northeastern University.

KRISTINE SEIPEL (2010) Adjunct Instructor of Management; B.S. 2005, Norwich University; M.B.A. 2010, Norwich University.

DOUGLAS A. SMITH (1999) Adjunct Instructor of Communications; Advisor to WNUB; B.A. 1982, Lyndon State College; M.A. 1998, Southern Illinois University.

SAMANTHA TALBOT-KELLY (2012) Adjunct Instructor of Art; B.F.A. 1996, University of Montreal, M.F.A. 2002, University of Texas.

C. DART THALMAN (2000) Adjunct Instructor of Political Science (2012); B.A. 1966, University of Utah; M.A. 1967, Fletcher School of Law and Diplomacy; M.A. 1969, Fletcher School of Law and Diplomacy; Tufts University; Ph.D. 1979, Fletcher School of Law and Diplomacy, Tufts University.

KAITLIN THOMAS (2015) Adjunct Instructor of Spanish; B.A. 2007, Washington College; M.A. 2011, New York University; TESOL 2014, University of Maryland.

FIANNA VERRET (2013) Adjunct Instructor of Management; B.A. 2000, Saint Michael's College; M.A. 2006, Norwich University.

JOHN WAGNER (2009) Adjunct Instructor of Management; B.A. 1981, Saint Michael's College; M.F.A. 1986, University of Alabama.

MAYUMI WAGSTAFF-BLAISE (2014) Adjunct Instructor of English; B.A. 2012, Elmira College; M.A. 2014, Mills College.

GRAY SCOTT WALSH (2015) Adjunct Instructor of History; B.S. 1976, Fairleigh Dickinson University; M.S. 1992, Antioch University; M.S. 1999, New York University.

JOHANNES WHEELDON (2013) Adjunct Instructor of Criminal Justice; Ph.D. 2009, Simon Fraser University; L.L.M. 2002, University of Durham; B.A. 2000, Dalhousie University.

EDWARD WOLFSTEIN (2008) Adjunct Instructor of Architecture; B.A. 1983, McGill University.

TRINA KAE YOUNG (2014) Adjunct Instructor of German; B.A. 1999, Brigham Young University; M.A. 2003, Brigham Young University; Ph.D. 2011, University of Utah.

RAYMOND P. ZIRBLIS (2001) Adjunct Instructor of History (2001); B.A. 1976, Goddard College; M.S. 1986, University of Vermont.

## Professors Emeriti

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

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

WILLIAM H. BARNARD (1974-2015) Professor Emeritus of Biology B.A. 1968, Franklin College; Ph.D. 1979, Indiana University.

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.

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.

EDWARD M. CARNEY (1972-2013) Charles A. Dana Professor Emeritus of Biology (2003); B.S., 1965, Southern Connecticut State College; M.S., 1969, University of Montana; Ph.D., 1973 University of New Hampshire.

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.

JAMES EDWARD CATONE (1967-2002) Professor Emeritus of Psychology and Education B.S. 1962, SUNY at Albany; Ed.D. 1965, SUNY at Buffalo; D.Ed. 1976, University of Massachusetts.

CHARLES ELWOOD CHEVALIER (1967-1990) Professor Emeritus of Mechanical Engineering B.S., 1952 and M.S., 1960, Pennsylvania State University.

LOUISE JANZ DAVIS (1972-1989) Professor Emeritus of Nursing Diploma, 1954, Trinity Hospital School of Nursing; B.S.N., 1955, Capital University; M.A., 1957, Columbia University.

MARY ELLEN DAWSON (1977-1998) Professor Emeritus of Nursing B.S.N., 1971 and M.S.N., 1973, University of Maryland School of Nursing.

EARL LEON FECHTER (1976-2006) Professor Emeritus of Studio Arts B.S., 1959, SUNY at Buffalo; B.F.A., 1964 and M.F.A., 1966, Boston University.

SCOTT C. FIELDS (1978-2013) Professor Emeritus of English; B.A. 1968, Williams College; M.F.A. 1970, Columbia University; Ph.D. 1979, New York University.

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ELLEN HALL (2002-2011) Librarian Emeritus B.A., 1969, University of Minnesota; M.L.S., 1970 University of Minnesota.

JOSEPH JAMES HEED (1962-1997) Professor Emeritus of Mathematics B.S., 1954, United States Military Academy; M.S. 1961, St. John's University; D.Sc., 1965, l'Universite de Nancy.

EDUARDO H. HERNANDEZ (1979-2016) Associate Professor Emeritus of Sports Medicine; B.S. 1972, Norwich University; B.A., 1981, Norwich University, M.Ed. 1976, Norwich University; M.A. 1986, Middlebury College.

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

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HAROLD KEARSLEY (2002-2016) Professor Emeritus of Political Science; BA 1973, University of South Carolina; MA 1982, University of Southern California; Ph.D. 1990, University of Aberdeen.

MARY PATRICIA KENNEDY (1972-1994) Professor Emeritus of Management B.S., 1951, Trinity College; M.A.T., 1961, St. Michael's College; Ed.D., 1985, Nova University.

ALFRED JOSEPH KLOECKNER (1960-1992) Professor Emeritus of English B.A. 1949 and M.A. 1950, Columbia University; Ph.D. 1956, Indiana University.

FRIEDA HERTHA KLOECKNER (1967-1991) Professor Emeritus of Modern Languages B.S. 1951, University of Wisconsin; M.A. 1955, Indiana University.

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.

TERRI RAE LIBERMAN (1976-2012) Professor Emeritus of English; B.A. 1964, William Smith College; M.A. 1966, Purdue University; Ph.D. 1976, Case Western Reserve University.

DONALD MERRITT LOCKHART (1963-1990) Charles A. Dana Professor Emeritus of Modern Languages A.B. 1948, Bowdoin College; A.M. 1949 and Ph.D. 1959, Harvard University.

JEAN LOIS BABSON MACDONALD (1976-1998) Professor Emeritus of Management B.S., 1958, University of New Hampshire; M.Ed., 1966, Boston University; Ph.D., 1985, University of Wyoming.

HOLLIS DEAN McBRIDE (1966-2001) Professor Emeritus of Chemistry B.S., 1958, Rensselaer Polytechnic Institute; Ph.D., 1966, Iowa State University.

MARTHA McDONALD McBRIDE (1990-2005) Professor Emeritus of Chemistry B.A., 1961, Macalester College; M.S., 1963, Iowa State University; M.A.T. (Biology), 1983, Norwich University.

JAN PURDUM McCLEERY (1972-2005) Professor Emeritus of Physical Education B.S., 1963, Kent State University; M.Ed., 1967, University of Pittsburgh.

JOSEPH WHITON McDANIEL (1970-1999) Professor Emeritus of Biology B.A., 1957, Bowdoin College; M.S., 1965 and Ph.D., 1968, University of Massachusetts.

CHRISTOPHER D. MORRIS (1973-2010) Professor Emeritus of English; B.A. 1966, Swarthmore College; M.A. 1971, and Ph.D. 1972, SUNY Buffalo.

JOAN MARY MUSSMACHER (1972-2000) Professor Emeritus of Physical Education B.S., 1957, Boston University; M.S., 1978, Northeastern University.

HENRY VICTOR MUSE (1978-1996) Professor Emeritus of Political Science B.A. 1960 and M.A. 1965, Boston University; M.A. 1971 and Ph.D. 1974, Syracuse University.

MANUEL NUNEZ-de-CELA (1977-1999) Professor Emeritus of Spanish; Bachillerato 1950, Universidad de Murcia; Licentiate in Law 1957, Universidad de Salamanca; M.A. 1966, Middlebury College; Ph.D. 1974, University of Toronto.

GARY D. PARKER (1978-2013) Charles A. Dana Professor Emeritus of Physics (2007); B.A., 1965, Dartmouth College; M.S., 1970, University of Colorado; Ph.D., 1973, University of Denver.

CARLOS F. A. PINKHAM (1982-2009) Professor Emeritus of Biology B.S., 1965, Norwich University; M.S., 1969 and Ph.D., 1971, University of Illinois.

EDWARD LAMBERT RICHARDS, JR. (1970-1997) Professor Emeritus of English; B.A. 1953, Yale University; M.A. 1960, Columbia University; Ph.D. 1975, New York University; CDR, USNR (Ret.).

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.

JAMES E. RYAN (1997-2012) Professor Emeritus of Criminal Justice, B.A., 1969, University of Vermont; M.P.A., 1974, SUNY Albany; D.P.A., 1985, SUNY Albany.

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, American University.

EUGENE ANTHONY SEVI (1975-2013) Professor Emeritus 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.)

JOHN BELMONT STEVENS (1979) Professor Emeritus of Civil Engineering B.S.C.E., 1964, Norwich University; M.S.C.E., 1966, West Virginia University. Registered Professional Engineer.

PETER R. STEPHENSON (2002) Professor Emeritus of Computer Security & Information Assurance (2015); 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.

FLOYD CHARLES STUART (1965-2003) Charles A. Dana Professor Emeritus of English; B.A. 1963, Fordham University; M.A. 1965, John Carroll University; Ph.D. 1972, SUNY Binghamton.

RAHMATHULLAH SYED (1984-2016) Professor Emeritus of Physics; B.Sc. and M.Sc. 1963, Sri Venkateswara University, India; M.S., 1980, Ph.D. 1983, The Catholic University of America.

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.

WILLIAM CLAYTON TILL (1982-1992) Professor Emeritus of Electrical Engineering B.S., 1956 and M.S., 1962, Case-Western Reserve University.

ERNEST D. TRUE (1974-2016) Professor Emeritus of Mathematics; B.A. 1962, University of Maine; M.A. 1964, University of Maine; Ph.D. 1972, Montana State University.

ANN BESSARAB TURNER (1961-1990) Librarian Emeritus B.A., 1944, Skidmore College; M.L.S., 1945, Columbia University.

DOUGLAS FRANCIS WHITE (1982-1992) Professor Emeritus of Mechanical Engineering B.S. 1947 and B.M.E. 1948, Rensselaer Polytechnic Institute; Ph.D., 1958, Pennsylvania State University. Registered Professional Engineer.

FREDERICK EUGENE WHITE (1983-2013) Professor Emeritus 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.

GREGORY D. WIGHT (1977-2016) Professor Emeritus of Civil Engineering (1994); B.S.M.E. 1967, Massachusetts Institute of Technology; M.S.M.E. 1968, University of Florida. Registered Professional Engineer.

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### Emeriti

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

# Alumni Association, Board of Fellows, Board of Trustees

## Alumni Association

### Mission

The Norwich University Alumni Association (NUAA) promotes the Norwich experience and the bond that exists between the university and its alumni. The NUAA champions the vision, guiding values, principles and traditions of Norwich to build camaraderie, commitment, and lifelong relationships.

### Vision

The NUAA is committed to creating a unified, informed, and proud body of alumni that is involved and committed to the interests and activities that perpetuate Norwich University and the Norwich family.

### General

The NUAA was founded in 1852, and is one of the oldest collegiate Alumni Associations in the nation. It represents the largest of the university's constituencies: Norwich alumni past and present from both the graduate and undergraduate programs. NUAA programs foster the connection between alumni and their alma mater, and with each other. These programs include the annual Homecoming Weekend, the NU Club network, the Legacy of Learning continuing education series, networking and social events, and professional development opportunities. Norwich graduates automatically become lifetime members of the Association and are encouraged to participate in all alumni activities. For additional information about the NUAA, visit [www.alumni.norwich.edu/nuaa](http://www.alumni.norwich.edu/nuaa).

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- Larry W. Jeffords, B.S., Chazy, NY, 2020; President and Owner - Jeffords Steel and Engineering Company
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- Larry A. Lang, B.S., Warren, PA 2019; President - West Penn Oil Company, Inc.
- William M. Lasky, B.A., Stuart, FL 2020; President/CEO/Chairman - Accuride Corporation (Retired)
- J.A. "Yogi" Mangual, B.A., M.S., Advance, NC 2019; Owner, SuperGroup Consulting, LLC
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- Richard I. "Butch" Neal, B.S., M.A., Washington, D.C. 2021; Gen, USMC (Retired)
- E. Miles Prentice, B.A., J.D., New York, NY 2021; Partner, Eaton & Van Winkle, LLP
- Martha Rainville, B.A., Holly Ridge, NC 2017; United States Air Force (Retired)
- Steve Rippe, B.S., Washington, D.C. 2021; President – Army Distaff Foundation (Retired)
- Mim L. Runey, B.A., M.A., LPD, Providence, RI, 2020; President - Johnson & Wale University
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- David G. Warren, B.S., M.A., M.P.A., Ph.D., St. Petersburg, FL 2018; President – The Art Institute of Tampa (retired)
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