

Northeastern University

Graduate Catalog 2013–2014

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The University

General Admission and Transfer Credit

REGULATIONS APPLYING TO ALL DEGREE PROGRAMS

A copy of each graduate degree program as approved by the Board of Trustees and as officially amended is on file in the Office of the Provost. This record contains the goals of all requirements for the program. All descriptions of the program in the university, college, and department publications must conform to this officially approved record. Descriptions of PlusOne programs are also on file in the provost's office.

Standards of admission are specific to degree programs.

Admission Requirements

Prior to beginning a graduate program, students must meet one of the following conditions:

- Have received a bachelor's degree or equivalent from an accredited college or university
- Have received a master's degree or equivalent degree from an accredited college or university
- Have received a first professional or equivalent degree from an accredited college or university
- Be enrolled in a PlusOne program at Northeastern University

Registration

Northeastern University has a policy of continuous registration while enrolled full-time in a graduate degree program.

All students must register for course work, research, thesis, dissertation, or continuation courses for each semester in order to be in good standing in the program. Registration is continuous with the exception of summer. A student must be registered in summer only if he or she will be graduating in the summer or holds an award that requires registration. A student must be registered during the semester in which they complete all requirements for their degree.

When circumstances warrant, e.g., medical exigency, a student may seek a leave of absence.

The university parental leave policy is available in the University Policies section of the Office of the Provost website.

Transfer Credit

A maximum of 9 semester hours of credit (or 12 quarter hours) obtained at another institution may be accepted toward the degree, provided the credits consist of work taken at the graduate level for graduate credit, carry grades of 3.000 or better, have been earned at an accredited institution, and have not been used toward any baccalaureate or advanced degree or certificate at another institution.

Transfer credits must be no more than five academic years old at the time the student is admitted to graduate study. Courses older than five years will be accepted only in rare circumstances.

Grades earned in transferred credits are not counted as part of the overall grade point average earned at Northeastern.

Transfer credits will only be accepted at the discretion of the academic department and the college's graduate office.

College of Professional Studies Transfer Credit Policies

The College of Professional Studies (CPS) awards transfer credits for courses successfully completed at regionally and programmatically accredited institutions. The Council for Higher Education Accreditation provides information about the organizations responsible for these two forms of accreditation. Official transcripts from all institutions should be sent directly to the CPS Office of Admissions at the time of application.

Transfer credits earned at institutions outside of the United States are considered on a case-by-case basis. Students should submit an official English evaluation completed by an approved credential evaluator. Course descriptions and/or syllabi also should be translated into English and submitted to the CPS Office of Admissions.

Graduate courses will not be evaluated for transfer credit if they were earned to fulfill an academic requirement for a graduate degree program. All graduate transfer credit awards are made on a case-by-case basis at the discretion of the graduate program director. With specified exceptions, a maximum of 8 quarter hours or two courses is allowed as graduate transfer credits toward a graduate degree; a maximum of 4 quarter hours or one course is allowed toward a graduate certificate.

Assessment of Prior Learning (APL) credits are not awarded at the graduate level.

In the CPS, to be accepted as transfer credit, prior course work must be:

- At the graduate level
- A minimum course grade of B, or 3.000 on a 4.000 scale
- Not be older than seven years

GRADUATE CERTIFICATE TRANSFER CREDIT POLICIES

- A maximum of 4 quarter hours (one course) of transfer credit

MASTER DEGREE TRANSFER CREDIT POLICIES

- A maximum of 8 quarter hours of transfer credit

DOCTORAL DEGREE TRANSFER CREDIT POLICIES

- A maximum of 9 quarter hours of transfer credit for Doctorate of Education students
- A maximum of 8 quarter hours of transfer credit for Transitional Doctor of Physical Therapy students
- No transfer credit is awarded for students in the Doctorate of Law and Policy program

Special Student Status

Those students who are not pursuing a specific degree program are classified as special students. Special students must satisfy the requirements for admission and perform at a satisfactory level in course work in order to continue as special students. Performance of a special student in graduate courses should average at least 3.000 in order for the student to be allowed to register for any subsequent classes. The number of credits that may be earned by a student enrolled as a special student is at the discretion of each graduate office. However, a maximum of 12 graduate semester hours may be applied to a graduate program. Students interested in pursuing a degree program must apply formally to the degree program. Special students who do not register for four consecutive semesters, excluding summer semester, are subject to review and possible withdrawal.

Special students are not eligible for Northeastern financial aid awards or federal financial aid.

Provisional Student Status

Provisional students are students whose academic records do not qualify them for acceptance as regular students. Provisional students must obtain a 3.000 grade-point average in the first 9 semester hours of graduate courses in order to continue in the graduate program or meet specifically delineated departmental requirements to qualify for full acceptance to a degree program. Students may not earn more than 9 semester hours while enrolled in provisional status. After the completion of 9 semester hours, students must either satisfy regular admission standards or be denied further registration in the graduate program. Normally, these 9 semester hours are earned within a single academic year.

Provisional students are not eligible for Northeastern financial aid awards or federal financial aid.

International students cannot be admitted provisionally or conditionally.

REGULATIONS APPLYING ONLY TO PHD PROGRAMS

Committee in Charge of the Graduate Student's Degree Program

The committee in charge of the graduate student's degree program is that body charged with overseeing all academic and administrative matters relating to the program. This committee will be a departmental or, in the case of colleges without departments, a college committee. In the case of interdisciplinary

programs, the committee is composed of members representing the departments or schools involved in the program.

PhD Dissertation Committees

No dissertation committee shall have fewer than two faculty members from Northeastern University.

The chair of the dissertation committee will be a full-time tenured or tenure-track member of the faculty of Northeastern University. In addition, the chair of a doctoral program committee will hold a doctoral degree.

If a student's major advisor leaves Northeastern, that person may continue the research direction of the dissertation or thesis. However, a co-advisor must be appointed from the academic department or program. The student will then have two advisors, one an official member of the Northeastern faculty who will be available for research and administrative matters and the ex-Northeastern advisor. If a new major advisor is appointed, the ex-Northeastern faculty member may serve as an outside member of the committee.

The PhD committee should be appointed early enough to advise in the formulation of the student's program and in refining the research topic for the dissertation. Before any preliminary examination or equivalent, the degree program graduate coordinator and the relevant college graduate associate dean must approve the membership of the dissertation committee.

Each PhD student shall have an annual review of his or her progress toward the degree. A copy of the review shall be submitted to the student and to the relevant graduate dean.

After reaching candidacy, a student must register for Dissertation for a minimum of two semesters in order to fulfill their formal residency requirement. Continuation status enrollment is for students who are postcandidacy, have completed all course work, and are actively engaged in completing a thesis or dissertation.

GENERAL REGULATIONS AND REQUIREMENTS FOR NONDEGREE CERTIFICATE PROGRAMS THAT APPEAR ON THE TRANSCRIPT

Definition

A nondegree certificate program is a program of study requiring at least four graduate courses, or 12 semester hours of graduate credit, but no more than 30 semester hours of graduate credit. Successful completion of such a certificate program will be recorded on the student's transcript. Appropriate graduate credits taken as part of a nondegree certificate program may be counted toward a regular graduate degree at the discretion of the committee in charge of the graduate program.

Admission

All students admitted to a certificate program must satisfy the general requirements for admission as a graduate student, as given on page 2 of this catalog. The committee in charge of the program will determine specific requirements for each certificate program.

GENERAL REGULATIONS AND REQUIREMENTS FOR THE MASTER'S DEGREE

Academic Classifications

Those students who have a bachelor's degree from an accredited college or university and satisfy the admissions requirements of the appropriate graduate school are classified as regular students. Domestic students whose records are not of acceptable quality may be accepted as provisional students. International students cannot be accepted provisionally. Provisional students must obtain a 3.000 grade-point average in the first 9 semester hours or otherwise fulfill the delineated departmental requirements to continue in the graduate program; they then become regular students. Any student whose record is not satisfactory may be dropped by action of the committee in charge of the degree program.

Course Requirements

The requirements for the master's degree are a minimum of 30 semester hours of graduate work, beyond the bachelor's degree, together with such other study as may be required by the graduate school and department or program concerned. Students enrolled in a PlusOne program will be allowed to double-count prescribed graduate courses as part of their undergraduate degree.

Time Limitation

Course credits earned in the program of graduate study, or accepted by transfer, are valid for a maximum of seven years unless the relevant graduate office grants an extension.

GENERAL REGULATIONS AND REQUIREMENTS FOR THE CERTIFICATE OF ADVANCED GRADUATE STUDY

The Certificate of Advanced Graduate Study (CAGS) provides specialized study above the master's degree. It is a course of study that falls between the master's and doctoral degree and culminates in a graduate degree.

Admission

An applicant for the CAGS must hold a master's degree in a related field from an accredited institution and must complete the admission procedure described in the material of the graduate school.

Academic Classifications and Degree Candidacy

Students admitted to a CAGS program will be designated as candidates for the Certificate of Advanced Graduate Study.

Course Requirements

A candidate for the CAGS must satisfactorily complete an approved program conforming to the requirements of the graduate school and department or program in which the candidate is registered. The candidate must complete a minimum of 24 semester hours of credit beyond the master's degree.

Time Limitation

Course credits earned in the program of graduate study, or accepted by transfer, are valid for a maximum of seven years unless the graduate school committee grants an extension.

GENERAL REGULATIONS AND REQUIREMENTS FOR THE DOCTORAL DEGREE

The formal requirements for the PhD degree are the following: completion of the course work mandated by the individual degree program, fulfillment of the residency requirement, formal training in the Responsible Conduct of Research, a comprehensive examination or equivalent if required by the degree program, continuous registration, a final examination conducted by the student's PhD committee, and submission of a dissertation to the relevant graduate office and to ProQuest for archiving. The dissertation must be based on original and independent research.

Academic Classification and Degree Candidacy

DOCTORAL STUDENT

Students in this classification have been admitted to a doctoral program.

DOCTORAL CANDIDATE

Every degree program shall have a policy defining candidacy. Students in this classification will have completed all departmental, college, and university requirements except for the dissertation. These requirements vary by program but minimally include completion of approximately 30 semester hours of acceptable graduate work beyond the bachelor's degree or possession of a previously earned master's degree that is acceptable to the department and certified by the graduate office. The requirements frequently include a comprehensive examination or a proposal defense.

Dissertation

Candidates for the degree of Doctor of Philosophy must complete a dissertation that embodies the results of extended research and makes an original contribution to the field. This work should give evidence of the candidate's ability to carry out independent investigation and to interpret in a logical manner the results of the

research. The committee in charge of the degree program establishes the method of approval of the dissertation.

Candidates for the degree of Doctor of Education must complete a dissertation that embodies the results of extended, creative, and independent research and proper evaluation and interpretation of the results. The committee in charge of the degree program establishes the method of approval of the dissertation.

Final Oral Examination and Submission of Dissertation

The final oral examination will be carried out after the completion of all other requirements of the degree. The final oral examination will be on the subject matter of the doctoral dissertation and significant developments in the field of the dissertation. Other fields may be included if recommended by the examining committee. This examination must be held at least two weeks before the Commencement at which the degree is to be awarded.

Time Limitation

After the establishment of degree candidacy, a maximum of five years will be allowed for the completion of the degree requirements. Under extenuating circumstances, a student may request an extension of this time frame.

GENERAL REGULATIONS AND REQUIREMENTS FOR INTERDISCIPLINARY GRADUATE DEGREES

Northeastern University offers individually designed and ongoing interdisciplinary graduate programs. The individually designed program is for the student who wishes to pursue graduate studies in an area that substantially overlaps two or more units. In such cases, that student may design an interdisciplinary program. The program will correspond in scope and depth to regular degree standards but need not agree exactly with the regulations of individual units. There are also ongoing programs for students who wish to pursue graduate studies in areas in which two or more units have jointly established a graduate program. As with individually designed programs, ongoing programs correspond in scope and depth to regular degree standards but do not agree exactly with the regulations of individual units.

The general regulations and requirements for graduate programs (above) apply to interdisciplinary programs. Additional regulations and requirements are stated below.

Admission

INDIVIDUALLY DESIGNED PROGRAMS

Application for admission to an interdisciplinary program consists of the admissions material required for graduate study plus a carefully thought-out, written proposal describing the areas of proposed study and research as well as a description of the qualifying and comprehensive examination process to be used. The proposal may be part of the initial application for admission to

graduate study at Northeastern University or a student already enrolled may submit it. In either case, the proposal material should be prepared in consultation with an academic advisor who is a tenure line faculty member at Northeastern University.

In the case of master's programs and certificates of advanced graduate study, the admissions material and proposal may be directed to a graduate-degree-granting unit or to the director of the graduate school, who directs it to the appropriate unit. In either case, admission to interdisciplinary study requires favorable recommendation by all units involved, one of which is chosen as the registration base of the student.

In the case of doctoral study, the admissions material and proposal may be directed to a doctoral-degree-granting unit or to the director of the graduate school, who directs it to the appropriate unit. In either case, admission to interdisciplinary doctoral study requires favorable recommendation by all units involved. The doctoral-degree-granting unit becomes the registration base of the student.

ONGOING INTERDISCIPLINARY PROGRAMS

The admission procedure for ongoing programs is described in the university graduate studies website (www.northeastern.edu/graduate) and in the relevant graduate school materials. In all cases, the admission committee is composed of representatives from the participating units. The committee will meet regularly with the program director, will be responsible for establishing academic policies and program requirements, and will certify to the appropriate graduate school the completion of requirements for the awarding of the degree.

Oversight of Academic and Administrative Matters

A student who has been accepted for interdisciplinary study has an advisor who will be the chair of the interdisciplinary committee for the student. The chair may or may not be a member of the registration unit. A second member will be appointed from the registration unit by its chair or dean. These two members will obtain the additional members of the committee. At least two units must be represented on the committee. In the case of doctoral study, a majority of the committee members must come from doctoral-degree-granting units.

The interdisciplinary committee will be responsible for overseeing the completion of all requirements. This committee must also certify to the registration unit the completion of the requirements for the award of the degree. The interdisciplinary committee is also responsible for a periodic report to the registration unit concerning the progress of the student and must obtain approval from the unit for any changes in the approved program.

The interdisciplinary committee must assure that the program of the student represents standards comparable to those of the registration unit and that the program is not so broad that it has inadequate depth in any area.

Information for Entering Students

INFORMATION FOR NEW GRADUATE STUDENTS

Welcome to graduate studies at Northeastern University. Get to know Northeastern University through the eyes of some of our graduate students, alumni, and faculty by looking at the resources at www.northeastern.edu/graduate/prospective-students.

Graduate education at Northeastern integrates the highest level of scholarship across disciplinary boundaries with significant research and experiential learning opportunities in Boston and around the world. Northeastern offers more than 165 graduate programs, ranging from doctoral and full-time master's programs to part-time programs and graduate certificates, including an array of innovative PhD and master's programs designed to prepare students for emerging new fields. Students are able to take courses on campus, online, or in hybrid formats. This multidimensional learning environment offers students the knowledge and experience to excel and the flexibility to create the educational experience that best meets their needs. Our graduates are well positioned to meet the diverse demands of careers in academia, industry, and the professions.

LIVING IN BOSTON

Boston is an exciting city that is the perfect place for students. For links to Boston landmarks, cultural institutions, news sources, city guides, and off-campus apartment listings, please visit www.northeastern.edu/graduate/current-students/boston.

Off Campus Student Services

226 Curry Student Center
617.373.8480
offcampus@neu.edu
www.northeastern.edu/offcampus

Off Campus Student Services provides a wide range of information, resources, and educational workshops for students who are interested in living off campus or who already live off campus.

Off Campus Student Services provides assistance in searching for off-campus housing, finding roommates, and learning more about the communities surrounding Northeastern University. Our website offers a host of resources including an apartment registry, information on transportation, and City of Boston municipal offices, as well as contact information for area real estate professionals.

Off Campus Student Services publishes a monthly e-newsletter that provides valuable tips and information on upcoming programs and events both on campus and off campus.

Individuals interested in receiving our newsletter can email us at offcampus@neu.edu or stop into the office Monday through Friday.

For more information, please visit the Off Campus Student Services website at www.northeastern.edu/offcampus.

INFORMATION FOR INTERNATIONAL STUDENTS

International Student and Scholar Institute

405 Ell Hall
617.373.2310
617.373.8788 (fax)
www.northeastern.edu/issi

The International Student and Scholar Institute (ISSI) offers a vast array of programs and services to more than 6,500 international students and scholars who represent approximately 140 nations.

The ISSI also works to promote meaningful interaction and intercultural understanding among citizens of other countries and their peers from the United States, providing educational and cultural enrichment opportunities for all members of Northeastern and the community at large.

The ISSI oversees the Student and Exchange Visitor Information System (SEVIS) at Northeastern, as mandated by the U.S. federal government, in order to ensure compliance with regulations and procedures affecting those international students and scholars in specified nonimmigrant visa classifications.

Affiliation with the ISSI begins with the orientation program and continues through such initiatives as the ISSI's two-month cultural festival, "International Carnevale," which celebrates the cultural diversity of the entire university community. For a list of ISSI services and programs, visit the website.

International students must maintain full-time status at Northeastern to be in compliance with immigration and SEVIS regulations. Also, they must not engage in any type of employment unless authorized by the ISSI. Note that timely registration for courses is especially important so that they may remain in compliance with current federal regulations. They should consult with the ISSI if they have questions about their individual status.

Coming to Boston

Preparing to travel to Boston and begin your studies at Northeastern University is exciting, and you have many things to do in preparation for both. When you plan carefully, your travels and arrival in Boston should go smoothly. Here are some of the key things you should do in preparation.

- **Obtain your F-1 or J-1 visa** from the U.S. embassy or consulate in your home country to be eligible to study in the United States. An international student may attend Northeastern in a nonimmigrant status other than F-1 or J-1 only if U.S. Immigration regulations allow for study in the United States under that specific nonimmigrant visa classification. Some international students must apply and be approved for a change of status (e.g., from F-2 to F-1) before beginning the program at Northeastern. For detailed information/instructions specific to your current nonimmigrant status, as well as eligibility to participate in co-op or other forms of experiential learning required by your academic program, please contact the ISSI at www.northeastern.edu/issi/visaprocess.html.
- **Mandatory Student Health Insurance:** Since September 1989, Massachusetts law (M.G.L. c.15A, § 18) has required every full-time and part-time student enrolled in a certificate, diploma, or degree-granting program in a Massachusetts institution of higher learning to participate in a Student Health Program or in a health benefit plan with comparable coverage. The Student Health Program defines a part-time student as a student enrolled in at least 75 percent of the full-time curriculum. (CPS graduate students—seven credits, part-time graduate students—six credits). Purchase health insurance coverage if you are not already covered by a policy that meets Massachusetts state requirements. See www.northeastern.edu/issi/insurance.html for more information.

Make sure you receive a copy of the Northeastern University health report form. If you have any questions, contact University Health and Counseling Services in person at 135 Forsyth Building, by calling 617.373.2772 option #2, or by email at UHCS@neu.edu.

Planning Information

As a new international student you are expected to arrive by the start date of your program stated on the I-20 issued by Northeastern or on the DS-2019 issued by Northeastern or by your sponsoring agency/government.

When you plan your travel arrangements, you should seek admission to the United States no more than 30 days prior to the report date on your I-20 or DS-2019, and you should not arrive after the report date on your I-20 or DS-2019.

All international students will need to report to the ISSI at their scheduled immigration clearance session during orientation. Check the orientation schedule (www.northeastern.edu/issi/orientation.html) for the date and time of your session.

International Student Orientation

At the beginning of each semester the ISSI conducts orientation sessions, events, and activities designed to assure you have completed all U.S. documentation requirements and to provide you with information and support to ease your transition to life in the United States and at Northeastern University. At each session, you will also have the opportunity to meet other international students, learn from shared experiences, and find any assistance you may need.

Orientation week is very important. Please make sure you attend every mandatory session, and attend as many scheduled events as you can to avoid missing other important information during your first few weeks on campus.

New international graduate, College of Professional Studies, American Classroom, and Global Pathways students are required to attend the ISSI orientation components scheduled for their academic programs. For a schedule of required sessions and other events, please see the ISSI website: www.northeastern.edu/issi/schedule.html. You do not need to register for ISSI orientation.

If you are a U.S. citizen living abroad, you are not required to attend ISSI's mandatory immigration clearance or Student and Exchange Visitor Information System (SEVIS) sessions. You are more than welcome, however, to attend other sessions and events planned by the ISSI during orientation. Please visit the orientation schedule to see a full listing of other sessions and events: www.northeastern.edu/issi/schedule.html.

Participate in Cultural Events

We are proud to offer cultural events throughout the academic year to the Northeastern community. For more information and to register, please check the schedule of events on the ISSI website.

SEVIS Compliance

The ISSI is required to comply with immigration regulations governing your student status and must submit information every semester as required by Homeland Security.

The ISSI: Your Resource for SEVIS Advice and Assistance

The ISSI advises students on the complexities of immigration compliance and interfaces with various U.S. government agencies. The ISSI maintains and updates the SEVIS system and advises students on relevant issues related to nonimmigrant student status by individual appointments or through workshops and information sessions. Consult the ISSI whenever you have a question relating to your nonimmigrant student status or any aspect of SEVIS compliance.

ACADEMIC RESOURCES

Libraries

Northeastern University Libraries

617.373.2354

617.373.3395 (TTY)

www.library.www.northeastern.edu

The Northeastern University libraries include Snell Library on the main campus and the Marine Science Center in Nahant, Massachusetts. (The African-American Institute Library, the Career Development and Placement Library, the Hillel House Collection, and the School of Law Library are separate, specialized libraries.)

Snell Library is the primary research library for the university, with collections and services to support most disciplines. Holdings are extensive, and a large proportion are available digitally via the Web. Northeastern University libraries are a federal depository, maintaining a significant collection of materials published and distributed by the federal government.

Snell Library has a seating capacity of 1,700. The facilities include a cybercafe, a digital media design studio, the University Archives and Special Collections, and a large computing facility, the last maintained by Information Services. During the spring, summer, and fall terms, the main floor of the library is open for study twenty-four hours per day, seven days per week. The library has wireless capability throughout the building.

Services provided by Snell Library include both on-site and distance reference, the latter including 24/7 live chat with a reference librarian; a state-of-the-art interlibrary loan system for providing materials not readily available at Northeastern; and a digital media design studio, the last providing resources and assistance to support the recording, digitizing, and remixing of digital scholarly content. In addition, library subject specialists are available by appointment to meet and discuss strategies for doing library research and finding information on a particular topic. For those who are teaching, library subject specialists are also available to provide in-house, customized library orientation and instruction for class groups. Most library services and many library resources now extend via the Web to distant, off-campus users.

The School of Law Library, located on five floors in the Knowles Law Center, includes a comprehensive collection of U.S. legal materials in print and in electronic format. Of particular note is the library's collection in the areas of public interest law; international human rights law; and public health, death penalty issues, and progressive lawyering. Access to print and electronic materials is provided through NUCat, the university's online catalog. More information can be found at www.northeastern.edu/law/library.

Office of the Registrar

120 Hayden Hall

617.373.2300

617.373.5360 (TTY)

www.northeastern.edu/registrar

The Office of the University Registrar provides an important link between the university's academic programs and policies and the student. It administers a number of specific services, including class scheduling, registration, record functions, verification of enrollment, reporting, transcript services, and Commencement.

The registrar's office utilizes the myNEU Web portal (www.myneu.neu.edu) and public campus computers to provide students convenient access to information and services, including class schedules and registration, most recent grades, and unofficial transcripts. Additional information is available at www.northeastern.edu/registrar.

INFORMATION SERVICES

Information Services

617.373.2752

help@neu.edu

www.northeastern.edu/infoservices

Information Services (IS) provides central information technology to our faculty, staff, and students. IS provides secure, high-speed Internet connectivity through our on-campus networks (NUnet and ResNet); wireless Internet connectivity through NUwave; standard media and computer technologies and computer applications in most classrooms; centralized computing facilities, InfoCommons, and Digital Media Commons; on-site and remote printing services; high-performance research computing; access to the Blackboard learning management system; a vast array of academic and administrative software applications for Windows and Mac; access to myNEU, the electronic gateway for Northeastern faculty, staff, students, and parents to access academic, financial, co-op, and other campus life links; on-site and online training on popular software; and consulting on a variety of technology-related projects.

Information Services Service Desk

InfoCommons, Snell Library

617.373.HELP (4357)

help@neu.edu

The Information Services Service Desk provides technology support services over the telephone to students, faculty, and staff. The Service Desk staff also offers support for university-owned printers and other networked devices and answers general computing questions. Contact the Information Services Service Desk for the following services:

- Troubleshooting Northeastern University–provided applications, including email
- Investigating wired or wireless network connection problems
- Troubleshooting network printer problems
- Computing support, including malware removal, new desktop setup, and Apple or Dell computer warranty repairs
- Facilitating NUNet port installations, moves, and removals
- Assisting students with myNEU and Blackboard questions

The Service Desk is located in the InfoCommons and also provides walk-in assistance for computer-related issues to students, faculty, and staff with a valid Northeastern ID.

myNEU Portal

www.myneu.neu.edu

The myNEU portal is a comprehensive, Web-based service that provides a central access point to the Northeastern community for academic, personal, and recreational needs. The myNEU portal consists of a variety of services, including a link to student email, information channels, financial aid, and online course registration.

ResNet Resource Center

Speare Commons
617.373.HELP (4357)
resnet@neu.edu
www.northeastern.edu/resnet

ResNet, a service of Information Services and Housing Services, provides Internet access to all students living in Northeastern University–owned residence halls. ResNet also provides support for the HuskyCable TV service, mobile devices, games and other devices, HuskyMail (the student email service), computer troubleshooting, and repair services for Apple or Dell computers.

Appropriate Use

The information systems of Northeastern University are intended for the use of authorized members of the community in the conduct of their academic and administrative work. The Appropriate Use Policy (AUP) describes the terms and conditions of Northeastern information systems use. For more information, visit the Information Services AUP Web page at www.northeastern.edu/infoservices/?page_id=97.

Training Services

Snell Library
617.373.5858
training@neu.edu

Information Services Training Services provides the following instructor-led and Web-based courses to all members of the Northeastern community:

- **Web-based training.** Training Services offers computer training over the Internet, including Mac tutorials, MS Office tutorials, some application-specific training provided by the application vendors and via Lynda.com, and 24/7 access to an extraordinary breadth of training modules. Web-based training is an innovative, self-paced learning method that allows students, faculty, and staff to train anytime or anywhere, using a computer with an Internet connection.
- **Instructor-led training** includes classes such as Public Speaking for Presentations, Advanced Excel, SharePoint, Adobe Photoshop, and Blackboard. These workshops are available at no charge to the entire university community.

To register for a class, visit the training Web page at www.northeastern.edu/infoservices/?page_id=86.

CAMPUS RESOURCES

Career Services

103 Stearns Center
617.373.2430
617.373.4231 (fax)
careerservices@neu.edu
www.northeastern.edu/careerservices

Career Services provides resources, guidance, and opportunities that help students and alumni with the following:

- Choose a major and explore career options that fit their unique attributes
- Make career decisions that will engage them in productive and fulfilling work
- Prepare for and conduct successful job searches
- Create meaningful and effective engagement with employers
- Contribute to meeting global and societal needs

Northeastern’s Career Services does not guarantee employment nor do student referrals to prospective employers regarding job openings.

Campus Recreation

Marino Center
617.373.4433
617.373.2885 (TTY)
www.campusrec.neu.edu

Badger and Rosen SquashBusters Center
795 Columbus Avenue, Boston
617.373.7782
617.373.7370 (fax)

Northeastern University Bookstore

Main Campus

Curry Student Center, ground floor
617.373.2286
www.northeastern.bncollege.com

The bookstore operates during the entire academic year, but days and hours may vary in accordance with the university's calendar.

Purchases can be made by cash, check, American Express, MasterCard, VISA, Discover, or Husky Card.

Russell J. Call Children's Center

1 Fencourt Street (alley right after Qdoba Restaurant)
617.373.3929
Regina Nazzaro, *Director*

The Russell J. Call Children's Center is available to faculty, staff, and students; children from two years and nine months to five years of age are eligible to attend.

The center is licensed by the Massachusetts Department of Early Education and Care and staffed by professional teachers and co-op and work-study students.

Tours and enrollment information are available at the center or by emailing r.nazzaro@neu.edu.

Disability Resource Center

20 Dodge Hall
617.373.2675
617.373.7800 (fax)
617.373.2730 (TTY)
www.northeastern.edu/drc

The Disability Resource Center (DRC) strives to create an environment in which all are empowered to make their unique contributions to the rich academic and social life of Northeastern. Its staff takes a creative approach to assisting students who have disabilities or who are Deaf or hard of hearing by providing services that will enable them to succeed.

In accordance with federal laws and guidelines, services cannot be provided unless acceptable documentation is submitted to the DRC. Students must provide recent diagnostic documentation indicating that the disability substantially limits one or more major life activities. They must also register with the DRC and meet with a counselor.

Students who are disabled, Deaf, or hard of hearing are strongly encouraged to contact the DRC upon their acceptance to Northeastern. It is also most beneficial to schedule a meeting with a DRC counselor at least three months prior to arriving on campus in order to register and request services. Early contact with the center will allow enough time to assemble the required diagnostic documentation, register at the DRC, and set up services.

Services are individually tailored on a case-by-case basis to meet each student's needs. Support services are available for, but are not limited to, students with a documented diagnosis of learning disabilities, blindness or visual disabilities, mobility disabilities, deafness or hard of hearing disability, head injuries, psychiatric disorders, degenerative or chronic conditions, HIV-positive status or AIDS, and temporary disabilities.

The center's services include examination modification and accommodation; disability-related academic advising and course modification; note-taking services; readers and scribes; sign-language interpreters and transliterators; computer-aided, real-time information about classrooms' accessibility; advising and referral services; campus orientations; acquisition of assistive listening devices, Braille materials, taped textbooks, and raised-line drawings; and assistive technology, such as the Reading Edge machine. The center also provides liaison, advocacy, and training services for faculty, staff, and administration and coordinates special-interest groups.

DRC does not provide personal care assistance (PCA) services; the center will provide referral to local PCA service agencies, such as the Boston Center for Independent Living, www.bostoncil.org.

Northeastern does not offer transportation services; however, public transportation in greater Boston is run by the Massachusetts Bay Transportation Authority (MBTA), which offers a curb-to-curb transportation service known as The Ride for persons with disabilities. Several stops on the Orange Line branch of the MBTA subway system are very convenient to the Northeastern campus. See www.mbta.com for more information.

Graduate Student Government

104F Ell Hall
617.373.4502
GSG@neu.edu
www.northeastern.edu/gsg

The Graduate Student Government (GSG) represents graduate students at Northeastern University, serving as a liaison among the administration, faculty, staff, students, and trustees. The role of the GSG is to address the professional, financial, social, and representative needs of the graduate community as follows:

- Seeks to improve the quality of graduate student life, academic affairs, and research.
- Offers access to professional development resources and networking.
- Facilitates cooperation among the graduate student groups and organizations.
- Distributes the graduate activity fee.
- Sponsors graduate orientation and graduate senior week activities.

- Fosters interdepartmental and intercultural communication and appoints graduate representatives to serve on university committees. All graduate students are eligible to be part of the GSG General Assembly. Representatives from the eight graduate and professional schools and graduate student organizations assist the Executive Board in the affairs of this governing organization. The General Assembly meets regularly during the fall and spring semesters in the Senate Chambers, 333 Curry Student Center. Meetings are open to all students.

Counseling and Student Development

University Health and Counseling Services

Forsyth Building, Suite 135

617.373.2772

UHCS@neu.edu

www.northeastern.edu/uahcs

The University Health and Counseling Services team is eager to serve you. We hope that you will use our center as a resource to help stay healthy, physically and mentally, and for care when you are ill or injured, depressed or stressed.

Parking

Student Financial Services

354 Richards Hall

617.373.7010

www.northeastern.edu/parking

Parking spaces in the university lots and garages are filled on a first-come, first-served basis. To park in a university lot or garage, students must have a valid parking permit displayed on their vehicles. A parking permit does not guarantee a parking space.

New students may purchase a day-parking permit. Only eligible students will receive a permit. To be eligible, students must be registered for a class or on co-op. The cost of the permit will be charged to the student's tuition account.

Overnight parking permits are limited.

To apply for a parking permit, visit the self-service tab on myNEU and select "Apply for Parking."

To park in a handicap space, individuals must purchase a parking decal and display a state-issued handicap license plate, placard, or hangtag. Handicap parking spaces are located throughout campus.

Operators of vehicles driven or parked on university property are responsible for knowing and complying with university driving and parking regulations.

Please refer to the parking website for more information.

Public Safety

Public Safety Division Administrative Offices

100 Columbus Place

617.373.2696

www.northeastern.edu/publicsafety

Police Operations Center

100 Columbus Place

617.373.3333 (EMERGENCY—police, fire, or medical)

617.373.2121 (nonemergency regular business)

617.373.3934 (TTY emergency or nonemergency)

Personal Safety Escort Service

617.373.2121

www.northeastern.edu/publicsafety/services/escort.html

The Public Safety Division's mission is to provide a comprehensive program of police, security, fire safety, and emergency medical services to help ensure the campus remains a safe and pleasant place to live, work, and learn.

The University Police Department is the largest and most visible unit of the division and consists of professionally trained officers charged with the protection of life and property and the prevention and detection of crime on campus. University police officers have the same authority as municipal police officers and enforce both the Massachusetts laws and university regulations. Regulations mandate that students show their university ID cards whenever requested to do so by any university police officer. For more information, visit www.northeastern.edu/publicsafety/.

The Public Safety Division takes pride in its comprehensive plan to minimize crime and protect the safety of the Northeastern community. But the division needs students' help and urges students to take responsibility for creating and maintaining a safe and secure environment. For tips on safety around campus and in the neighborhood, pick up a brochure or visit the website.

Fire egress drills are held each semester in all residence halls to familiarize residents and staff with the alarm system and the evacuation routes. Special fire safety and evacuation training is provided for students, faculty, researchers, and staff in high-risk laboratories. All building occupants are required to participate when an egress drill is held. For tips on fire safety, pick up a brochure or visit the website.

The Personal Safety Escort Service provides a door-to-door escort from one on-campus location to another whenever personal safety is a concern. After receiving your call, the university police dispatcher will assign an officer or co-operative education cadet within ten to fifteen minutes (if necessary, the dispatcher will advise you of any expected delays).

A special, nighttime off-campus escort service runs from dusk to dawn to transport students who reside within approximately one mile of the campus from the campus to their residence after dark. The only destination this service will take you to is your residence. A van stops at Snell Library and the Ruggles Public Safety Substation on the hour from 7:00 p.m. to 6:00 a.m. to pick up students.

If you are sexually assaulted, either by a stranger or an acquaintance, get to a safe place, then telephone the university police and a friend or family member. A university police officer who is a state-certified sexual assault investigator will meet with you and address your physical and emotional needs, as well as inform you of your rights and options regarding filing charges against the perpetrator. The police will provide you with important information about on-campus as well as off-campus counseling services as well as other options regarding changing your residence or class schedule.

If the sexual assault took place off campus, the university police department can still provide emergency medical treatment, transportation to a medical facility, and counseling referrals. However, the criminal investigation of such cases is the responsibility of the police department that has jurisdiction in the locale where the assault took place, and university police will assist you with making contact with the appropriate agency.

John A. and Marcia E. Curry Student Center

434 Curry Student Center

617.373.2663

www.northeastern.edu/curry

This campus “living room” serves as a hub of student activity. It is the crossroads of community life at Northeastern, offering cultural, social, and recreational programs and services.

The center offers ATM machines, an art gallery, the afterHOURS late-night club, food court and cafeteria, game room, lounge space, meeting rooms, Starbucks Coffee, student organization offices, TTY machines, a TV viewing area, and WRBB-FM.

Student center facilities may be reserved by recognized student organizations and university departments. The university reserves the right to limit the use of its facilities when the general public is involved.

To share your ideas about the Curry Student Center or participate in its governance, contact the Student Center Governing Board at 617.373.2663.

College Expenses

TUITION AND FEES

Tuition

Graduate Program	Cost per Credit Hour
Applied Behavior Analysis	\$ 886
Arts, Media and Design	1,220
Audiology (AuD) (per term)	10,500
Audiology (AuD) clinical	7,800
Bioinformatics	1,245
Bouvé College of Health Sciences	1,210
Business Administration, including online graduate programs	1,385
College of Professional Studies— Doctorate in Education	641
College of Professional Studies— Graduate on campus and online (excluding MEd and MAT)	572
College of Professional Studies—MEd and MAT quarter programs	626
Computer and Information Science	1,310
Engineering	1,315
Executive MBA (full program)	92,035
Health Informatics	1,080
High-Tech MBA	1,473
Marine Biology	1,080
MS in Accounting	1,385
MS/MBA (full program)	59,318
Nurse Anesthetist clinical (in addition to tuition)	3,055
Nursing, direct entry (per term)	14,640
Physical Therapy—postbaccalaureate direct entry (DPT) (per semester)	13,940
Physical Therapy—postbaccalaureate direct entry (DPT) clinical (per semester)	9,685
Physician Assistant (per term)	10,745
RN to BSN online	675
School of Technological Entrepreneurship	1,385
Science	1,220
Social Sciences and Humanities	1,220
Dissertation (flat rate)	Equivalent to 1.5 times the college per-credit-hour rate listed above
Master's or doctoral continuation fee (flat rate)	Equivalent to the college per-credit-hour rate listed above

Fees

Item	Fee
Student center fee	\$ 70 full-time
(per term, Boston campus only)	10 part-time
College of Professional Studies student center fee	8.25
(per quarter, Boston campus only)	
Student recreation fee (per term)	46 full-time
	15 part-time
College of Professional Studies student recreation fee	10
(per quarter, Boston campus only)	
Student activities fee	13
(per year, Boston campus only)	
Health and counseling fee	225
Health plan fee	2,159
(yearly, optional)	
Parking	Visit the parking website: www.northeastern.edu/ parking/fees
(optional, per semester)	
International student fee	250

STUDENT REFUNDS

Refund Policies

Inquiries about credit balances should be directed to Student Accounts. Credit balances will be refunded to the student unless otherwise directed by the student or the bill payer.

Please note the following exception:

- Payment plans—Credit balances created from overpayment to the monthly payment plan will be refunded to the bill payer on record unless a letter of authorization, stating that funds may be released directly to the student, is received from that borrower.

Official Withdrawal Adjustments

Students who officially withdraw, either from a course or from the university, during an academic term will receive a tuition refund based on the policy specified in this catalog. Institutional funds awarded by Northeastern University will be adjusted based on the actual charges incurred during the semester. Funds from federal Title IV programs will be returned to the government according to federal regulations. The federal government return-of-funds policy dictates that a student's eligibility for federal financial aid is determined by the number of days enrolled during the semester. The refund will be calculated from the day the student submits a notification of withdrawal to the registrar's office.

Tuition credits are granted through the first five weeks of a semester or first four weeks of a half-semester, based on the date of the official withdrawal processed by the registrar's office. Nonattendance does not constitute official withdrawal. Credit policies vary according to the duration of the course. Typical tuition adjustments are made according to the following schedule. (The first week ends on the Friday following the first day of classes.)

DURING FULL SEMESTER

During weeks one through three—100% refund
 During the fourth week—60% refund
 During the fifth week—40% refund
 After the fifth week—no refund

SUMMER HALF SEMESTERS AND COURSES OFFERED IN PART-OF-TERM FORMAT

During weeks one through two—100% refund
 During the third week—50% refund
 During the fourth week—25% refund
 After the fourth week—no refund

Medical Leave Tuition and Fee Adjustments

Medical and nonmedical leaves are granted when a student cannot complete the current academic period for health or personal reasons but is confident that he or she will reenroll within six months. Northeastern's medical and nonmedical leave policy states that all tuition paid for such periods of leave will be held by the university and applied to future charges. Outstanding balances (including unpaid balances) for the academic semester in which leave is taken are still due the university during that semester. Financial aid recipients should contact the graduate financial aid office to understand the effects on aid received. Medical leave information is available at www.northeastern.edu/uhrs/access/medical_leave.html. Students who take leaves should be aware that more than six months on leave will cause many student loans to go into repayment.

Disability Resource Center Tuition Adjustments

Students who are registered with Northeastern's Disability Resource Center (DRC) and are approved for reduced course loads may be eligible to petition the center for tuition adjustments directly related to their documented disability. Students who take leaves should be aware that more than six months on leave will cause many student loans to go into repayment. Further information is available from the DRC.

FINANCIAL AID ASSISTANCE

Student Financial Services

354 Richards Hall
 617.373.5899
 617.373.2897 (College of Professional Studies)
 617.373.5714 (TTY)
sfs@neu.edu
www.northeastern.edu/financialaid

Northeastern University is eager to assist students in developing a plan for financing a Northeastern education. Through a variety of options—federal financial aid, Northeastern's monthly payment plan, supplemental loans, and your own resources—a plan can be designed that will make your education costs affordable. Visit the Office of Student Financial Services on the Web at www.northeastern.edu/financialaid or call 617.373.5899 for additional information.

Federal Financial Aid

For many students, financial aid is a major element in making Northeastern University affordable. The Office of Student Financial Services is committed to working with you to identify federal financial aid options that can help make a Northeastern education affordable. To take advantage of federal financial aid programs, students must submit the Free Application for Federal Student Aid (FAFSA) form. Meeting priority filing dates will allow the review of your eligibility for all available financial aid programs. The priority deadline for graduate students is March 1. For information regarding your financial aid application, please visit the myNEU Web Portal (www.myneu.neu.edu), click on the "Self-Service" tab, and select "My Financial Aid Status."

Students in the graduate colleges must meet the following criteria to be eligible for federal financial aid:

- Be enrolled in at least 6 semester hours per term for federal financial aid, unless you are on a co-op, clinical rotation, or residency or are enrolled in a full-time stand-alone course listed on www.northeastern.edu/registrar/ref-udc-fulltime.pdf
Note: Although some programs may consider students enrolled in 4 credits to have half-time status, in order to qualify for federal financial aid, students must be enrolled in a minimum of 6 credits.
- Be citizens or eligible noncitizens of the United States
- Be matriculated in a degree-granting program
- Have received high school diploma or GED
- Be registered with Selective Service if required
- Not be convicted of a drug-related crime in the last year
- Not be in default from previous student loans
- Maintain satisfactory academic progress

How to Apply

File the FAFSA by March 1 in order to be considered for all available federal aid. Northeastern's FAFSA school code is 002199.

You will need your Department of Education PIN to electronically sign your FAFSA online. If you do not have one or have forgotten your PIN, go to PIN.ed.gov to obtain one before starting the FAFSA online.

Awarding Timelines

New students are awarded on an ongoing basis throughout the spring after we have been notified that they have been accepted into their program.

Returning students who have met the March 1 priority filing deadline are awarded throughout the summer.

Typical Graduate Financial Aid Award

Students who file FAFSA will be eligible to receive up to \$20,500 in a Federal Unsubsidized Stafford Loan, assuming that all eligibility requirements have been met.

For more information about Stafford loans, please visit www.northeastern.edu/financialaid/loans/stafford.html.

Graduate Assistantships and Scholarships

These positions and awards are offered directly by the individual graduate schools or academic departments. Students seeking such assistance should contact their graduate school for eligibility criteria.

To review a description of available graduate assistantships and scholarships, please visit www.northeastern.edu/financialaid/grants-scholarships/graduate.html.

Federal Perkins Loans, Health Professions Student Loans, and Nursing Student Loans

These federal loan programs carry a 5 percent interest rate during repayment. You must demonstrate financial need and meet Northeastern's priority filing date for consideration, as funds are limited. Northeastern serves as the lender, and the loan is made with government funds. Repayment is made to Northeastern. For Perkins and nursing loans, there is a 9-month grace period prior to repayment following graduation, withdrawal, or a drop below half-time status. The grace period is 12 months for Health Professions Student Loans. Repayment on the loan is for a period of up to 10 years with a minimum \$40 monthly payment. The loan may be prepaid at any time without penalty.

To be eligible for the Health Professions Loan Program, applicants must be enrolled full-time in the School of Pharmacy in the Bouvé College of Health Sciences. To be eligible for the Federal Nursing Student Loan, applicants must be enrolled full-time in the School of Nursing in the Bouvé College of Health Sciences.

Physician Assistant Loan

The Physician Assistant Loan is awarded to full-time students in the graduate Physician Assistant program who demonstrate financial need after filing the Free Application for Federal Student Aid (FAFSA). The interest rate is fixed at 7 percent. Northeastern University is the lender, and repayment is made directly to Northeastern. The loan amounts range from \$1,000 to \$3,000, depending upon the student's financial need. Repayment begins one month after the student ceases to be enrolled full-time at Northeastern University.

Federal Direct Graduate PLUS Loan

Unlike Federal Direct Stafford Loans, the Federal Direct Graduate PLUS Loan requires credit approval by the direct loan servicer. Application requests are submitted to Student Financial Services. Students have up to 25 years to repay the grad PLUS loan. The grad PLUS loan can be consolidated with federal Stafford and Perkins loans upon graduation.

Grad PLUS loans do not have a grace period. Repayment begins after a student is no longer enrolled at least half-time. Students who drop below half-time status then reenroll above half-time status will need to request their loans be deferred again through their assigned direct loan servicer.

Graduate students with myNEU access can apply for a graduate PLUS loan through the student portal by clicking on the "Federal Graduate PLUS Loan Application" link under the "Self-Services" tab. Students that do not have portal access or have trouble applying via the portal should download, print, and complete the paper application that can be found at: www.northeastern.edu/financialaid/loans/plus.html#plusgrad.

Supplemental Student Loans

There are a number of attractive educational loan programs available to assist students in covering their expenses over and above any federal financial aid that may be awarded to them from Student Financial Services. Most private lenders have credit and income requirements that must be met before being approved for these programs. Additional information regarding private loans is available at www.northeastern.edu/financialaid/loans/supplemental.html. Student Financial Services recommends to students that, when researching the loan and lender that best meets their needs, they make sure they take into consideration the interest rate, origination, disbursement, or repayment fees and the quality of customer service.

General Financial Policies and Procedures

FINANCIAL AID POLICIES

Student Financial Services reserves the right to adjust a student's initial offer of assistance based upon information brought to the office's attention subsequent to extension of the offer, including things such as outside scholarships or revised family financial data.

APPEAL/CHANGE IN CIRCUMSTANCES

If the student feels that the aid process does not accurately reflect his or her situation, or if family circumstances change during the year, the student should notify his or her graduate student financial services counselor for further evaluation. We may request additional documentation from you that might indicate a change in financial circumstances.

CHANGE IN ENROLLMENT STATUS

Students must notify Student Financial Services about any change in planned period of enrollment, whether due to withdrawal from a class, a leave of absence, a change in co-op or academic division, or withdrawal from the university. Students should be aware that any change in enrollment status may result in a change in federal or institutional aid eligibility. It is the student's responsibility to notify Student Financial Services about any change in enrollment status and to ensure understanding of the ramifications of such changes. It is highly recommended that whenever possible, students discuss the impact of such changes with their financial aid counselor before making them.

OUTSIDE SOURCES OF AID

Students must notify Student Financial Services of any aid received from outside sources, such as scholarships. Receipt of outside sources of financial aid may require that financial aid offered by Northeastern needs to be adjusted.

REAPPLICATION PROCESS

Students must reapply for financial aid each year by filing the FAFSA. To receive priority consideration for aid, the federal processor must receive the FAFSA by March 1. There are two ways to file the FAFSA:

- Online at www.fafsa.ed.gov.
- By mail. Complete the FAFSA renewal form mailed by the processor each January. It is suggested that the FAFSA be mailed by February 15 to ensure timely delivery.

Students should not wait to file an income tax return before completing the FAFSA but use estimated information.

SATISFACTORY ACADEMIC PROGRESS

To continue receiving financial aid, graduate students need to maintain the academic requirements for satisfactory progress set forth by their college. Please refer to www.northeastern.edu/financialaid/policies/sap.html for more information about how satisfactory progress affects financial aid.

VERIFICATION

If a student is selected for verification, the Student Financial Services office is required to collect tax returns and other financial documents to verify the information provided on the FAFSA. Aid cannot be disbursed until this process is completed.

BILL PAYMENT

Student Accounts

354 Richards Hall
617.373.2270
617.373.8222 (fax)
617.373.3881 (TTY)

The Student Accounts office assists students and their families in managing their tuition accounts along with the ancillary charges that are a part of student life on campus. Full payment of tuition, residence hall charges, and related fees is due before the start of each semester. The Student Accounts office answers questions about underload and overload charges, the billing process, late fees, payment methods, and itemized charges.

In addition to assisting students and families with managing their tuition accounts, Student Accounts also manages:

- University health insurance plan. Massachusetts state law requires that Northeastern bill all full-time students for health coverage and allow students to waive this plan if they can demonstrate that they have comparable coverage. Student Accounts provides information about this program through its website. Students can waive this cost online via the myNEU portal.
- Monthly payment plan options, which are available to students and their families to help spread the cost of anticipated tuition and fees over the course of several months. Student Accounts provides information about the options available, enrollment fees, benefits, and how the sign-up process is initiated. More information about these plans is available at www.tuitionpay.salliemae.com/northeastern.

Payment of Tuition

Full payment of tuition, residence hall fees, and other related charges is due before the start of each semester. Accepted methods of payment are:

- Check or money order, payable to Northeastern University.
- Funds wired directly to the university's bank. Reference: Northeastern University, student's name, and student account number (NUID). If needed, the SWIFT# is BOFAUS3N. Please verify with your bank if they assess wire processing fees and adjust your wire payment accordingly.
- Through the monthly payment plan. Call 800.635.0120 or visit www.tuitionpay.salliemae.com/northeastern.
- Supplemental loans. Review options at www.northeastern.edu/financialaid.

Bills must be paid promptly. If a bill has not been received by the first week of the semester, please contact Student Accounts. Transcripts and other academic records will not be released until all financial obligations to the university have been met.

Discrepancies in Your Bill

Discrepancies in your bill should be addressed in writing to Student Financial Services, Student Accounts. Include your name, account number, dollar amount in question, date of invoice, and any other information you believe is relevant. Address correspondence to Student Financial Services, Student Accounts, 354 Richards Hall, 360 Huntington Avenue, Boston, MA 02115, or email studentaccounts@neu.edu. If there is a billing problem, pay the undisputed part of the bill to avoid responsibility for any late fees.

Late Fees

In cases where students default on financial obligations, the student is liable for the outstanding balance, collection costs, and any legal fees incurred by the university during the collection process.

Tuition Paid Directly by Employers

In those situations where the tuition is paid directly to the university by a third party, the student must provide Student Accounts with a purchase order or a written statement of intent to pay by the third party. If there are stipulations associated with the payment agreement, such as a minimum grade level, then the student must either pay the university directly or enroll in one of the payment options.

Tuition Reimbursement

Many companies, embassies, and agencies directly reimburse students for their educational expenses upon successful completion of courses. In these situations, the student is responsible for paying the bill at the beginning of the semester or selecting another payment option. Tuition may not be left unpaid pending reimbursement by a third party.

Tuition and Fees and Default Policy

Tuition rates, all fees, rules and regulations, and courses and course content are subject to revision by the president and the Board of Trustees at any time. In cases where the student defaults on his or her tuition, the student shall be liable for the outstanding tuition and all reasonable associated collection costs incurred by the university, including attorneys' fees.

Mandatory Student Health Insurance

Since September 1989, Massachusetts law (M.G.L. c.15A, § 18) has required every full-time and part-time student enrolled in a certificate, diploma, or degree-granting program in a Massachusetts institution of higher learning to participate in a Student Health Program or in a health benefit plan with

comparable coverage. The Student Health Program defines a part-time student as a student enrolled in at least 75 percent of the full-time curriculum. (CPS graduate students—seven credits, part-time graduate students—six credits).

Students who are covered under a comparable hospital insurance plan may waive the Health Services fee. To waive, visit www.myneu.neu.edu.

Academic Policies and Procedures

GRADUATE SCHOOLS ACADEMIC POLICIES

Please note that this information applies to both undergraduate and graduate students. Not all of the policies and procedures apply to both types of students. *Note:* International students must consult with International Student and Scholar Institute (ISSI) advisors concerning any of the following items in order to maintain compliance with Student and Exchange Visitor Information System (SEVIS) regulations and institutional policy. It is best to set up an appointment to discuss individual cases and learn about appropriate procedures to follow. Find ISSI contact information at www.northeastern.edu/issi.

Attendance Requirements

The university expects students to meet attendance requirements in all courses to qualify for credit. Attendance requirements vary; it is the student's responsibility to ascertain what each instructor requires.

Failure to meet attendance requirements may force a student to drop the course, as recommended by the instructor and the college.

Permission to make up work may be granted by instructors for reasonable cause. Requests must be made immediately upon a student's return to class.

Absence Because of Student Activities

If students must miss classes to participate in athletic contests or other forms of scheduled intercollegiate activity, they are entitled to makeup privileges. Faculty members may require a written statement from the administrator in charge of the activity.

Absence Because of Illness

A student who is absent from school for an extended period of time must inform his or her college by email from an official university email account or by telephone.

Absence Because of Religious Beliefs

The university maintains the following guidelines regarding student absences because of religious beliefs:

Any student who is unable, because of his/her religious beliefs, to attend classes or to participate in any examination, study, or work requirement shall be provided with an opportunity to make up such examination, study, or work requirement that he/she may have missed because of such absence on any particular day; provided, however, that such makeup examination or work shall not create an unreasonable burden upon such school. No fees of any kind shall be

charged by the institution for making available to the said student such opportunity. No adverse or prejudicial effects shall result to any student because of availing himself/herself of the provisions of this section. (Massachusetts General Laws, Chapter 151C, Section 2B, 1985)

Absence Because of Jury Duty

Members of the university community are expected to fulfill their obligations to serve on a jury if called upon.

A student selected for jury duty should inform his or her instructors and/or activity advisors. They will provide a reasonable substitute or compensatory opportunities for any required work missed. Absence will not be penalized in any way.

University Leave of Absence Policies

GENERAL LEAVE OF ABSENCE POLICY

Students who wish to take a leave of absence are encouraged to apply for the leave by filing the proper petition with their college one month prior to the start of the semester during which they plan to take the leave. The usual limit for a leave of absence is one and one-half academic semesters (a semester plus a half semester). International students must contact the ISSI (www.northeastern.edu/issi) regarding specific leave of absence procedures. A leave of absence, if approved, will take into account the following conditions:

- Students who do not return at the end of the leave will be withdrawn and must submit a petition for subsequent readmission to the program.
- Students must return to classes, not cooperative education (co-op).
- Students must be currently enrolled in academic courses or co-op. If a student is withdrawn for any reason, a request for a leave of absence cannot be considered until the withdrawal is resolved.
- Students who receive financial aid should meet with a financial aid counselor before going on a leave.
- Students in university housing should refer to Housing Services for policy information.
- Students' enrollment status cannot include more than one academic year of consecutive nonclass enrollments.
- After the eleventh week of the semester, a student may apply for a leave of absence only for medical reasons or due to military deployment.
- Students who take leaves should be aware that more than six months on leave will cause many student loans to go into repayment. Students should see their financial aid counselor for more information on how their loans may be affected by a leave of absence.

RETURNING FROM A LEAVE OF ABSENCE

Students returning from an approved leave of absence may be required to submit to their college's student services office a notification of intent to return. It should be submitted no later than one month prior to the start of the semester in which they intend to return. Students are required to preregister for courses upon returning from a leave of absence. Students who are withdrawn and are applying for Commencement may be reentered on a leave of absence, pending the college's approval, prior to the semester in which they will graduate. International students returning from a leave of absence should contact the ISSI regarding SEVIS procedures three to four months prior to anticipated return time.

EMERGENCY LEAVE OF ABSENCE

Emergency leaves may be granted when a student cannot continue attending class after the start of the term but is confident that he or she will reenroll at the university in a future term. International students must contact the International Student and Scholar Institute (ISSI). The university's emergency leave policy states that all tuition charged for the term in which the leave has been granted will be held by the university and applied toward future tuition charges in the same academic program. This would not apply if the leave of absence extends more than six months. Outstanding balances (including unpaid balances) for the academic term in which the leave is taken are still due the university. Tuition adjustments are made depending on the timing of the emergency leave. The adjustments would follow the same schedule as the official withdrawal adjustments. See page 13 for the schedule for refunds for complete withdrawal from the university. Financial aid recipients must contact their financial aid counselor to understand the effects on aid received. Emergency leave petitions are reviewed by the We Care team.

LEAVE OF ABSENCE DUE TO MILITARY DEPLOYMENT

When a student in the Reserves or in the National Guard is called to active duty, the student must notify his or her college dean's office and provide proof of deployment prior to being deployed. The proof may be faxed, mailed, or hand-carried to the college dean's office. It may take the form of general orders cut by the company commander.

When a student is activated during the term, the university will:

- Excuse tuition for that term. Any payment made will be credited to the student's account.
- Place a W placed on the student's transcript for each class enrollment.

If a student is called to active duty near the end of the term, the student and faculty members may determine that incomplete (I) grades are more appropriate. In this case, tuition will not be waived.

When a student returns to the university after completion of a tour of duty, he or she will notify the college dean's office. The college dean's office will assist the student with registration.

EMERGENCY LEAVES OF ABSENCE

When a student is diagnosed with a major medical illness or injury, psychiatric illness, or has a family emergency after the start of the term that significantly interferes with his or her ability to attend classes and complete requirements, the student may consider an emergency leave of absence. For possible financial implications of *any* emergency leave, please see "Medical or Emergency Leave of Absence" below. Additionally, international students should also consult with the International Student and Scholar Institute for possible impact on their student status.

MEDICAL OR EMERGENCY LEAVE OF ABSENCE

Medical leave is an option available to those Northeastern students who develop a major medical condition that precludes class attendance, completion of requirements, and/or co-op. Medical leave petitions must be initiated at University Health and Counseling Services (UHCS). Students are not allowed to take courses for credit toward their degree at Northeastern while on medical leave of absence. Students can petition their college for an exception to take courses elsewhere based on extenuating circumstances.

Students who wish to reenter the university following a medical leave must contact University Health and Counseling Services (UHCS). Reentry from a medical leave requires receipt of all documentation delivered to UHCS on or around one month prior to the planned reentry to classes. Once all documentation is received by UHCS, it will be reviewed and the student will be notified of the decision. Students must attend classes on the Northeastern campus for the semester they wish to return from medical leave of absence.

More specific information about the medical leave and reentry process, along with the application for leave, can be found at www.northeastern.edu/uahcs/access.

Emergency leaves may be granted when a student cannot continue attending class after the start of the term due to life-changing situations beyond the student's control. Petitions for non-medical leaves of absence can be located in the "forms for all students" section on the Registrar's website at: www.northeastern.edu/registrar/forms.html.

The university's medical leave of absence and emergency leave policy states that all tuition charged for the term in which the leave has been granted will be held by the university and applied toward future tuition charges in the same academic program. Outstanding balances (including unpaid balances) for the academic term in which the leave is taken are still due the university. Tuition adjustments are made depending on the timing of the leave. The adjustments would follow the same schedule as the official withdrawal adjustments. See page 13 for the schedule for "Official Withdrawal Adjustments." Financial aid recipients must contact their financial aid counselor to understand the effects on aid received.

If the leave extends more than six months, student loans may go into repayment. Students enrolled in the Northeastern University Student Health Plan (NUSHP) will remain enrolled in the plan for the plan year, ending August 31.

Emergency leave petitions are available in college academic student services offices and specify the conditions and procedures under which such leaves may be granted.

MEDICAL WITHDRAWAL

Permanent departure from the university due to the diagnosis of a major medical illness or injury, or psychiatric illness, necessitates a petition for medical withdrawal. The procedure follows that for the MLOA.

University Withdrawal

Students seeking to withdraw from the university for any reason should contact the student services office of their college.

Students may be withdrawn from the university for financial, disciplinary, academic, or health reasons. In the last case, a committee will review the recommendations of the director of health services to determine whether the student should withdraw. The student has an opportunity to present his or her case to the committee. Withdrawals are made only when it is determined that the student is a danger to himself or herself, or to other members of the university community, or when the student has demonstrated behavior detrimental to the educational mission of the university. International students must contact the ISSI regarding any compliance issues implications deriving from university withdrawal.

ACADEMIC CALENDARS

The graduate schools' programs are offered on a semester calendar consisting of 15 weeks. The College of Professional Studies graduate programs are offered on a quarter calendar consisting of 12 weeks.

QUARTER PROGRAMS

For student records that include quarter hours, the approved semester-hour conversion rate is (quarter hours) \times 0.750. For example, a 4-credit quarter course is equivalent to a 3-credit semester course.

SEMESTER PROGRAMS

Traditional semester hours apply.

STUDENT RECORDS AND TRANSCRIPTS

Full-Time Status

Note: Full-time status may be defined differently for federal loan purposes.

A graduate student is considered a full-time student if enrolled in a minimum of 8 semester hours of credit for the semester with the following considerations:

- Students who hold stipended graduate assistantships will be considered full-time if enrolled for a minimum of 6 semester hours of credit.
- Students for whom English is a second language, at the discretion of their departments, will be considered full-time if they are enrolled in a minimum of 8 semester hours or three courses, whichever is less.
- Students holding Dean's scholarships, Diversity fellowships, Double Husky awards, or being supported by Graduate Student Scholarships (GSSs) will be considered full-time if they are enrolled in a minimum of 8 semester hours.
- Students enrolled in Dissertation or Continuation are considered full-time.
- International students enrolled in graduate programs at Northeastern University must consult with the International Student and Scholar Institute on all matters regarding the maintenance of full-time status.

Overload Conditions for Graduate Assistants

Graduate assistants are expected to devote full-time effort to their studies and the duties of their award.

They are not permitted to hold any other job during the term of their assistantship; however, they may be offered limited extra work on campus. Graduate assistants who are not on F-1 or J-1 visas can be offered overload work that does not exceed an average of 6 hours a week or 90 hours a semester, for a total of 270 hours a year (or three semesters). As part of this work, graduate assistants may be hired to teach one 3-semester-hour course as an overload during the year (180 hours). The hours worked during the weeks between semesters are included in this total.

The International Student and Scholar Institute (ISSI) issues and verifies on-campus work authorization to eligible students in nonimmigrant visa classifications. Due to federal regulations, international graduate assistants cannot be offered overload work. All international students must acquire the appropriate work authorization from the ISSI, 405 Ell Hall, prior to engaging each and every time in any form of employment.

Grading System

Grades are officially recorded by letters, evaluated as follows.

Letter Grade	Numerical Equivalent	Explanation
A	4.000	Outstanding achievement
A–	3.667	
B+	3.333	
B	3.000	
B–	2.667	
C+	2.333	Good achievement
C	2.000	
C–	1.667	
F	0.000	Failure
I		Incomplete
IP		In progress
NE		Not enrolled
NG		Grade not reported by faculty
S		Satisfactory (pass/fail basis; counts toward total degree requirements)
U		Unsatisfactory (pass/fail basis)
X		Incomplete (pass/fail basis)
L		Audit (no credit given)
T		Transfer
W		Course withdrawal

An I, IP, or X grade shows that the student has not completed the course requirements.

Note: In the CPS, the incomplete, or I, grade may be given only when the student was approved to make up a single key requirement of a course, such as a paper or major report. The student and instructor must complete an Incomplete-Grade Contract (www.northeastern.edu/registrar/form-inc-grade.pdf) before the end of the course. The completed contract should be sent to the Office of Academic and Student Support Services for the signature from the Office of the Dean: 50 Nightingale Hall; fax 617.373.5545; email cpsadviser@neu.edu. The university has a one-year-limit policy to make up incomplete grades. Students have access to their online course materials in Blackboard for up to one year.

The IP grade is intended for courses that extend over several semesters. The time restrictions on the incomplete grade do not apply to the IP grade. While the IP grade is left unchanged, it is not included in computing the GPA. If the IP grade is never changed, the course does not count toward graduation requirements.

Pass/Fail System

The individual schools and colleges state how and when the pass/fail system may be used.

Clearing an Incomplete or Changing Other Grades

An incomplete grade may be reported by the instructor when a student has failed to complete a major component of a required course, such as homework, a quiz or final examination, a term paper, or a laboratory project. Students can make up an incomplete grade by satisfying the requirements of the instructor or, if the instructor is absent, the chair of the department. Be aware that instructors' policies on the granting of incomplete grades may vary and that the final decision on an incomplete grade is up to the instructor. The period for clearing an incomplete grade and for changing a grade other than an incomplete or failure (F or U) is restricted to one calendar year from the date it is first recorded on the student's permanent record.

To clear an incomplete grade, a student must obtain an Incomplete-Grade Contract (www.northeastern.edu/registrar/form-inc-grade.pdf) on which the precise agreement for clearing an incomplete grade is specified and that is signed by the student and the instructor. The student must make an appointment with the instructor to arrange for clearing the incomplete grade. He or she must then complete the form, sign the agreement, and obtain the instructor's signature; leave a copy with the instructor, take one copy to the college academic student services office, and retain a copy as a personal receipt. Any exception to this policy on change of grades must be recommended by the Academic Standing Committee (ASC) of the college in which the course was offered and must be forwarded in writing by the ASC to the registrar for implementation. (Finishing the agreed-upon course work must be completed within one calendar year from the end of the semester in which the course was offered.)

Commencing with grades given in the fall of 1986, the university policy is that any grade outstanding for twelve or more months cannot be changed.

Any exception to this policy on change of grades must be recommended by the ASC of the college in which the course was offered and must be forwarded in writing by the dean to the registrar for implementation.

Repeating Courses

When the appropriate course is available, courses may be repeated in order to earn a better grade. In all cases, the most recent grade earned in a course is the one used in calculating the overall GPA; however, previous grades remain on the transcript followed by the word "Repeat." Consult your academic advisor before repeating a course. Students are required to pay normal tuition charges for all repeated course work.

Substituting Courses

In some cases, it may not be possible to repeat a course if a student wishes to do so. In certain, unusual circumstances, students may petition to substitute one course for another they have already taken, as long as the subject matter of both courses is substantially alike. With the approval of the student's academic advisor and the agreement of the department that offered the first course taken, a grade received in the new course will be labeled "Substitute" on

the transcript and will be treated in the grade-point-average calculation as a “repeat” grade, as described above. The original grade will remain on the student’s Northeastern transcript. Consult your academic advisor before enrolling in any proposed substitute course. Students are required to pay normal tuition charges for all substitute course work.

Audit Policy

Graduate students may, with permission, audit one class per term with no additional charge. Students are permitted to petition from the end of the course-add period to the end of the third week of classes. Permission is based on the availability of a seat in the class and is at the discretion of the instructor and college.

Students must obtain advisor approval and meet the prerequisites and any other required approvals for the class. Instructor permission as well as approval by the associate dean of the college offering the course is required. The course work required is at the discretion of the instructor. Once a student opts to audit a course, the audit status of the course cannot be changed. First-year students may not audit classes. A signed Petition to Audit must be presented to the Office of the Registrar during the designated audit-add period. Excluded courses are co-op, labs, language courses, any off-campus course, any online course, and any course required for the major or degree. Audits carry no academic credit.

Clearing an Academic Deficiency

An academic deficiency occurs when a student fails to complete a course with a satisfactory grade. The deficiency may occur because the student has failed the course or because the student has passed the course but with a grade that does not meet the minimum required by the student’s program.

Students who have academic deficiencies may be required to clear them before progressing within the curriculum, especially if the course work is a prerequisite for future course work. Deficiencies can affect the student’s expected year of graduation.

With the approval of the appropriate program faculty and/or academic advisor, students can clear deficiencies in the following ways:

1. Repeat the same course at one of Northeastern’s colleges, which will result in a “repeat” grade (see “Repeating Courses” policy above).
2. Substitute a comparable course at one of Northeastern’s colleges, which will result in a “repeat” grade.

Appeal of Final Grades

Under certain circumstances, students have the right to appeal final grades given by either academic faculty or cooperative education coordinators. Criteria and procedures can be found on page 25.

GPA

Numerical equivalents for scholastic averages are weighted according to the number of hours the course carries. For example, suppose a student receives a grade of B in a course carrying 4 semester hours and a grade of A in a course carrying 1 semester hour. The weightings for these example courses are as follows:

Grade	Numerical Equivalent	Semester Hours	Weight
B	3.000	4	12
A	4.000	<u>1</u>	<u>4</u>
Totals:		5	16

The GPA for both courses would then be the total weight (16) divided by the total semester hours (5), or 3.200. Grades of I, IP, S, U, and X are not included in the calculation of the GPA. Please see page 21 for a complete list of grades and numerical equivalents.

Minimum Cumulative Grade-Point Average

Grades submitted to satisfy, in whole or in part, the requirements for any graduate degree or certificate of advanced study must yield a cumulative grade-point average of 3.000 or higher. This requirement may be supplemented by additional restrictions established by the graduate program or the college’s graduate office such as, but not limited to, the maximum number of individual courses with grades below 3.000 that may be obtained without being required to withdraw or a minimum grade-point average in each semester.

Students falling below 3.000 are placed on academic probation. If the student remains on academic probation for two semesters, he or she may be terminated from the graduate program.

Not more than two courses or 6 semester hours of credit, whichever is greater, may be repeated to satisfy the requirements for the degree. The last grade earned in each of these repeated courses is counted in the calculation of the cumulative grade-point average.

Any incomplete grades must be made up within one calendar year from the semester in which the student took the class that resulted in the incomplete course grade.

More information regarding course grading and academic disputes may be found at “Academic Appeals” under “Appeals Policies and Procedures,” page 25.

Grade Reports

Grades are available to students approximately three days after the end of each semester via the myNEU Web Portal (www.myneu.neu.edu). A missing grade means that none was received from the instructor. Grades received late from faculty are processed as they are received.

Transcripts

Currently enrolled students may obtain unofficial transcripts from the myNEU Web Portal (www.myneu.neu.edu) and may also order official transcripts through myNEU. For further information on transcript requests, please visit www.northeastern.edu/registrar/trans_request.html. All questions concerning transcript requests should be directed to 617.373.2199, (TTY) 617.373.5360.

Northeastern University Course Numbering

UNDERGRADUATE

0001–0999	Orientation and basic No degree credit
1000–1999	Introductory level (first year) Survey, foundation, and introductory courses, normally with no prerequisites and designed primarily for students with no prior background
2000–2999	Intermediate level (sophomore/junior year) Normally designed for sophomores and above but in some cases open to freshman majors in the department
3000–3999	Upper-intermediate level (junior year) Designed primarily as courses for juniors; prerequisites are normally required, and these courses are prerequisites for advanced courses
4000–4999	Advanced level (senior year) Designed primarily for juniors and seniors; also includes specialized courses such as research, capstone, and thesis

GRADUATE

0001–0999	Orientation and basic No degree credit
5000–5999	First-level graduate Courses primarily for graduate students and qualified undergraduate students with permission
6000–6999	Second-level graduate Generally for master's and clinical doctorate only
7000–7999	Third-level graduate Master's- and doctoral-level courses; includes master's thesis
8000–8999	Clinical/research/readings Includes comprehensive exam preparation
9000–9999	Doctoral research and dissertation

Maintenance of Student Records

The university registrar is responsible for ensuring appropriate maintenance and safekeeping of student records. The transcript, which is stored electronically and maintained indefinitely, is the holistic record of student attendance and degree progress. In the event that the university discontinues operations, the archive of student records would be maintained by the Massachusetts Department of Higher Education, One Ashburton Place, Room 1401, Boston, MA 02108.

Course Cancellations

Northeastern University reserves the right to cancel any course if minimum enrollments, appropriate faculty, or academic facilities do not meet standards.

GRADUATION REQUIREMENTS

All eligible degree candidates must complete the graduation application by the applicable deadline. Before you apply to graduate through your myNEU account, we recommend you take the time to review your current program information, i.e., degree, major, minor, and concentration. To review this information, log in to your myNEU account; under the “Self-Service” tab click “Student Self-Service.”

FAMILY EDUCATIONAL RIGHTS AND PRIVACY ACT (FERPA)

FERPA for Students—General Information

FERPA is a federal law that applies to educational institutions. Under FERPA, schools must allow students who are 18 years or over or attending a postsecondary institution:

- Access to their education records
- An opportunity to seek to have the records amended (see the student handbook for this procedure)
- Some control over the disclosure of information from the records

FERPA General Guidance for Parental Disclosure

When a student turns 18 years of age or attends a postsecondary institution, the student, and not the parent, may access, seek to amend, and consent to disclosures of his or her education records.

Release of Directory Information

The primary purpose of directory information is to allow Northeastern University to confirm attendance for employers, health insurance companies, and loan agencies. Northeastern may disclose appropriately designated “directory information” without written consent, unless you have advised the university to the contrary in accordance with the procedures below. If you choose not to release directory information, all communications with all third parties and agencies will need to be done through your written request to the university or in person.

Northeastern directory information includes the following:

- College and major
- Dean's List or other recognition lists
- Graduation degree(s) and honors
- Dates of attendance

- Sports activity participation, such as for soccer, showing weight and height of team members
- A playbill, showing your role in a drama or music production

If Northeastern currently has permission to release data and you do not want the university to disclose directory information without your prior written consent, you must notify the university by coming to the Office of the Registrar, 120 Hayden Hall.

Notification of Rights under FERPA

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

1. The right to inspect and review the student's education records within forty-five days of the day the university receives a request for access. Students should submit to the registrar, dean, or head of the academic department (or appropriate official) written requests that identify the record(s) they wish to inspect. The university official will make arrangements for access and notify the student of the time and place where the records may be inspected. If the records are not maintained by the university official to whom the request was submitted, that official shall advise the student of the correct official to whom the request should be addressed.
2. The right to request the amendment of the student's education record that the student believes is inaccurate or misleading. Students may ask the university to amend a record that they believe is inaccurate or misleading. They should write the university official responsible for the record, clearly identify the part of the record they want changed, and specify why it is inaccurate or misleading. If the university decides not to amend the record as requested by the student, the university will notify the student of the decision and advise the student of his or her right to a hearing regarding the request for amendment. Additional information regarding the hearing procedures will be provided to the student when notified of the right to a hearing.
3. The right to consent to disclosures of personally identifiable information contained in the student's education records, except to the extent that FERPA authorizes disclosure without consent. One exception, which permits disclosure without consent, is disclosure to school officials with legitimate educational interest. A school official is defined as a person employed by the university in an administrative, supervisory, academic, or support staff position (including law enforcement unit and health staff); a person or company with whom the university has contracted (such as an attorney, auditor, or collection agent); a person serving on the Board of Trustees; or a person assisting another school official in performing his or her tasks. A school official has a legitimate educational interest if the official needs to review an education record in order to fulfill his or her professional responsibility.
4. The right to file a complaint with the U.S. Department of Education concerning alleged failures by the university to comply with the requirements of FERPA. At Northeastern, the Office of the University Registrar, 120 Hayden Hall, administers FERPA.
5. Information concerning the following items about individual students is public and the offices listed below have the most accurate and up-to-date information:
 - **Office of the Registrar**
(120 Hayden Hall)
Full name, major field of study, dates of attendance, class year, degrees and awards received, most recent previous educational institution attended
 - **Department of Athletics**
(219 Cabot Physical Education Center)
Participation in formally recognized university athletics, weight and height of members of athletic teams
 - **Campus Activities**
(434 Curry Student Center)
Participation in officially recognized university activities and student organizations

Additional Information

Additional information can be obtained at the following website:

www.ed.gov/policy/gen/guid/fpco/ferpa/index.html

or by writing to:

Family Policy Compliance Office
U.S. Department of Education
400 Maryland Avenue, SW
Washington, DC 20202-5920

FERPA and the USA Patriot Act

The USA Patriot Act preempts FERPA, described above. The act provides federal law enforcement agencies access to otherwise confidential student records upon the presentation of specified authority. The act also says that the university cannot notify the individual whose records or information is being sought that the request has been made. All requests for student information made under the authority of the USA Patriot Act are handled by the Office of University Counsel, 115 Churchill Hall.

STUDENT RIGHT-TO-KNOW ACT

For information about the Student Right-to-Know Act, please visit www.northeastern.edu/registrar/right-to-know.html.

APPEALS POLICIES AND PROCEDURES

Graduate Student Appeals Procedures

Northeastern University affirms that it is essential to provide an appeals mechanism to students who believe that they have been erroneously, capriciously, inappropriately, or otherwise unfairly treated.

Academic Appeals

It is the policy of the university that all students shall be treated fairly with respect to evaluations made of their academic performance, standing, and progress. The university presumes that academic judgments by its faculty are fair, consistent, and objective. Students must understand that the substitution of a different academic judgment for that of the original evaluator is a serious intrusion upon teaching prerogatives. Nonetheless, the university believes it is essential to provide an appeals mechanism to students who believe that they were erroneously, capriciously, or otherwise unfairly treated in an academic or cooperative education determination. This includes claims of misinterpretation or inequitable application of any academic provision of the student handbook or *Faculty Handbook*. Issues concerning admission or readmission into a program cannot be appealed beyond the college level.

Before invoking the appeals procedures, students are always encouraged to speak informally to their instructors or academic advisors about any determination or grade about which they have questions. If students choose to pursue an appeal, the process is described in the appeals section that follows.

Scientific or Research Misconduct

Scientific or research misconduct is defined as fabrication, falsification, plagiarism, or other practices that seriously deviate from those that are commonly accepted within the academic and scientific community for proposing, conducting, or reporting research and does not include honest error or honest differences in interpretation or judgments of data. (Further information can be obtained from the U.S. Office of Research Integrity, Department of Health and Human Services, whose website can be found at www.ori.dhhs.gov.) Possible incidences of misconduct are to be reported immediately to the vice provost for graduate education, who will initiate the appropriate procedures. Findings of scientific or research misconduct cannot be appealed through the process below.

Nonacademic Appeals

It is the policy of the university that all students shall be treated with respect and that all evaluations of their employment performance will be fair, consistent, and objective. This includes claims of misinterpretation or inequitable application of any employment provision of the student handbook. The student is always encouraged to speak informally to his or her supervisor

about any determination about which he or she has questions prior to invoking the appeals procedures.

If the student chooses to pursue an appeal, the process is described in the appeals section that follows.

Appeal of Final Grades

It is the policy of the university that all students will be treated fairly in evaluations made of their academic performance, standing, and progress. The university presumes that academic judgments by its faculty are fair, consistent, and objective. Students must understand that the substitution of a different academic judgment for that of the original evaluator is a serious intrusion upon teaching prerogatives. Nonetheless, the university believes it is essential to provide an appeals mechanism to students who believe that they were erroneously, capriciously, or otherwise unfairly treated in an academic or cooperative education determination. This includes claims of misinterpretation or inequitable application of any academic provision of the university's undergraduate or graduate catalog, student handbook, or *Faculty Handbook*. However, graduate student issues involving admission or readmission in a program cannot be appealed beyond the college level.

In most cases, students should first discuss their concerns with the faculty member who taught the course to see if it is possible to reach agreement on the issue(s). If the student is not satisfied with the outcome of this discussion, or if the student is not comfortable discussing the issue with the instructor, the student should request a meeting with the department chair, or a person named by the chair, to attempt a department-level resolution of the appeal. If these informal attempts to resolve the issue fail, the student can enter the formal procedure at the college level as follows.

STEP 1

A student may appeal an academic determination by submitting a written statement (the Statement) that specifies the details of the action or judgment. This Statement should include when the problem occurred, who was involved, the basis of the appeal, and the resolution sought by the student. For students in the College of Professional Studies (CPS), the Statement is submitted to the school official designated by the Vice President for Professional and Continuing Studies. Graduate students (other than CPS) should submit the Statement to the graduate coordinator in the department (where one exists). If there is no department-level coordinator, the appeal should proceed to Step 2. All appeals of grades should be initiated and resolved before the student graduates. If a student wishes to dispute a grade in his or her final term, this must be done within forty-five calendar days of graduation. If the appeal concerns a cooperative education determination, it is submitted to the dean of the college in which the student is enrolled. The Statement must specify the details of the action or judgment and the basis for the appeal. All parties shall cooperate and act expeditiously in processing the appeal to completion.

Though students are always entitled to seek the advice of legal counsel, students may not be represented by a lawyer in the informal or formal academic appeal procedures. A student may consult with the Vice Provost for Graduate Education, Vice President for Professional and Continuing Studies (in the case of CPS students), or their designees at any point in this procedure for advice or assistance. The dean, vice president, or provost may take whatever steps they deem reasonably appropriate to achieve voluntary resolution of the problem at any stage of these procedures.

The Statement should be submitted within twenty-eight working days (or twenty working days [four calendar weeks] for CPS students) of the day when the student learns of the academic determination in question. For course grade appeal in the CPS, the Statement must be submitted within twenty days after grades are posted to the student academic record. Grades are typically available the Tuesday after the term ends and are viewable through the student's myNEU account.

If a student feels that he or she has been the victim of harassment or of discrimination prohibited by law or by university policy, he or she should consult with the Office of Institutional Diversity and Equity as soon as he or she becomes aware of alleged prohibited harassment or discrimination and is not required to wait until a term grade or determination is received before seeking advice or redress. If the Office of Institutional Diversity and Equity is advised of such alleged prohibited conduct as part of an academic appeal (see below), the appeal shall be pursued and investigated first through the Office of Institutional Diversity and Equity. In such cases, the student should submit the appeal to the appropriate dean(s) described in this step, with a copy also given to the Office of Institutional Diversity and Equity. Following a resolution of the sexual harassment/discrimination issues, any remaining academic issues will be addressed, at the request of the student, according to the academic appeals procedures.

STEP 2

The dean or CPS vice president shall respond to the student in writing, including specific instructions for the student to seek an informal resolution to the matter, unless such course of action, as outlined by the student in his or her Statement, is demonstrably futile. These directions shall include discussing the matter with the person whom the student identifies as involved in the matter. If the student is not satisfied with the informal resolution, the dean or CPS vice president shall discuss the matter with the department chairperson (where one exists), graduate coordinator, consultant, program director, or associate dean (as appropriate) or equivalent supervisor and the dean of the college in which the faculty member involved in the matter serves, who shall attempt to effect an informal resolution. The student shall also have the right to discuss the matter with the chair (where one exists) or equivalent supervisor in which department the faculty member involved in the matter serves.

If the appeal involves allegations of prohibited harassment or discrimination, the dean shall consult with the Office of

Institutional Diversity and Equity before making this response and shall, as part of this response, explain the role that the Office of Institutional Diversity and Equity will play in steps 2 and 3 of this procedure.

A copy of this response shall be sent to the department chairperson or equivalent supervisor of the appropriate unit.

STEP 3

If the appeal cannot be resolved informally within thirty calendar days of the student's original submission of his or her Statement to the dean or CPS vice president, or if he or she is not satisfied with the disposition of the matter at Step 2, the student may proceed with the appeal through his or her college's or school's established academic appeals procedure. The dean or the academic standing committee, as applicable, must provide the student and the involved faculty member with a written report of the finding(s) and decision.

This step involves a review by an academic standing committee making the recommendation to the dean or CPS vice president. The student may obtain a copy of the operating rules of the academic standing committee from the dean of the college involved.

In appeals involving allegations of prohibited harassment or discrimination, the dean or academic standing committee shall receive a report of the findings of the investigation of the Office of Institutional Diversity and Equity for incorporation into its own report on matters left unresolved by that finding that were referred to it. The dean/CPS vice president or committee shall be without authority to reverse or modify the Office of Institutional Diversity and Equity finding(s) or resolution.

STEP 4

If the student or the involved faculty member is not satisfied with the dean's or CPS vice president's disposition of the matter or if the appeal is not resolved within thirty calendar days after originally submitted to the dean or CPS vice president pursuant to Step 1, he or she may further pursue the matter by requesting in writing within fourteen calendar days that the university convene an academic appeals resolution committee to review the issue. Students may obtain information on this process in either the Office of the Vice President for Student Affairs (104 Ell) or the Office of the Provost (110 CH). This committee has been designated as the final authority on these matters. This request must be made within fourteen calendar days of the finding of the academic standing committee in Step 3.

1. Academic Appeals Resolution Committee

The academic appeals resolution committee includes:

- The Vice Provost for Graduate Education or a designee.
- The student's faculty advisor will be appointed by the appropriate vice provost except in cases where no specific advisor exists, or where the faculty advisor is involved in the dispute. In those cases, a faculty member from the student's major college, department, or area of specialization will be appointed.

- Two faculty members appointed by the Faculty Senate Agenda Committee (if the appeal is based on a Cooperative Education determination, one of the faculty members shall be a member of the Cooperative Education faculty, but not from the student's area of study) and a representative of the Office of Institutional Diversity and Equity (if the appeal had at any point involved a matter of sexual harassment/discrimination).
- The chair shall be elected from among the committee's three faculty members but cannot be the student's faculty advisor.

2. Preliminary Matters

If the academic appeals resolution committee determines, by a majority vote, that the appeal is patently without substance or merit, it may dismiss the appeal.

3. Investigation

The academic appeals resolution committee shall investigate the matter under appeal as quickly as possible by studying the relevant documents, interviewing the parties (especially the student and the involved faculty member), and taking any other action it deems appropriate. At no time shall the committee be bound by rules of evidence but shall at all times conduct itself in a matter that is not arbitrary or capricious. The academic appeals resolution committee may, but is not required to, hold a hearing prior to resolving the issues. However, in all instances, the student and the involved faculty member shall have the right to appear and testify separately and privately before the academic appeals resolution committee. The student shall have the right to have an advocate from the university community present during his or her testimony to the academic appeals resolutions committee.

4. Authority to Act

The academic appeals resolution committee has been designated as the final authority on these matters. At the conclusion of its investigation, the academic appeals resolution committee shall resolve, by majority vote, the issue by either upholding the finding of the academic standing committee or dean/CPS vice president, in which case no further appeal is available, or granting such relief to the student as the appeals resolution committee deems appropriate.

- a. The academic appeals resolution committee may not determine a resolution that contradicts the prior findings or actions of the Office of Institutional Diversity and Equity with respect to elements of this appeal.
- b. In the event of a tie vote, the action of the academic standing committee or dean/CPS vice president shall be considered upheld.

5. Resolution

All direct parties to the appeal, including but not limited to the student, the CPS vice president or provost, the dean, the department chair or equivalent supervisors, graduate coordinator or equivalent supervisor, and the faculty member shall be promptly informed in writing of the decisions and actions taken (i.e., the Report) during this academic appeals procedure.

6. Report

A written Report of the appeal and its resolution shall be submitted by the chairperson of the academic appeals resolution committee to the student, the involved faculty member, the Faculty Senate Agenda Committee, the vice president for student affairs, the appropriate vice provost, the registrar, and the dean or CPS vice president, as appropriate.

7. Action

The dean(s) or CPS vice president or his or her designee in the involved college(s) shall take whatever action is necessary to implement fully the resolution of the academic appeals resolution committee. This includes reporting the change of grade to the registrar.

8. Appeal

No further appeal can be instituted by the student or the involved faculty member with respect to the issue(s) raised at any level of the formal appeals resolutions procedures once adjudicated.

GENERAL REGULATIONS

Please review the general regulations that follow as well as all other regulations or limitations included throughout this catalog. Your success at Northeastern depends, in part, on understanding your rights and fulfilling your responsibilities.

Legal Rights and Responsibilities

GRIEVANCE PROCEDURE FOR DISABLED STUDENTS

It is the policy of Northeastern University to comply with all laws governing access by and discrimination against disabled students. Accordingly, any student who believes that there has been a violation of these laws is encouraged to discuss the matter with the director of the Disability Resource Center and other persons identified by the director, or with the director of the Office of Institutional Diversity and Equality, to resolve the matter in a prompt and equitable manner. If such discussions do not resolve the matter, the student may then initiate a grievance by taking the steps outlined below.

1. All grievances made by students on the basis of being disabled are considered as being made to the president of the university.
2. In the case of a grievance, the student should discuss the objection with the individual responsible for the office or department where the objection was initially raised.
3. If not satisfied, the student should discuss the objection with the dean of the college or director under which the department falls.
4. If the grievance is not satisfactorily resolved, the student should complete a grievance form and file a written request for a formal hearing with the Grievance Committee for Disabled Students. The request should be filed with the vice president for student affairs. Upon receipt of a written request

for a formal hearing, the grievance committee (including one faculty member from the student's college, one faculty member not from the student's college, one representative from the Disability Resource Center, a representative from the Office of Institutional Diversity and Equality, the vice president for student affairs or a designee, and another administrator not from student affairs) must hold a hearing within three calendar weeks. The grievance committee must allow a full and fair opportunity for the presentation of evidence relevant to the reason(s) for the hearing request and must render a decision in writing to the requesting student within one week of the conclusion of the hearing. The director of the Office of Institutional Diversity and Equality is compliance officer for Section 504 of the Rehabilitation Act of 1973.

GRIEVANCE PROCEDURE—SEXUAL HARASSMENT

No employee, agent, supervisory personnel, or faculty member shall exercise his or her responsibilities or authority in such manner as to make submission to "sexual advances, requests for sexual favors, or other verbal or physical conduct of a sexual nature" as an explicit or implicit term or condition of evaluation, employment, admission, advancement, or reward within the university. Neither shall any employee, agent, supervisory personnel, or faculty member make submission to or rejection of such conduct the basis for employment or academic decisions affecting any employee or student. Neither shall any employee, agent, supervisory personnel, or faculty member conduct himself or herself with respect to verbal or physical behavior of a sexual nature where such conduct has the purpose or effect of unreasonably interfering with an individual's work or academic performance or creating an intimidating, hostile, or offensive work or classroom environment.

Though sexual harassment will not be tolerated, the university recognizes that it is difficult to regulate emotional relationships between consenting adults. However, a consensual relationship may be suspect in instances in which one of the individuals has authority over the other. Therefore, no faculty or employee involved romantically or sexually with a student may teach or supervise that person either individually or as part of a group in any activity connected to the university.

Any student, teaching assistant, employee, or faculty member who feels that he or she has been the victim of sexual harassment may bring the matter to the attention of the director of the Office of Institutional Diversity and Equality. Copies of the sexual harassment grievance procedure can be obtained from the Office of Institutional Diversity and Equality, 424 Columbus Place.

HAZING—CHAPTER 269 OF THE MASSACHUSETTS GENERAL LAWS

Section 17. Whoever is a principal organizer or participant in the crime of hazing, as defined herein, shall be punished by a fine of not more than three thousand dollars or by imprisonment in a house of correction for not more than one year, or both such fine and imprisonment. The term hazing as

used in this section and in sections eighteen and nineteen, shall mean any conduct or method of initiation into any student organization, whether on public or private property, which willfully or recklessly endangers the physical or mental health of any student or other person. Such conduct shall include whipping; beating; branding; forced calisthenics; exposure to weather; forced consumption of any food, liquor, beverage, drug, or other substance; or any other brutal treatment or forced physical activity which is likely to adversely affect the physical health or safety of any such student or other person, or which subjects such student or other person to extreme mental stress, including extended deprivation of sleep or rest or extended isolation. Notwithstanding any other provisions of this section to the contrary, consent shall not be available as a defense to any prosecution under this action.

Section 18. Whoever knows that another person is the victim of hazing as defined in section seventeen and is at the scene of such crime shall, to the extent that such person can do so without danger or peril to himself or others, report such crime to an appropriate law enforcement official as soon as reasonably practicable. Whoever fails to report such crime shall be punished by a fine of not more than one thousand dollars.

Section 19. Each institution of secondary education and each public and private institution of postsecondary education shall issue to every student group, student team, or student organization that is part of such institution or is recognized by the institution or permitted by the institution to use its name and facilities or is known by the institution to exist as an unaffiliated student group, student team, or student organization, a copy of this section and sections seventeen and eighteen; provided, however, that an institution's compliance with the section's requirements that an institution issue copies of this section and sections seventeen and eighteen to unaffiliated student groups, teams, or organizations shall not constitute evidence of the institution's recognition or endorsement of said unaffiliated student groups, teams, or organizations.

Each such group, team, or organization shall distribute a copy of this section and sections seventeen and eighteen to each of its members, plebes, pledges, or applicants for membership. It shall be the duty of each such group, team, or organization, acting through its designated officer, to deliver annually to the institution an attested acknowledgement stating that such group, team, or organization has received a copy of this section and said sections seventeen and eighteen, that each of its members, plebes, pledges, or applicants has received a copy of sections seventeen and eighteen, and that such group, team, or organization understands and agrees to comply with the provisions of this section and sections seventeen and eighteen. Each institution of secondary education and each public or private institution of postsecondary education shall,

at least annually, before or at the start of enrollment, deliver to each person who enrolls as a full-time student in such institution a copy of this section and sections seventeen and eighteen.

Each institution of secondary education and each public or private institution of postsecondary education shall file, at least annually, a report with the regents of higher education and, in the case of secondary institutions, the board of education, certifying that such institution has complied with its responsibility to inform student groups, teams, or organizations and to notify each full-time student enrolled by it of the provisions of this section and sections seventeen and eighteen and also certifying that said institution has adopted a disciplinary policy with regard to the organizers and participants of hazing and that such policy has been set forth with appropriate emphasis in the student handbook or similar means of communicating the institution's policies to its students. The board of regents and, in the case of secondary institutions, the board of education shall promulgate regulations governing the content and frequency of such reports and shall forthwith report to the attorney general any such institution that fails to make such report.

STUDENT RIGHT-TO-KNOW AND CAMPUS SECURITY ACT

In compliance with the Student Right-to-Know and Campus Security Act, information regarding graduation rates may be obtained in the Office of the Registrar, 120 Hayden Hall, and in the Department of Athletics, 219 Cabot Physical Education Center; information regarding safety and security may be obtained in the Office of Admissions and the Public Safety Division, 100 Columbus Place. It is Northeastern University's policy to disclose to an alleged victim of any crime of violence the results of any disciplinary proceeding against the alleged perpetrator of such crime. Further information is available in the Office of Student Conduct and Conflict Resolution, 202 Ell Hall.

USE OF ALCOHOL AND DRUGS

The unlawful manufacture, distribution, dispensation, possession, or use of a controlled substance is prohibited in or on any Northeastern property. Any university employee or student determined to have violated this policy may be subject to disciplinary action up to and including dismissal. The use of alcohol while on Northeastern property is prohibited except where specifically authorized by the university. No employee may report to work while under the influence of alcohol or illegal drugs. Violation of these regulations may be reason to require evaluation/treatment for substance abuse in coordination with the University Center for Counseling and Student Development and/or for disciplinary action up to and including dismissal. Northeastern University works to provide a drug-free workplace for all university employees and students. The Center for Counseling and Student Development provides resources for treatment and referral for students and employees with substance

abuse problems. Educational programs for students, employees, and managers are presented through Human Resources Management, the Office of Residential Life, and the Center for Counseling and Student Development and cover the dangers of alcohol and drug abuse, the availability of assistance for counseling and rehabilitation, and penalties for violating university policies. To comply with federal law, the university requires that employees directly engaged in performance of a grant or contract must notify their employers of any criminal drug statute conviction for a violation occurring in the workplace no later than five days after the conviction. The university must notify any federal contracting agency within ten days of having received notice that an employee engaged in the performance of such contract has had a criminal drug statute conviction for a violation occurring in the workplace. The university will take appropriate action up to and including dismissal and/or require participation in an approved abuse assistance or rehabilitation program.

USE OF WEAPONS

The use or possession on campus of firearms, explosive agents of any kind, as well as chemicals, mace, and tear gas, is specifically forbidden by the Code of Student Conduct. Violation of this university policy is cause for disciplinary action up to and including expulsion. In addition, it is worth noting that Massachusetts law states: "Whoever, not being a law enforcement officer and notwithstanding any license obtained by him under the provisions of chapter one hundred and forty, carries on his person a firearm as hereinafter defined, loaded or unloaded, in any building or on the grounds of any college or university without the written authorization of the board or officer in charge of said college or university shall be punished by a fine of not more than one thousand dollars or by imprisonment for not more than one year or both. For the purpose of this paragraph, 'firearm' shall mean any pistol, revolver, rifle, or smoothbore arm from which a shot, bullet, or pellet can be discharged by whatever means."

Massachusetts general law prohibits the possession of nunchaku or karate sticks; switchblades; knives; starter's pistols; ammunition; leather armbands or other clothing that has metallic spikes, points, or studs; or other dangerous weapons or articles. A student who possesses any articles for sporting purposes (for example, bow and arrows) should check with the University Police Department or the Department of Residential Life to determine whether such articles are among those prohibited by statute or university regulation. Northeastern University also prohibits the possession of knives other than food utensils.

Policies and Procedures

ACADEMIC INTEGRITY POLICY

Essential to the mission of Northeastern University is the commitment to the principles of intellectual honesty and integrity. Academic integrity is important for two reasons. First, independent and original scholarship ensures that students derive the most from their educational experience and the pursuit of knowledge. Second, academic dishonesty violates the most

fundamental values of an intellectual community and depreciates the achievements of the entire university community.

Accordingly, Northeastern University views academic dishonesty as one of the most serious offenses that a student can commit while in college. The following is a broad overview of what constitutes academic dishonesty but is not meant to be an all-encompassing definition.

Cheating

Defined as intentionally using or attempting to use unauthorized materials, information, or study aids in any academic exercise.

Examples:

- Unauthorized use of notes, text, or other aids during an examination
- Copying from another student's examination, research paper, case write-up, lab report, homework, computer disc, and so on
- Talking during an examination
- Handing in the same paper for more than one course without the explicit permission of the instructor
- Perusing a test before it is given
- Hiding notes in a calculator for use during an examination

Fabrication

Defined as intentional and unauthorized falsification, misrepresentation, or invention of any information, data, or citation in an academic exercise. Examples:

- Making up the data for a research paper
- Altering the results of a lab experiment or survey
- Listing a citation for a source not used
- Stating an opinion as a scientifically proven fact

Plagiarism

Defined as intentionally or knowingly representing the words or ideas of another as one's own in any academic exercise without providing proper documentation of source by way of a footnote, endnote, or intertextual note. The following sources demand notation:

- Word-for-word quotation from a source, including another student's work
- Paraphrase: using the ideas of others in your own words
- Unusual or controversial facts—facts not apt to be found in many places
- Interviews, radio and television programs, and telephone conversations

Unauthorized collaboration

This refers to instances when students, each claiming sole authorship, submit separate reports that are substantially similar to one another. While several students may have the same source material (as in case write-ups), the analysis, interpretation, and reporting of the data must be each individual's.

Participation in academically dishonest activities

Examples:

- Stealing an examination
- Purchasing a prewritten paper through a mail-order or other service, including via the Internet
- Selling, loaning, or otherwise distributing materials for the purpose of cheating, plagiarism, or other academically dishonest acts
- Alteration, theft, forgery, or destruction of the academic work of other students, library materials, laboratory materials, or academic records including transcripts, course registration cards, course syllabi, and examination/course grades
- Intentionally missing an examination or assignment deadline to gain an unfair advantage

Facilitating academic dishonesty

Defined as intentionally or knowingly helping or attempting to violate any provision of this policy. Examples:

- Inaccurately listing someone as coauthor of a paper, case write-up, or project who did not contribute
- Sharing with another student a take-home examination, homework assignment, case write-up, lab report, and so on, without expressed permission from the instructor
- Taking an examination or writing a paper for another student

All members of the Northeastern University community—students, faculty, and staff—share the responsibility to bring forward known acts of apparent academic dishonesty. Any member of the academic community who witnesses an act of academic dishonesty should report it to the appropriate faculty member or to the director of the Office of Student Conduct and Conflict Resolution. The charge will be investigated and if sufficient evidence is presented, the case will be referred to the Northeastern University Student Judicial Hearing Board. If found responsible for an academic dishonesty violation, a minimum sanction of deferred suspension will follow. If found responsible for a second violation, the student will be expelled from the university.

APPROPRIATE USE OF COMPUTER AND NETWORK RESOURCES POLICY

The information systems of Northeastern University are intended for the use of authorized members of the Northeastern community in the conduct of their academic and administrative work. To protect the integrity of computer resources against unauthorized or improper use, and to protect authorized users from the effects of unauthorized or improper usage, the university reserves the right, with or without notice, to monitor, record, limit, or restrict any account holder's usage. The university may also monitor, record, inspect, copy, remove, or otherwise alter any data, file, or system resources. The university reserves the right to periodically check these systems and to take any other action necessary to protect the computer and network facilities. The university also retains access rights to all files and electronic mail on its computing and network

facilities. Anyone using these systems or networks expressly consents to such monitoring.

Any unauthorized, inappropriate, illegal, or illegitimate use of the university's computing resources, or failure to comply with these guidelines, shall constitute a violation of university policy and will subject the violator to disciplinary action by the university and may result in legal action. When a violation is identified, the appropriate system manager or unit head will undertake a review and initiate action in accordance with university policy. In addition, the university may require restitution for any use of computer or network services that violate these guidelines. The university may also provide evidence of possible illegal or criminal activity to law enforcement authorities.

Notwithstanding any other provision of this policy, authorization to access the information systems of Northeastern University ends at the termination of employment, the end of a recognized role or relationship, or the loss of sponsorship. Students may continue to use their Northeastern electronic mail account for up to six months after graduation. Any questions about this policy or the applicability of this policy to a particular situation should be referred to the information technology security manager or the director of internal audit. The university's information systems consist of all networking wiring, equipment, networks, security devices, servers, computer systems, computers, computer laboratory equipment, workstations, Internet connections, and all other intermediary equipment, services, and facilities. These assets are the property of Northeastern University.

1. Access to and use of Northeastern information systems is a privilege granted by the university to its faculty, staff, and students. Access for up to one academic year for others, including "sponsored" individuals whose relationship with Northeastern is a result of a university-recognized affiliation or relationship, must be approved by the authorizing unit's dean or vice president. Such access may not be renewed without the written approval of the senior vice president for administration and finance.
The university retains sole discretion over the extent to which access privileges are granted.
2. Users may only use those computer accounts that have been authorized by the university for their use. Use of another person's account, security devices, and/or the presentation of false or misleading information or credentials for the purpose of obtaining access to information systems is prohibited.
3. Users are responsible for all use of information systems conducted under their user ID(s) and are expected to take all precautions including password security and file protection measures to prevent use of their accounts and files by unauthorized persons. Sharing of passwords is prohibited.
4. Users may not offer, provide, lend, rent, or sell access to university information systems. Users may not provide access to individuals outside the university community.
5. Use of university information systems for hosting non-university activities must have the explicit written authorization of the senior vice president for administration and finance prior to the use.
6. While the university attempts to protect electronic communication and files from unauthorized access, this cannot be guaranteed. Users may not access, copy, or move files including, but not limited to, programs, data, and electronic mail that belong to another account without prior authorization from the account holder. Files may not be moved to other computer sites without permission from the holder of the account under which the files reside.
7. Users may not use remote resources such as printer and file systems, regardless of location on or off the Northeastern network, unless the administrator of the remote resource has first granted permission.
8. Northeastern information systems may be used for lawful purposes only. Users must not use their accounts or Northeastern information systems for unlawful purposes including, but not limited to, the installation of fraudulently or illegally obtained software; illegal dissemination of licensed software; sharing of content where the disseminator does not hold lawful intellectual property rights; propagating chain letters, pyramid, Ponzi, other unlawful or deceptive schemes; or for any purpose contrary to local, state, and/or federal law.
9. Use of university information systems must comply with the provisions of copyright law and fair use. Copyright law limits the right of a user to copy, edit, or transmit electronically another's intellectual property, including written materials, images, sounds, music, and performances, even in an educational context, without permission, except in compliance with the fair use doctrine exception.
10. Users are responsible for the timeliness, accuracy, and content/consequences of their Web pages. Posting of personal, family, or other identifying information is at the sole discretion of the user. Users are advised to exercise discretion when posting personal information to minimize the risk to personal privacy and safety.
11. University information systems may not be used for commercial purposes, except only as permitted with explicit prior written approval of university counsel and the senior vice president for administration and finance.
12. Internet use must comply with the terms of service stipulated by our Internet service provider(s). These policies are incorporated by reference. In addition, the acceptable use, terms of service, and/or other policies of the system(s) also bind users of the Internet connection and resources to which they connect. At the time of writing, the Internet service provider for Northeastern University is Genuity (www.genuity.com).
13. Users may not use information systems irresponsibly, wastefully, or in a manner that adversely affects the work or equipment of others at Northeastern or on the Internet.

14. The university strives to maintain the security and privacy of all electronic communications and content passed on the Northeastern network and, therefore, will not arbitrarily or frivolously review or inspect user files or electronic mail. However, all electronic communications and content presented to and/or passed on the Northeastern network, including that presented to and/or passed to and from the Internet connection(s), may be monitored, examined, saved, read, transcribed, stored, or retransmitted in the course of daily operations by any duly authorized employee or agent of Northeastern University in the exercise of their duties or by law enforcement authorities who are called upon to assist the university in investigating possible wrongdoing. Electronic communications and content may be examined by automated means. Further, Northeastern reserves the right to reject from the network electronic communications and content deemed not in compliance with policies governing the use of information systems at the university. By accessing Northeastern information systems, users give Northeastern permission to conduct each of the operations described above.
15. The confidentiality of any message or material should not be assumed. Even when a message or material is deleted, it may still be possible to retrieve and read that message or material. Further, the use of passwords for security does not guarantee confidentiality. Messages read in HTML may identify the reader to the sender. Aside from the right of the university to retrieve and read any electronic communications or content, such messages or materials should be treated as confidential by other students or employees and accessed only by the intended recipient. Without prior authorization, students and employees are not permitted to retrieve or read electronic mail messages that are not sent to them.
16. All users are required to honor and observe the rules of confidentiality and protection of privacy when accessing and using any information that resides on Northeastern information systems and/or any information that pertains to university programs, students, faculty, and staff. All disclosures of student information must comply with the provisions of the Family Educational Rights and Privacy Act (FERPA) of 1974 (see page 23).
17. Northeastern reserves the right at any time, without prior notice or permission from the user or users of a computer or other Northeastern-owned computing device, to copy or have copied, any and all information from the data-storage mechanisms of such devices, as may be required at the sole discretion of the university, in connection with investigations of possible wrongdoing.
18. The Appropriate Use of Computer and Network Resources Policy specifically prohibits the use of Northeastern University's information systems to:
- Harass, threaten, defame, slander, or intimidate any individual or group.
 - Generate and/or spread intolerant or hateful material, which in the sole judgment of the university is directed against any individual or group, based on race, religion, national origin, ethnicity, age, gender, marital status, sexual orientation, veteran status, or disability.
 - Transmit or make accessible material, which in the sole judgment of the university is offensive, violent, pornographic, annoying, or harassing, including use of Northeastern information systems to access and/or distribute obscene or sexually explicit material unrelated to university-sanctioned work or bona fide scholarship.
 - Generate unsolicited electronic mail such as chain letters, unsolicited job applications, or commercial announcements.
 - Generate falsely identified messages or message content, including use of forged content of any description.
 - Transmit or make accessible password information.
 - Attempt to access and/or access information systems and/or resources for which authority has not been granted by the system owner(s).
 - Capture, decipher, or record user IDs and/or passwords.
 - Intercept electronic communications not intended for the recipient.
 - Probe by any means, the security mechanisms of any resource on the Northeastern network, or on any other network through a connection to the Northeastern network.
 - Disclose or publish, by any means, the security vulnerabilities of or the means to defeat or disable the security mechanisms of any resource connected to or part of the Northeastern University network.
 - Alter, degrade, damage, or destroy data.
 - Transmit computer viruses or malicious/destructive code of any description.
 - Conduct illegal, deceptive, or fraudulent activity.
 - Obtain, use, or retransmit copyrighted information without permission of the copyright holder.
 - Place bets, wagers, or operate games of chance.
 - Tax, overload, impede, interfere with, damage, or degrade the normal functionality, performance, or integrity of any device, service, or function of Northeastern information systems, content, components, or the resources of any other electronic system, network, service, or property of another party, corporation, institution, or organization.
- The above enumeration is not all-inclusive. If there is a question as to whether a specific use is appropriate or acceptable under this policy, the university's sole determination shall prevail.
19. Use of Northeastern University information systems must comply with all applicable local, state, and federal laws, including, but not limited to, the following, which are incorporated by reference:
- Massachusetts General Laws Chapter 266, Subsections 33(a) and 120(f), which impose sanctions for, among other acts, destroying electronically processed and

stored data or gaining unauthorized access to a database or computer system.

- United States Code, Title 18, Computer Fraud and Abuse Act, which imposes sanctions for, among other acts, knowingly accessing a computer without authorization or in excess of authorized access, knowingly causing damage to protected computers, or trafficking in password information.
- United States Code, Title 18, Electronic Communications Privacy Act, which imposes sanctions for, among other acts, interception of wire, oral, or electronic communications.

BEHAVIOR ON CO-OP, ON EXTERNSHIPS, AND IN THE NEIGHBORHOOD

As an urban institution, Northeastern University is a part of the vibrant community and business life of the surrounding neighborhoods. Maintaining amicable and considerate relations between the university and local residents and businesses is essential to the continued cooperation of the university and its neighbors in civic projects and issues and to the furtherance of the university's broader mission to contribute to the general good of society. The university endeavors to foster conditions under which such beneficial relations exist. Consequently, the university must consider conduct on the part of members of the university community, whether on or off campus and whether isolated or continuing in nature, that is disruptive of these relations; that impairs, interferes with, or obstructs the lawful missions, processes, and functions of the university; or that is found by the university to be abhorrent or offensive to generally accepted standards of social behavior, as inimical to the university's interests.

The university's Code of Student Conduct governs student behavior on co-op, externships, and in the community surrounding the university. In addition, misbehavior in these settings may violate the law, policies of the co-op employer, or rules of the externship sponsor.

BICYCLES

Wherever possible, students should use the bike racks available at various locations on campus. Bicycles should not be chained to fences, doors, trees, or other objects, and under no circumstances may bicycles be brought into any university building. The fire code dictates that all entrances, exits, corridors, and stairwells must be free and clear at all times. Bicycles found in violation of this code will be removed from the area.

CARD PLAYING AND GAMBLING

The university does not permit card playing of any kind in classrooms unless it is a regularly scheduled activity of an organization recognized officially by the Office of Student Activities. Social card games are permitted in the residence halls and in the Curry Student Center. Students may not gamble, play pyramid games, or sell lottery tickets. Casino or other game events are permitted in designated areas that are approved by city and state laws, as part of properly scheduled events, and in strict

accordance with regulations issued by the Office of the Vice President for Student Affairs.

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It is the general policy of the university that student papers or projects submitted in partial fulfillment of course requirements remain the property of the student authors.

This policy does not apply to (1) "work for hire" as defined by intellectual property laws; (2) work derived wholly or in part from other patented or copyrighted material; (3) work done as part of external grants or contracts in which the contracting documents or regulations define ownership; (4) work in which the university or its agents or employees contribute substantial time or resources; or (5) work considered a thesis or dissertation. The university owns the copyright to any work created or developed by one or more students with the significant use of funds, space, facilities, equipment, materials, or other university resources. The university will not normally construe the payment of salary from unrestricted funds or the provision of office and library facilities as constituting significant use of funds, space, facilities, equipment, materials, or other resources of or administered by the university. Use of laboratory and/or computer facilities or assistance from one or more faculty or staff members to a student author specifically pertaining to the work constitutes significant use of university resources. In all cases, the provost or his or her designee shall make a good-faith determination concerning significant use, which shall be final and binding on all parties.

In the case of a thesis generated by research performed in whole or in part by a student in the course of or pursuant to an agreement for sponsored research or other written agreement, including an agreement between the author(s) and the university, or utilizing equipment or facilities provided to the university under conditions that impose copyright restrictions, ownership or control shall be determined in accordance with such agreement or restrictions. In the absence of such agreement or restrictions, copyright ownership in such a thesis shall reside in the student. However, the student, as a condition of a degree award, must grant the university the royalty-free right to reproduce and publicly distribute copies of the thesis for limited and noncommercial purposes.

Where necessary to secure to the university an ownership of copyright, students shall assign such rights of copyright, or grant the specified rights of reproduction and distribution, to the university. The university reserves the right to employ, at its discretion, the materials or portions of any work created or developed in the course of an author's relationship with the university, or otherwise covered by the University Patent and Copyright Policy, for promotional, professional, or noncommercial purposes on a royalty-free basis. Certain courses taught at Northeastern University involve students in individual or group assignments or projects involving the creation of materials, objects, or techniques that may be patentable or copyrightable. These courses generally require extraordinary levels of faculty organization and participation and/or substantial university resources.

1. Individual teachers or academic units may require that originals or copies of such papers or projects be retained either temporarily or permanently by the individual teacher or by the unit.
2. A thesis is a student work representing significant original or independent research and for which the student receives a substantial amount of credit toward a degree or certificate. Where there is a question concerning whether or not a student's work is a thesis, the provost or his or her designee shall make a good-faith determination concerning same, which shall be final and binding on all parties.
3. Copies of the university patent and copyright policies are available from the Division of Research Development, 405 Lake Hall, 617.373.4587.

In accordance with university patent and copyright policies, in such courses the university is the owner of all rights in technology, computer programs, or other creative work that may be developed by the undergraduate or graduate student as part of the student's work in those courses. It is the university's intention, where applicable, to disclose and authorize the use of such technology, programs, or work to nonprofit organizations and to government agencies without a fee. The university may also have the opportunity to license such materials to a commercial enterprise, and in this event, it is the university's intention to share any revenue from such a license with student contributors in an amount determined in accordance with the then-existing university policy or plan. Students are informed early in the semester if the course in which they are enrolled falls within this category and will be asked to sign a letter of agreement. Should the student decline to sign an agreement, he or she will be assigned to another course section—one in which such agreement is not required—or will be given alternative activities not involving such assignments or projects.

COPYRIGHTS AND PATENTS

Any student who makes, as sole or joint inventor, an invention that involved significant use of university resources, including funds, space, facilities, equipment, or materials, or that is subject to terms of a sponsored research or other agreement between the university and another party, shall assign this invention and all associated applications and patents to the university or its designee unless the invention has been released to the inventor in accordance with the applicable provisions of the university patent policy. Any student, whether before or after terminating his or her association with the university, shall do whatever is necessary to enable the university or its designee to take out patents in any and all countries on such invention. The cost and expense of making such assignments and procuring such patents shall be borne by the university or its designee. When an invention is made by a student not involving significant use of funds, space, facilities, equipment, materials, or other resources of or administered by the university, the university will waive its rights, and the invention will be the exclusive property of the student, provided the student's rights in the invention are not altered by the terms of any financial aid

received, including external sponsorship, scholarships, fellowships, traineeships, thesis expenses, or other assistance, whether or not administered by the university and provided the invention is not subject to third-party rights.

DEMONSTRATIONS

The university supports as fundamental to the democratic process the rights of all members of the university community to express their views and to protest actions or opinions with which there is disagreement. A university is where individuals express diverse ideas and viewpoints in an atmosphere free of any physical force. The university insists that all demonstrations be peaceful and orderly and abide by university regulations.

- Demonstrators must not block corridors or entrances or use loud noise to disrupt a conference, meeting, or assembly.
- Demonstrations may not be conducted in faculty or administrative offices, classrooms, libraries, or study areas.
- Moving picket lines in university corridors are prohibited. (Protests may be registered by individuals or groups standing in a single line against a corridor wall, but corridors must be kept open at all times for the free passage of other members of the community.)

Students, faculty, or other members of the university community who violate these regulations will be subject to disciplinary action; violators also jeopardize their right to remain in the university community.

DEPARTMENTAL JURISDICTION

Certain departments of the university shall have the power to set down rules and regulations governing the operation of the departments' respective areas of responsibility. Such rules and regulations shall be in accord with the "General Statement of Student Rights and Responsibilities" as well as with the policies pertaining to student conduct as defined in this document.

DISMISSAL FROM CLASS

Students dismissed from classes for insubordination or other disciplinary reasons may not return without the approval of the college and the vice president for student affairs.

IDENTIFICATION CARDS

All students must have in their possession at all times the officially approved and properly validated photo identification card. It will be necessary to show this card as a means of identification when using the library and campus recreational facilities, at athletic contests, at student elections, at University Health and Counseling Services, at Student Accounts, at the Office of the Registrar, to campus police, and elsewhere around the university. All members of the community should be prepared and willing to identify themselves and their guests upon request by authorized personnel. An official photo identification card will be issued to new students during their initial orientation and registration periods. Replacements for lost cards can be obtained at the Office of the Registrar, 120 Hayden Hall.

JURY DUTY

Northeastern expects students to fulfill their civic duties; the university cannot interfere in this process. Students who miss classes because of this obligation must notify their professors in writing, explaining which classes will be missed on which days. The professors will work with students to make up missed assignments or exams. Upon completion of their jury duty, students must bring a copy of the documentation of their service to the appropriate professors. Students on co-op are expected to inform their supervisors if called to jury duty.

MEDIA AND PUBLIC APPEARANCES

In all personal communications to newspapers or other media, as well as personal public appearances in which students identify themselves as members of the Northeastern University community, it should be made clear that the opinions presented are a student's own and not necessarily those of the university. Students who appear on public programs as representatives of Northeastern University must be particularly careful to avoid language or presentations that could be considered in bad taste or offensive.

PETS

Pets are prohibited in all university buildings out of consideration for the general community and to maintain a clean and healthy environment. Exceptions are made for guide dogs and other guide animals.

PUBLIC ACCESS

Access by the general public to attend special programs or functions is limited to those events approved for such attendance. The facilities of the university were designed for the use of members of this academic community. When appropriate, access may be permitted for events and programs when it is apparent that the students, faculty, staff, and alumni of the university and their guests will not fill the facility reserved for such use. In such cases, special provisions must be made to ensure that members of this academic community have priority to attend and are not precluded from attendance by the general public. Certain facilities, such as residence halls, classrooms, and laboratories, are designed for and are to be used by residence hall residents only, or in the case of classrooms and laboratories, by members of this academic community. In all cases, the essential educational purpose of the university cannot be interrupted or disturbed by the access of the general public. Officials of the university may restrict or prevent access by the public if such access disturbs or has the potential to disturb classes or other functions of Northeastern University. Occasionally, access to an area such as the Krentzman Quad will be granted to distribute free literature or provide a public forum for speakers. Such use requires the prior approval of the director of student activities and will be granted only during the Wednesday and Thursday activity periods. The use of facilities such as residence halls or cafeterias for distribution of literature or for speakers is prohibited.

SAFETY GLASSES

Safety glasses must be worn in all chemistry laboratories and other facilities as required.

SALES AND SOLICITATIONS

Northeastern University is not a marketplace. Sales of material or solicitations, such as newspapers and other printed matter, insurance, foodstuffs, and all other articles are prohibited without the express written permission of designated officials of the university. Solicitations of any kind are also prohibited without the express written permission of designated officials. Exceptions to this policy are made for recognized student organizations and residence hall residents. Residence hall residents should request permission to sell within their housing unit from the director of residential life; recognized student organizations should request permission for sales from the director of student activities; all others should apply to the business manager of the university. Such permission, when granted, is for designated areas within the university and is subject to the restrictions imposed by the approving officials. General solicitation, especially in such areas as classrooms, lounges, and cafeterias, is not permitted.

SMOKING

All university administrative and classroom buildings are smoke free and tobacco free. The policy relates to all campuses. The only university facilities not covered by this policy are residence halls and apartment buildings. The sale of cigarettes and other tobacco products is prohibited on campus. Smoking cessation information and programs are available. For further information, contact the Office of Human Resources Management or University Health and Counseling Services.

TAPE RECORDERS

Students may not use tape recorders in the classroom without the instructor's consent. Students with disabilities who need a tape recorder in the classroom may make arrangements through the Disability Resource Center, 20 Dodge Hall.

TEXTBOOKS

Students should purchase or have in their possession the assigned textbooks, problem books, manuals, and other supplies that may be necessary in a classroom or laboratory.

STUDENTS' BILL OF ACADEMIC RIGHTS AND RESPONSIBILITIES

This bill was drafted by the Student Senate, the vice president for student affairs, and members of the Faculty Senate. It was passed in the spring of 1992.

Academic Rights

We, the students of Northeastern University, believe that a quality education is the paramount goal of all students. In order to fulfill this goal, the university must recognize certain rights, which are set down in this document. (The student rights, through their

representatives in the Student Government Association [SGA], described in these sections arise from faculty and staff employment responsibilities and obligations to the university. Northeastern University students recognize and accept that it is the sole prerogative of the university to enforce these obligations and responsibilities and to determine whether and to what extent they are being carried out or violated in specific instances. Northeastern University students recognize and accept that their ability to effect redress of complaints arising from these rights is limited to the procedures specified in the current *Graduate Student Handbook*.)

Course-Related Rights

Article 1 Students have the right to instructors who attend scheduled classes on time.

Article 2 Students have the right to view work they submit to satisfy course requirements after it is graded.

Article 3 Students have the right to adequate access to instructors.

Article 4 Students have the right to receive a course outline, which includes a fair and explicit grading policy, at the beginning of each course.

Article 5 Students have the right to instructors who communicate the material pertaining to the course effectively in the English language, except in the case of foreign language instruction.

Article 6 Students have the right to participate in and have access to Student Government Association student teacher course evaluations.

Rights to University Academic Services

Article 7 Students have the right to adequate access to effective academic services, as described in the student handbook and other university publications, provided by the university.

Article 8 Students have the right to an environment conducive to learning. (Because the university operates on a twelve-month calendar in an urban environment, many construction, remodeling, renovation, and repair projects must take place while the university is in session and while other potential distractions from the learning process arise from the surrounding urban environment on which it is dependent but over which it exerts little or no control. Thus, though the university is committed to maintaining an appropriate learning environment for its students, Northeastern University students recognize and accept, as part of their relationship with the university, that the conditions described above may cause occasional disturbances to that environment. The articles shall be interpreted by the Office of the Provost in conjunction with the Office of the Vice President for Student Affairs, and shall be monitored by the Student Government Association. Further, should any student discover that he or she has been subject to any violation of the principles stated herein, the student should follow the appropriate complaint resolution procedure in the *Graduate Student Handbook*. The Student Government Association, if requested by the student, will monitor the progress of any student academic grievances.)

Article 9 Disabled students have the right to be treated in a nondiscriminatory fashion in accordance with the policies described in university publications and consonant state and federal laws.

Scheduling Rights

Article 10 Students have the right to nonconflicting final exam schedules.

Article 11 Students have the right to final exam schedules in accordance with established university policy.

Article 12 Students have the right to be excused from academic commitments for a religious observance.

General Academic Rights

Article 13 Students have the right to be informed, in a timely fashion, of proposed or actual university action to be taken against them.

Article 14 Students have the right of access to their academic and financial aid records and maintenance of the privacy of these records, as provided by the Federal Educational Rights and Privacy Act.

Article 15 Students have the right to be free from harassment by other members of the university community.

Article 16 Students have the right to the redress of academic grievances.

Student Responsibilities

It is each student's responsibility to:

1. Contribute to a climate of open inquiry and honesty in all aspects of the university's academic life.
2. Commit sufficient time and effort for study and the use of library, studio, and computational facilities in connection with each course.
3. Contribute to the classroom/laboratory/studio learning environment through discussion and active participation.
4. Acquire the necessary prerequisites for full participation in each academic course.
5. Attend scheduled classes regularly and on time.
6. Obtain help with problems encountered in a given course by seeking out faculty and teaching assistants outside of class time.
7. Respect the concept of academic freedom of each faculty member.
8. Assist the university in its self-evaluation by responding honestly and conscientiously.

*Curriculum and Graduation Requirements
by Program*

College of Arts, Media and Design

www.northeastern.edu/camd

XAVIER COSTA, PhD, Dean

Alan J. Zaremba, PhD, Associate Dean for Undergraduate Programs

Jane Amidon, MArch, Associate Dean for Graduate Programs and Research

Peter H. Wiederspahn, MArch, Associate Dean for Academic and Faculty Affairs

Thomas Michael, MBA, Associate Dean for Administration and Finance

Graduate Student Services Office

122 Meserve Hall

617.373.5329

gscamd@neu.edu

Unlike traditional arts or communications colleges, the College of Arts, Media and Design (CAMD) offers a truly interdisciplinary educational experience grounded in collaboration, experimentation, and hands-on learning. Students are strongly encouraged to investigate complementary disciplines to enhance their primary areas of study.

CAMD inspires growth and innovation in the fields that drive today's creative economy. Students are encouraged to develop a strong foundation of skills to help them respond to the opportunities and challenges of our global society.

Within CAMD, collaboration across disciplines helps students explore and link new knowledge and experiences. Throughout Boston and around the globe, our partnerships deepen and enrich opportunities for learning and unite people and ideas.

SCHOOL OF ARCHITECTURE

www.northeastern.edu/camd/architecture/academics/graduate

GEORGE THRUSH, MARCH

Professor and Director, School of Architecture

151 Ryder Hall

617.373.4637

617.373.7080 (fax)

architecture@neu.edu

Northeastern offers a Master of Architecture degree accredited by the National Architectural Accreditation Board. The director of the program is Professor Tim Love.

The program leverages the school's outstanding faculty and pragmatically grounded curriculum. The physical and cultural context of Boston serves as a laboratory for the program's design studios and is design focused but with a different approach than many schools. We find opportunities for innovation within the real estate and construction industries and current policy debates—rather than outside of them. This is how we intend to move architects to the center of the discussion about the future of our cities.

Students take courses in urban housing, practice-integrated design, and do original research on market-driven building types. The final degree project in the design studio offers an opportunity to leverage this research with real innovations in hybrid types, strategic alterations to existing ones, and to take on the challenge of finding prototypical solutions for systemic problems.

In addition to studio courses, graduate students take seminars in architectural theory and design strategy; and electives are available in real estate development, sustainable building techniques, urban landscape, and other topics. There is also a unique course that looks at case studies of architecture firms in practice, problem solving, and innovation. We seek to have students leave our program with a unique balance of technical, theoretical, and strategic tools to make a real difference in the profession.

There are multiple ways that this degree can be completed:

One-Year Program

A Master of Architecture degree is offered as a one-year completion to the five-year Northeastern Bachelor of Science (BS) degree (with a major in architecture). Students who complete the five-year degree at Northeastern with a 2.500 minimum overall grade-point average (GPA) apply for admission to this one-year, 32-semester-hour program. Northeastern students may also avail themselves of the financial benefit of the Double Husky Scholarship.

Two-Year Program

Students who have earned a BS in Architecture (or equivalent) from another institution may apply for entry to the two-year MArch program, which is 68 semester hours. A portfolio is required for applicants to this program.

Three-Year Program

Students with an undergraduate degree in a discipline other than architecture may apply to the 3¼-year MArch 1 program. The program requires three years and a summer to complete. Students spend an optional semester at the school's Berlin program and are enrolled in two four-month internships, with placement assistance by the co-op office. After completing an accelerated introductory curriculum, graduate students in the MArch 1 program merge into the existing curriculum for the MArch program. A portfolio is preferred but not required for applicants to this program.

MArch in Architecture—One-Year Program**YEAR 1, FALL SEMESTER**

ARCH 6330 Seminar in Modern Architecture	4 SH
ARCH 6430 Case Studies 1	4 SH
ARCH 7130 Master's Research Studio	6 SH
Graduate elective	4 SH

YEAR 1, SPRING SEMESTER

ARCH 6340 Topics in Architecture	4 SH
ARCH 6440 Case Studies 2	4 SH
ARCH 7140 Master's Degree Project	6 SH

PROGRAM TOTAL CREDITS 32.0 SH

MArch in Architecture—Two-Year Program**YEAR 1, FALL SEMESTER**

ARCH 5110 Housing and Aggregation	6 SH
ARCH 5210 Environmental Systems	4 SH
ARCH 5310 Design Tactics and Operations	4 SH
Graduate elective	4 SH

YEAR 1, SPRING SEMESTER

ARCH 5120 Comprehensive Design Studio	6 SH
ARCH 5220 Integrated Building Systems	4 SH
Graduate electives	8 SH

YEAR 2, FALL SEMESTER

ARCH 6330 Seminar in Modern Architecture	4 SH
ARCH 6430 Case Studies 1	4 SH
ARCH 7130 Master's Research Studio	6 SH
Graduate elective	4 SH

YEAR 2, SPRING SEMESTER

ARCH 6340 Topics in Architecture	4 SH
ARCH 6440 Case Studies 2	4 SH
ARCH 7140 Master's Degree Project	6 SH

PROGRAM TOTAL CREDITS 68.0 SH

MArch in Architecture—Three-Year Program**YEAR 1, FALL SEMESTER**

ARCH 2230 Structures 1: Statics	4 SH
ARCH 2240 Structures 2: Tectonics	4 SH
ARCH 2330 Architecture, Modernity, and the City, 1800 to 1910	4 SH
Coreq. ARCH 2331	
ARCH 6200 Graduate Studio 1: Architectural Design	6 SH

YEAR 1, SPRING SEMESTER

ARCH 2340 Architecture, Modernity, and the City, 1910 to 1980	4 SH
Coreq. ARCH 2341	
ARCH 6210 Graduate Studio 2: Urbanism	6 SH
Graduate elective	4 SH

YEAR 1, SUMMER 2 SEMESTER

ARCH 6100 Graduate Skills Studio	4 SH
ARCH 6110 Graduate Architectural History Case Studies	4 SH

Note: Actual curriculum sequence depends on year 1 entry term.

YEAR 2, FALL SEMESTER

ARCH 5110 Housing and Aggregation	6 SH
ARCH 5210 Environmental Systems	4 SH
ARCH 5310 Design Tactics and Operations	4 SH
Graduate elective	4 SH

YEAR 2, SPRING SEMESTER

ARCH 3450 Advanced Architectural Communication	4 SH
ARCH 5120 Comprehensive Design Studio	6 SH
ARCH 5220 Integrated Building Systems	4 SH
ARCH 6340 Topics in Architecture	4 SH

YEAR 3, FALL SEMESTER

ARCH 6330 Seminar in Modern Architecture	4 SH
ARCH 6430 Case Studies 1	4 SH
Master's research course	4 SH
Option studio	6 SH

YEAR 3, SPRING SEMESTER

ARCH 6340 Topics in Architecture	4 SH
ARCH 6440 Case Studies 2	4 SH
ARCH 7140 Master's Degree Project	6 SH

PROGRAM TOTAL CREDITS 108.0 SH

Master of Design for Sustainable Urban Environments

The Master of Design for Sustainable Urban Environments (MDes-SUEN) brings together the allied professional fields of environmental design, landscape architecture, and urban planning to offer advanced study and research opportunities in the design of ecologically and economically productive urban environments. The program seeks to supply graduates for the rapidly growing field of sustainable urbanism through a dynamic curricular mix of design, dialog, and technical courses, enriched by diverse interdisciplinary electives.

The pedagogic and research focus of the MDes is the design, implementation, and management of sustainable urban environments from the scale of individual parcels to regional systems. Key topics include: brownfield and waterfront revitalization; sustainable and secure pedestrian environments; urban habitat design and management; and green and blue infrastructure design and planning with an emphasis handling increased storm water and tidal influx in the urban landscape.

The MDes is a unique program of study in which urban landscape design, planning, and policy dovetail with environmental engineering, environmental science, art, and visualization. Boston's history of innovation in environmental design as well as its legacy of urban redevelopment provide a rich backdrop and laboratory of urban, infrastructural, and ecological prototypes that ideally position the program to creatively and critically explore local issues with global implications.

Contemporary urban theory includes a significant body of writing in the area of "Landscape-" and "Ecological-Urbanism," a critical discourse that looks at the full range of environmental strategies for urban sites with an emphasis on ecological thinking. The paradigm of sustainable environmental design is moving away from form-based planning toward dynamic ecosystem services. This program prepares students to be innovative and entrepreneurial designers able to combine economic, environmental, and social priorities to make next-generation public spaces and systems.

Master of Design for Sustainable Urban Environments—One-Year Program

The one-year MDes-SUEN is open to students holding an accredited, first-professional degree in landscape architecture, architecture, planning, or urban design. The 36-credit program offers a core sequence of advanced design research studios, pro-seminars, and urban ecology and technology workshops complemented by interdisciplinary electives.

MDes in Sustainable Urban Environments—One-Year Program

YEAR 1, FALL SEMESTER

SUEN 7130 Master's Research Studio 1: Design and the Resilient City	6 SH
SUEN 7230 Urban Ecologies and Technologies 1	4 SH
Graduate elective	4 SH
Pro-seminar 1 (pending approval)	4 SH

YEAR 1, SPRING SEMESTER

SUEN 7140 Master's Research Studio 2: Master's Project or Co-op	6 SH
SUEN 7240 Urban Ecologies and Technologies 2	4 SH
SUEN 7320 Pro-Seminar: Issues in Designed Urban Environments	4 SH
Graduate elective	4 SH

PROGRAM TOTAL CREDITS 36 SH

Master of Design for Sustainable Urban Environments—Two-Year Program

The two-year MDes-SUEN is open to students entering with a bachelor's degree in any field. The 64-credit program provides a full year of core skill sets including design; site analysis, implementation, and visualization; history/theory; and policy. This includes introduction to basic earthworks, water, and plants systems as well as the principles of landscape and urban ecology.

MDes in Sustainable Urban Environments—Two-Year Program

YEAR 1, FALL SEMESTER

SUEN 6110 Graduate Studio 1: Sustainable Urban Sites	6 SH
SUEN 6210 Implementation and Visualization for Urban Environments 1	4 SH
SUEN 6310 Cities, Nature, and Design in Contemporary History and Theory	4 SH
Optional elective	

YEAR 1, SPRING SEMESTER

LPSC 7312 Cities, Sustainability, and Climate Change	3 SH
LPSC 8400 Planning Module in Urban Law and Policy	1 SH
SUEN 6120 Graduate Studio 2: Sustainable Urban Systems	6 SH
SUEN 6220 Implementation and Visualization for Urban Environments 2	4 SH
Optional elective	

YEAR 2, FALL SEMESTER

SUEN 7130 Master's Research Studio 1: Design and the Resilient City	6 SH
SUEN 7230 Urban Ecologies and Technologies 1	4 SH
SUEN 7320 Pro-Seminar: Issues in Designed Urban Environments	4 SH
Graduate elective	4 SH

YEAR 2, SPRING SEMESTER

SUEN 7140 Master's Research Studio 2: Master's Project or Co-op	6 SH
SUEN 7240 Urban Ecologies and Technologies 2	4 SH
SUEN 7320 Pro-Seminar: Issues in Designed Urban Environments	4 SH
or SUEN 6340 Topics in Urban Environmental Design	4 SH
Graduate elective	4 SH

PROGRAM TOTAL CREDITS 64 SH

ART + DESIGN

www.northeastern.edu/camd/artdesign/academics/graduate

NATHAN I. FELDE, MS
Professor and Chair

239 Ryder Hall
617.373.2347
617.373.8535 (fax)
Judy Ulman, *Administrative Assistant*, j.ulman@neu.edu

Northeastern University offers a Master of Fine Arts (MFA) in Studio Art in conjunction with the School of the Museum of Fine Arts, Boston (SMFA), one of the most distinguished art schools in the United States. Rigorous and highly selective, the two-year MFA degree program seeks to prepare you for a career as a working artist or a teacher at the college level. The curriculum integrates practical and critical skills across diverse media and disciplines. You will have an opportunity to hone your practice through individual innovation, creative collaborations, informal mentorship, and academic discourse. MFA students are enrolled at both Northeastern University and the SMFA and graduate in two years with an MFA degree from Northeastern.

The MFA in Studio Art is a professional program that is both rigorous and highly selective. It seeks to prepare students for careers as working artists or as university professors (the MFA is considered a terminal degree in its field). The curriculum integrates practical and critical skills across diverse media and disciplines; students hone their practice through individual innovation, creative collaborations, informal mentorships, and academic discourse.

In this degree program you will complete 44 semester hours of studio work and graduate seminars at SMFA and 16 hours of art history and academic electives (typically four courses) at Northeastern. You will have your own semiprivate studio space and access to SMFA faculty and equipment. A final thesis exhibition is required. The SMFA is part of the Museum of Fine Arts, Boston, one of the most comprehensive art museums in the world with a collection of nearly 450,000 works of fine art.

The department also offers a Master of Fine Arts (MFA) in Information Design and Visualization, a two-year interdisciplinary program that focuses on the analytical and visual communication of information. Graduates will be professionals in visualization who can collaborate as equals with communicators in other fields—people who are able not only to think visually but also to produce effective, meaningful visual information.

Students gain an understanding of the principles of translating data and information into visual, physical, and virtual forms. They learn to integrate theoretical, visual, and technical aspects of structuring and representing data to offer diverse audiences increased access to socially relevant issues. The curriculum is built upon an established undergraduate program in graphic, information, and interaction design. Participants have the

unique advantage of study at a major research university known for interdisciplinary collaboration that is situated in Boston, a global center for biotech, financial, public policy, education, technological, scientific, and social science applications of information design and data visualization.

The program seeks applicants from diverse fields of study—not just visual communications—who are interested in information visualization and communication of information through visual and analytical means. Practicing professionals and recent undergraduates in a variety of fields (architecture, graphic design, journalism, communications, business, the humanities, and sciences) who desire a fluency in information design should apply.

Graduates will be professional information designers able to collaborate effectively in this dynamic and burgeoning field of practice and research. They will be prepared to work in design firms, research firms, corporations, and institutions and government and urban agencies. The program intends to produce professionals skilled in design principles and practices needed to assume leadership roles in an evolving interdisciplinary field. Students will also be well positioned to pursue PhDs and academic careers.

MFA in Information Design and Visualization

YEAR 1, FALL SEMESTER

ARTG 5100 Information Design Studio 1—Principles	4 SH
ARTG 5110 Information Design History	4 SH
ARTG 5120 Information Design Research Methodologies	4 SH
Information design elective	4 SH

YEAR 1, SPRING SEMESTER

ARTG 6100 Information Design Studio 2—Dynamic Mapping and Models	4 SH
ARTG 6110 Information Design Theory and Critical Thinking	4 SH
Two information design electives	8 SH

YEAR 2, FALL SEMESTER

ARTG 6200 Information Design Studio 3—Synthesis	4 SH
ARTG 7100 Information Design Thesis Seminar	4 SH
Information design elective	4 SH
Open elective	4 SH

YEAR 2, SPRING SEMESTER

ARTG 7990 Thesis	8 SH
Information design elective	4 SH

PROGRAM TOTAL CREDITS 60.0 SH

MFA in Studio Art

GENERAL REQUIREMENTS

NU required courses	8 SH
NU nonstudio electives	8 SH
SMFA studio art courses	44 SH

PROGRAM TOTAL CREDITS 60.0 SH

GAME DESIGN

www.northeastern.edu/camd/gamesdesign

MAGY SEIF EL-NASR, PHD
Professor and Director

100 Meserve Hall
617.373.5242
Magy Seif El-Nasr, *Director, Game Design Program*,
magy@neu.edu

The game design program offers a Master of Science in Game Science and Design. The degree is joint between the College of Arts, Media and Design and the College of Computer and Information Science. This MS degree is focused on the science of game development, specifically on understanding the players and measuring the products' successes through players' behaviors. The degree will weave the design and technology necessary to build a game but focus on the playability and analytics to make the product successful, thus creating a coherent vision enabling students to understand the process of creating successful game products in a player-centric environment.

The degree consists of several areas of game science and design, including:

- Game playability
- Game analytics
- Game technology
- Game design

The first two areas encompass the game science aspects of this program. Game technology denotes the computational aspects of the program. Game design denotes the design aspect of the program.

ADMISSIONS REQUIREMENTS

Applicants must submit an official application, including the following documents: official transcripts, a statement of purpose projecting their career goals, a description of any experience in the games field and/or a portfolio if available, official GRE General Test, and three letters of recommendation. International students must also submit official scores of the TOEFL examination. Acceptance to the MS in Game Science and Design program is granted upon recommendation from the master's admissions committee after review of the completed application.

Applicants will be expected to have a minimum 3.000 undergraduate GPA. International applicants must have a minimum TOEFL score of 100 (Internet based) or 250 (computer based) or a minimum IELTS of 6.0.

We will consider applications from students who hold a bachelor's degree from any of the following fields or closely related fields:

- Computer science
- Information science
- Informatics
- Engineering
- Human computer interaction
- Psychology
- Social science
- Interaction design
- Game design

All admitted students will be assigned to an advisor who will help them select a pathway with a coherent set of electives depending on their career goals. The advisor will also monitor their progress through the master's degree.

DEGREE REQUIREMENT

This is a two-year, 34-semester-hour degree consisting of the following requirements:

MS in Game Science and Design

GENERAL REQUIREMENTS

GSND 5030 or GSND 5040 (pending approval)	4 SH
GSND 5110 (pending approval)	0 SH
GSND 5120 (pending approval)	0 SH
GSND 5121 (pending approval)	0 SH
GSND 5122 (pending approval)	0 SH
GSND 5130 (pending approval)	0 SH
Game project/thesis class	4 SH
Course work from the List "Elective Course Requirements" below	12 SH

CREDIT REQUIREMENT

34.0 SH

ELECTIVE COURSE REQUIREMENTS

ARTG 5330 Visualization Technologies	4 SH
CS 5150 Game Artificial Intelligence	4 SH
CS 5310 Computer Graphics	4 SH
CS 5340 Computer/Human Interaction	4 SH
CS 5520 Mobile Application Development	4 SH
CS 5610 Web Development	4 SH
CS 5850 Building Game Engines	4 SH
CS 6220 Data Mining Techniques	4 SH
GSND 5240 (pending approval)	0 SH
GSND 5250 (pending approval)	0 SH
GSND 5320 (pending approval)	0 SH
GSND 5330 (pending approval)	0 SH
GSND 5340 (pending approval)	0 SH
GSND 5350 (pending approval)	0 SH

SCHOOL OF JOURNALISM

www.northeastern.edu/camd/journalism

STEPHEN D. BURGARD, MS

Professor and Director

102 Lake Hall

617.373.3236

617.373.8773 (fax)

Susan Conover, *Academic Coordinator*, s.conover@neu.edu

Welcome to the graduate program at Northeastern University's School of Journalism. Our school offers a master of arts in three concentrations—professional, journalism in public policy, and research. Our master's program offers a chance to study in Boston with a small and caring faculty of specialists with years of experience and contacts at the highest levels of American journalism.

You can study investigative reporting with Walter Robinson, who led the *Boston Globe's* Pulitzer-Prize-winning investigation of the sex abuse scandal in the Catholic Church. Study foreign and Washington correspondence with former UPI and *U.S. News & World Report* foreign correspondent Nicholas Daniloff, who made headlines in Moscow when he was taken for a time by the KGB. Or study the cutting edge of interactive media with Jeff Howe, the author of the celebrated book *Crowd Sourcing*. Study ethics with Stephen Burgard, a former member of the *LA Times* editorial board who is an expert on the intersection of religion, politics, and the press. Richard Chacon, the former *Boston Globe* ombudsman, teaches journalism and public policy. Explore sports journalism and sports writing with Charles Fountain, former radio and television sportscaster. Professors Alan Schroeder and Belle Adler have expertise on broadcast and visual journalism. And more. . . . (Some courses require instructor clearance or are offered periodically.)

Our concentrations offer students opportunities for hands-on training in all aspects of journalism, specialized reporting on public policy, or study that could lead to opportunities in teaching. Our program is also suited for anyone who will work in communication fields where information gathering and writing for general audiences is needed.

Full-time students can complete the program in a year by enrolling in classes during the two summer semesters. Students who participate in Northeastern University's nationally recognized cooperative education program will take longer to graduate. It is also possible to enroll part-time. Students have up to seven years to fulfill the requirements of the program.

MA in Journalism—Professional Track**YEAR 1, FALL SEMESTER**

JRNL 6200 Enterprise Reporting 4 SH

YEAR 1, SPRING SEMESTER

JRNL 6201 Research Methods/New Technology 4 SH

YEAR 1, SUMMER 2 SEMESTER

JRNL 6202 Perspective on Journalism Ethics 4 SH

GENERAL REQUIREMENTS

JRNL 5214, 5309, 6352, or 6400 4 SH

Additional required course 4 SH

Four JRNL electives 16 SH

PROGRAM TOTAL CREDITS 36.0 SH**MA in Journalism—Public Policy Track****YEAR 1, FALL SEMESTER**

JRNL 6202 Perspective on Journalism Ethics 4 SH

JRNL 6354 Public Policy and the Press 4 SH

YEAR 1, SPRING SEMESTER

JRNL 6300 First Amendment in Digital Age 4 SH

YEAR 1, SUMMER 2 SEMESTER

JRNL 6202 Perspective on Journalism Ethics 4 SH

GENERAL REQUIREMENTS

JRNL 6201 Research Methods/New Technology 4 SH

PPUA electives 12 SH

PROGRAM TOTAL CREDITS 32.0 SH**MA in Journalism—Research Track****YEAR 1, FALL SEMESTER**

JRNL 6201 or approved research course 4 SH

YEAR 1, SPRING SEMESTER

JRNL 6303 Seminar 4 SH

YEAR 1, SUMMER 2 SEMESTER

JRNL 6202 Perspective on Journalism Ethics 4 SH

GENERAL REQUIREMENTS

JRNL 7990 Thesis 4 SH

Three other required courses 12 SH

Two JRNL electives 8 SH

PROGRAM TOTAL CREDITS 36.0 SH**MUSIC**www.northeastern.edu/camd/music

ANTHONY P. DE RITIS, PhD

Professor and Chair

351 Ryder Hall

617.373.2440

617.373.4129 (fax)

Allen G. Feinstein, *Associate Academic Specialist**and Head Advisor*, a.feinstein@neu.edu

The Master of Science in Music Industry Leadership (MMIL) program is an intensive one-year leadership program designed for individuals who want to manage the next generation of music companies. The MMIL offers advanced education in the areas of music management, leadership, research, and entrepreneurship with opportunities for immediate and ongoing application to each student's unique professional aspiration.

The Master of Science program focuses on the core scholarly areas of music industry. Students specialize in one of three concentrations: entrepreneurship, professional, and research. Courses seek to provide a solid foundation in music industry theory and analysis while offering students the opportunity to apply the foundational skills to an area of personal interest. Elective courses emphasize the creation and sustainability of music organizations in a rapidly evolving environment. Using an active-learning approach, the program focuses on developing music executives intellectually and ethically, while providing them with a keen appreciation for the complexities of managing in the creative industries. This approach focuses on long-term skill sets that enhance the potential of graduates within a fluid and ever-changing field. The program also emphasizes global leadership qualities that provide a broader vision of the music industry on an international level.

The JD/MS in Music Industry Leadership is a dual-degree program that offers students four opportunities for real-world, experiential learning at the intersection of law and music business. Candidates for the JD/MS program must independently apply and gain admission to the School of Law and the College of Arts, Media and Design. Admission to one school does not ensure admission to the other. Candidates may apply to both schools prior to matriculation at the law school, or students may wait until they are enrolled in the School of Law before seeking admission to the College of Arts, Media and Design. During either the first or second year of law school, students may apply to the MS program during the winter or spring for enrollment the following September. Students enrolled in law school who are interested in pursuing this dual degree should contact the Office of Academic and Student Affairs and Professor Kara Swanson, JD/MS faculty advisor, during the fall or winter of their first or second year for further information.

Curriculum

The MMIL offers students three curriculum options for degree completion. A minimum of 32 semester hours and nine courses (not including the intensive reporting seminar), with a GPA of 3.000, are required for graduation. Each option is designed to highlight a student's strength and longer-term goals. Consultation with the graduate coordinator prior to degree commencement is required to establish a student's ideal concentration.

MS in Music Industry Leadership with Professional Concentration

GENERAL REQUIREMENTS

MUSI 6000 Management of Music Organizations	3 SH
MUSI 6100 Music Industry Research Methodology	3 SH
MUSI 6200 Financial Management in the Music Industry	3 SH
MUSI 6300 Intellectual Property for Music Management	3 SH
MUSI 6400 Marketing Strategies in the Music Industry	3 SH
Business electives	2 to 12 SH
Music electives	2 to 22 SH

CREDIT REQUIREMENT

32.0 SH

MS in Music Industry Leadership with Research Concentration

GENERAL REQUIREMENTS

MUSI 6000 Management of Music Organizations	3 SH
MUSI 6100 Music Industry Research Methodology	3 SH
MUSI 6200 Financial Management in the Music Industry	3 SH
MUSI 6300 Intellectual Property for Music Management	3 SH
MUSI 6400 Marketing Strategies in the Music Industry	3 SH
Music electives	2 to 12 SH
Thesis course	8 SH

CREDIT REQUIREMENT

32.0 SH

MS in Music Industry Leadership with Entrepreneurship Concentration

GENERAL REQUIREMENTS

MUSI 6000 Management of Music Organizations	3 SH
MUSI 6100 Music Industry Research Methodology	3 SH
MUSI 6200 Financial Management in the Music Industry	3 SH
MUSI 6300 Intellectual Property for Music Management	3 SH
MUSI 6400 Marketing Strategies in the Music Industry	3 SH
Business electives	2 to 12 SH
Music electives	2 to 14 SH
Capstone project	7 SH

CREDIT REQUIREMENT

32.0 SH

JD/MS in Music Industry Leadership

Over the course of 45 months, the program enrolls students successively in the School of Law and the College of Arts, Media and Design. JD/MS candidates must complete the first and last years of the program in the School of Law. The year of music industry courses in the College of Arts, Media and Design may be taken during either the second or third year.

NEC/NU Joint Certificate Programs in Music Performance

The School of Continuing Education at the New England Conservatory (NEC) and the Department of Music at Northeastern University (NU) jointly offer a General Certificate of Merit in Music Performance (24 credits) and a Professional Studies Certificate in Music Performance (48 credits). These programs are geared toward Northeastern undergraduate and graduate students who are interested in improving their abilities to perform on an instrument or voice in the classical or jazz styles.

The certificate in music performance is *in addition to* the student's Northeastern undergraduate or graduate degree—it is an entirely separate and distinct credential. Credits for courses toward the music performance certificate are accumulated and billed separately from credits toward Northeastern undergraduate or graduate degree programs and are not eligible for financial aid.

Courses are offered at NEC (predominantly related to music performance) and at NU (predominantly related to music history and music theory). NEC courses are scheduled during evenings and weekends.

For certificate requirements, please visit www.northeastern.edu/registrar/courses/cat1314-acad-am-musc-cert.pdf.

D'Amore-McKim School of Business

www.damore-mckim.northeastern.edu/grad

HUGH G. COURTNEY, PhD, Dean

Peggy L. Fletcher, MBA, Associate Dean
of Finance and Administration

Kate E. Klepper, MBA, Associate Dean of Graduate Programs

Charles Bame-Aldred, PhD, Associate Dean
of Undergraduate Programs

Marjorie Platt, PhD, Senior Associate Dean
and Dean of Faculty

Mario J. Maletta, PhD, Senior Associate Dean
of Academic Programs

D'Amore-McKim School of Business

350 Dodge Hall
617.373.5992
617.373.8564 (fax)
gsba@neu.edu

Graduate School of Professional Accounting

412 Dodge Hall
617.373.3244
617.373.8890 (fax)
gspa@neu.edu

Online Business Programs

350 Dodge Hall
617.373.3042
617.373.8564 (fax)
gsba@neu.edu

Modern business faces many challenges from unprecedented political change and the effects of foreign policy, high technology, affirmative action regulations, and new economic policies. These challenges have increased the demand for highly trained individuals equipped to analyze and address our economy's complex social and legal problems.

Programs in the D'Amore-McKim School of Business (DMSB) are designed for students who are preparing to take on managerial responsibility. These programs seek to help students develop the ability to recognize and solve business and organizational problems and understand the role of business in the community, the nation, and the world. The college's goals are to help students develop ideals that are ethically sound and socially desirable; cultivate an awareness of the social, political, and economic developments to which businesses must adapt; develop sound judgment and effective communication skills; and develop their individual interests and talents.

NORTHEASTERN UNIVERSITY

MASTER OF SCIENCE

Master of Science programs offer students the opportunity for in-depth study in a particular functional business area. Depending on a student's prior academic background, certain prerequisite courses of study may apply.

Designed for undergraduate accounting majors, the Master of Science in Accounting seeks to give you the advanced accounting knowledge and skills you need to sit for the CPA exam. No prior work experience is required.

With an MS in Taxation, you have an opportunity to learn to analyze the Internal Revenue Code, expand your professional network, and advance your career in taxation. Courses begin three times per year: in fall, spring, and summer.

Northeastern's MS in Finance program emphasizes the skills that are essential for a successful career in finance. You can pursue study in either corporate finance or investments.

Northeastern's MS in International Business (MSIB) is designed for globally focused individuals who want to begin careers in international business.

The Master of Science in Technological Entrepreneurship is an intensive one-year (September to June) 10-course sequence that seeks to teach you what you need to know to be a successful entrepreneur.

MSA—Master of Science in Accounting

GENERAL REQUIREMENTS

ACCT 6203 Business Entity Taxation	3 SH
ACCT 6204 Financial Reporting for Integrated Multinational Enterprises	3 SH
ACCT 6205 Professional Environment of the Audit and Assurance Industry	3 SH
ACCT 6206 Management Control Systems	3 SH
ACCT 6207 Contemporary and Emerging Issues in Financial Reporting	3 SH
ACCT 6216 Financial Reporting for Governments and Nonprofit Entities	2 SH
ACCT 6217 Corporate Governance, Ethics, and Financial Reporting	3 SH
ACCT 6229 Accounting for Foreign Currency Transactions	1 SH
MGMT 6212 Managerial Communication	3 SH
Two graduate business electives	6 SH

PROGRAM TOTAL CREDITS 30.0 SH

MST—Master of Science in Taxation**GENERAL REQUIREMENTS**

ACCT 6230 Federal Tax Issues and Analysis	3 SH
ACCT 6231 Corporations and Shareholders	3 SH
ACCT 6232 Estate and Gift Taxation	3 SH
ACCT 6233 Tax Research Methodology	1.5 SH
ACCT 6234 Tax Practice, Procedure, and Ethics	1.5 SH
ACCT 6235 Partners and Partnerships	3 SH
Five electives in the range ACCT 6236 through ACCT 6261	15 SH

PROGRAM TOTAL CREDITS 30.0 SH

MST—Online Program**GENERAL REQUIREMENTS**

ACCT 6230 Federal Tax Issues and Analysis	3 SH
ACCT 6231 Corporations and Shareholders	3 SH
ACCT 6232 Estate and Gift Taxation	3 SH
ACCT 6235 Partners and Partnerships	3 SH
ACCT 6292 Tax Research, Practice, and Ethics	3 SH
Five courses from the list "Accounting Courses," below	15 SH

PROGRAM TOTAL CREDITS 30.0 SH

ACCOUNTING COURSES

ACCT 6239 State and Local Taxation	3 SH
ACCT 6240 International Taxation: Inbound Transactions	3 SH
ACCT 6241 International Taxation: Outbound Transactions	3 SH
ACCT 6243 Advanced Flow-Through Entities	3 SH
ACCT 6246 Retirement Plans	3 SH
ACCT 6248 Income Taxation of Trusts and Estates	3 SH
ACCT 6249 Financial Planning for Investments	3 SH
ACCT 6250 Financial Planning for Insurance	3 SH
ACCT 6264 Planning for Estate Tax Issues	3 SH
ACCT 6265 Tax Accounting for Income Taxes	3 SH

MSF—Master of Science in Finance**GENERAL REQUIREMENTS**

FINA 6201 Financial Theory and Policy	3 SH
FINA 6202 Analysis of Financial Institutions and Markets	3 SH
FINA 6203 Investment Analysis	3 SH
FINA 6204 International Finance Management	3 SH
FINA 6205 Financial Strategy	3 SH
FINA 6206 Finance Seminar	3 SH
Three graduate finance electives	9 SH
One graduate business elective	3 SH

PROGRAM TOTAL CREDITS 30.0 SH

MSF—Online Program**GENERAL REQUIREMENTS**

FINA 6201 Financial Theory and Policy	3 SH
FINA 6202 Analysis of Financial Institutions and Markets	3 SH
FINA 6203 Investment Analysis	3 SH
FINA 6204 International Finance Management	3 SH
FINA 6205 Financial Strategy	3 SH
FINA 6206 Finance Seminar	3 SH
Four electives in the range FINA 6211 through FINA 6219	12 SH

PROGRAM TOTAL CREDITS 30.0 SH

MSIB—Master of Science in International Business**GENERAL REQUIREMENTS**

FINA 6204 International Finance Management	3 SH
FINA 6209 Introduction to International Accounting and Finance	3 SH
INTB 6200 Managing the Global Enterprise	3 SH
INTB 6226 Becoming a Global Leader	3 SH
INTB 6230 International Field Study	3 SH
MECN 6203 Global Managerial Economics	3 SH
MKTG 6206 International Marketing	3 SH
SCHM 6213 Global Supply Chain Management	3 SH
Two graduate electives	6 SH

PROGRAM TOTAL CREDITS 30.0 SH

MS in Technological Entrepreneurship**GENERAL REQUIREMENTS**

Note: TECE 7671 is taken twice.

TECE 6200 Innovation and Entrepreneurial Growth	3 SH
TECE 6230 Entrepreneurial Marketing in High-Tech Industries	3 SH
TECE 6240 Finance for Technology-Based Entrepreneurial Firms	3 SH
TECE 6250 Technology-Based Product Development Processes	3 SH
TECE 6260 Measuring and Managing the Cost of Production and Growth	3 SH
TECE 6300 Managing a Technology-Based Business	3 SH
TECE 6321 Intellectual Property in an Entrepreneurial Firm	2 SH
TECE 6340 The Technical Entrepreneur as Leader and Innovator	3 SH
TECE 6360 Strategic Entrepreneurship in a Technical Field	3 SH
TECE 7671 Development Project (taken twice)	4 SH

PROGRAM TOTAL CREDITS 30.0 SH

MASTER OF BUSINESS ADMINISTRATION

Northeastern University's full-time MBA is a 24-month program designed to enable you to increase your knowledge of business, gain real-world experience, and position yourself for career advancement.

Northeastern's evening MBA is a flexible, part-time program that allows you to complete your degree on your own timetable, set your own schedule, and specialize in an area that meets your career goals.

The high-tech MBA emphasizes the *business* of innovation. You can go beyond the status quo, studying how to identify opportunities for growth and drive change to products, systems, and processes within your organization.

The executive MBA is a 16-month, part-time program for seasoned professionals ready to expand their knowledge of global business and hone their leadership skills.

As a student in the online MBA program, you have an opportunity to build on your current career success, expand your managerial skills, and put new learning to use in your place of work. This program is offered completely online.

**MBA—Full-Time Program
with Concentration in Finance****GENERAL REQUIREMENTS**

ACCT 6208 Financial Reporting and Managerial Decision Making	4 SH
BUSN 6200 Career Management	0 SH
BUSN 6207 Developing Critical Skills in Real Time	2 SH
ENTR 6208 Innovation and Enterprise Growth	3 SH
FINA 6203 Investment Analysis	3 SH
FINA 6208 Financial Management for Value Creation	4 SH
HRMG 6208 Effective Organizational and Human Behavior	3 SH
INTB 6208 Global Management	3 SH
INTB 6230 International Field Study	3 SH
MECN 6208 Economics for Managerial Decision Making	2 SH
MGSC 6205 Management of Information Resources	2 SH
MGSC 6207 Data Analysis for Decision Making	2 SH
MGSC 6208 Operations Management	2 SH
MKTG 6208 Marketing and Customer Value	4 SH
SCHM 6208 Managing the Supply Chain	2 SH
STRT 6208 Strategic Decisions for Growth	3 SH
Six graduate DMSB electives	18 SH

PROGRAM TOTAL CREDITS 60.0 SH

**MBA—Full-Time Program
with Concentration in Marketing****GENERAL REQUIREMENTS**

ACCT 6208 Financial Reporting and Managerial Decision Making	4 SH
BUSN 6200 Career Management	0 SH
BUSN 6207 Developing Critical Skills in Real Time	2 SH
ENTR 6208 Innovation and Enterprise Growth	3 SH
FINA 6208 Financial Management for Value Creation	4 SH
HRMG 6208 Effective Organizational and Human Behavior	3 SH
INTB 6208 Global Management	3 SH
INTB 6230 International Field Study	3 SH
MECN 6208 Economics for Managerial Decision Making	2 SH
MGSC 6205 Management of Information Resources	2 SH
MGSC 6207 Data Analysis for Decision Making	2 SH
MGSC 6208 Operations Management	2 SH
MKTG 6208 Marketing and Customer Value	4 SH
MKTG 6210 Marketing Research	3 SH
SCHM 6208 Managing the Supply Chain	2 SH
STRT 6208 Strategic Decisions for Growth	3 SH
Six graduate DMSB electives	18 SH

PROGRAM TOTAL CREDITS 60.0 SH

**MBA—Full-Time Program with Concentration
in Operation and Supply Chain Management****GENERAL REQUIREMENTS**

ACCT 6208 Financial Reporting and Managerial Decision Making	4 SH
BUSN 6200 Career Management	0 SH
BUSN 6207 Developing Critical Skills in Real Time	2 SH
ENTR 6208 Innovation and Enterprise Growth	3 SH
FINA 6208 Financial Management for Value Creation	4 SH
HRMG 6208 Effective Organizational and Human Behavior	3 SH
INTB 6208 Global Management	3 SH
INTB 6230 International Field Study	3 SH
MECN 6208 Economics for Managerial Decision Making	2 SH
MGSC 6205 Management of Information Resources	2 SH
MGSC 6207 Data Analysis for Decision Making	2 SH
MGSC 6208 Operations Management	2 SH
MKTG 6208 Marketing and Customer Value	4 SH
SCHM 6208 Managing the Supply Chain	2 SH
SCHM 6213 Global Supply Chain Management	3 SH
STRT 6208 Strategic Decisions for Growth	3 SH
Six graduate DMSB electives	18 SH

PROGRAM TOTAL CREDITS 60.0 SH

MBA—Evening Program**GENERAL REQUIREMENTS**

ACCT 6200 Financial Reporting and Managerial Decision Making 1	3 SH
ACCT 6201 Financial Reporting and Managerial Decision Making 2	1.5 SH
ENTR 6200 Enterprise Growth and Innovation	3 SH
FINA 6200 Value Creation through Financial Decision Making	3 SH
HRMG 6200 Managing People and Organizations	3 SH
INTB 6200 Managing the Global Enterprise	3 SH
MECN 6200 Global Competition and Market Dominance	3 SH
MGSC 6200 Information Analysis	3 SH
MGSC 6204 Managing Information Resources	1.5 SH
MGSC 6206 Management of Service and Manufacturing Operations	3 SH
MKTG 6200 Creating and Sustaining Customer Markets	3 SH
STRT 6200 Strategic Decision Making in a Changing Environment	3 SH
Nine graduate DMSB electives	27 SH

PROGRAM TOTAL CREDITS 60.0 SH

MBA—High-Technology MBA Program**GENERAL REQUIREMENTS**

ACCT 6280 Financial Reporting and Decision Making for Firms in Innovation-Intensive Industries	3 SH
ACCT 6281 Measuring and Managing the Costs of Production and Growth	3 SH
BUSN 6280 How Executives Shape and Lead Innovation and Enterprise Growth	3 SH
BUSN 6281 Venturing with Northeastern Entrepreneurs, Investors, and Corporate Executives	3 SH
ENTR 6215 New Venture Creation for Entrepreneurs and Corporate Innovators	3 SH
ENTR 6217 Lean Innovation	3 SH
FINA 6280 Corporate Finance for Dynamic Industries	6 SH
FINA 6281 Mergers and Acquisitions for Enterprise Growth, Strategy, and Mechanics	3 SH
FINA 6283 Economics of Growth and Innovation	3 SH
HRMG 6280 Creating and Sustaining High-Performance Teams	3 SH
HRMG 6281 Leading and Implementing Innovation in Organizations	3 SH
INTB 6280 Managing Innovation and Marketing in the Global Enterprise	3 SH
MGMT 6280 Managing Innovation in Products, Systems, and Services	3 SH
MGMT 6281 Competitive Strategy for Dynamic Markets, Development, and Execution	3 SH
MGMT 6282 Negotiation and Communication	3 SH

MGMT 6283 Business Law, Corporate Governance, and Intellectual Property Strategies	3 SH
MGSC 6281 Service Innovation and Management	3 SH
MKTG 6280 Market Segmentation and Customer Insight for Next-Generation Products and Services	3 SH
MKTG 6281 Go-to-Market for New Products and Services	3 SH

PROGRAM TOTAL CREDITS 60.0 SH

MBA—Executive MBA Program**GENERAL REQUIREMENTS**

ACCT 6290 Interpreting and Evaluating Financial Statements	3 SH
ACCT 6291 Identifying Strategic Implications in Accounting Data	3 SH
FINA 6290 Financial Tools and Decision Making for Executives	3 SH
FINA 6291 Creating Value in a Global Business Environment	3 SH
HRMG 6290 Building High-Performance Teams	2 SH
HRMG 6291 Leveraging Organizational Development, Motivation, and Leadership for Organizational Effectiveness	2 SH
HRMG 6292 Using Human Resource Management for Competitive Advantage	2 SH
HRMG 6293 Developing and Applying Personal Leadership Skills	2 SH
HRMG 6294 Hallmarks of Effective Leadership	2 SH
INTB 6290 Managing in Diverse Cultures to Execute Global Strategy	3 SH
INTB 6291 Expanding Globally for New Competitive Advantage	2 SH
INTB 6292 Global Economic and Political Environments	2 SH
INTB 6293 International Residency in Mexico City	3 SH
INTB 6294 International Residency in China and Hong Kong	3 SH
MECN 6290 How Economics and Politics Affect U.S. Businesses	3 SH
MGMT 6293 Developing an Executive Understanding of Business Law and Intellectual Property	3 SH
MGMT 6295 Leadership for High Performance and Organizational Change	2 SH
MGMT 6296 Managerial Communication and Presentations	2 SH
MGSC 6291 Creating Value through Process Improvement	2 SH
MGSC 6292 Delivering Competitive Advantage through IT Strategy	2 SH
MKTG 6290 Creating and Sustaining Markets	3 SH
MKTG 6292 Best Practices for New Product and Services Development	2 SH

MKTG 6293 Leveraging Traditional and Digital Platforms for New Marketing Strategy	2 SH
SCHM 6290 Sourcing, Making, and Delivering Goods in a Dynamic, Global Business Environment	2 SH
STRT 6291 Changing the Strategic Viewpoint for Competitive Advantage	2 SH

PROGRAM TOTAL CREDITS 60.0 SH

MBA—Online Program

GENERAL REQUIREMENTS

ACCT 6272 Financial Statement Preparation and Analysis	2.25 SH
ACCT 6273 Identifying Strategic Implications in Accounting Data	2.25 SH
ENTR 6200 Enterprise Growth and Innovation	3 SH
FINA 6200 Value Creation through Financial Decision Making	3 SH
HRMG 6200 Managing People and Organizations	3 SH
INTB 6200 Managing the Global Enterprise	3 SH
MECN 6200 Global Competition and Market Dominance	3 SH
MGMT 6213 Managing Ethics in the Workplace and Marketplace	2 SH
MGSC 6200 Information Analysis	3 SH
MGSC 6204 Managing Information Resources	1.5 SH
MGSC 6206 Management of Service and Manufacturing Operations	3 SH
MKTG 6200 Creating and Sustaining Customer Markets	3 SH
STRT 6200 Strategic Decision Making in a Changing Environment	3 SH
Five graduate DMSB electives	15 SH

PROGRAM TOTAL CREDITS 50.0 SH

DUAL DEGREES

With an MSA/MBA from Northeastern, you can earn two degrees—an MS in Accounting and an MBA—in just 15 months. This program is designed for liberal arts, nonaccounting majors.

The MS in Finance/MBA (MSF/MBA) program is open to students admitted to the full-time MBA program, the evening MBA program, or the MS in Finance program.

Northeastern's School of Nursing and D'Amore-McKim School of Business offer the MS/MBA in Nursing program, linking graduate-level management education with specific clinical and organizational issues relevant to nurse managers. The MS/MBA program seeks to provide students with the knowledge, skills, and attitudes necessary to understand, shape, and respond to the dynamic forces at play in today's healthcare environment.

The JD/MBA is a powerful combination that seeks to equip candidates to operate with equal facility in the increasingly interdependent legal and business spheres. Northeastern University offers an accelerated 45-month program in which students concurrently earn an MBA through the D'Amore-McKim School of Business and a JD through the School of Law. Northeastern's dynamic co-op program gives students hands-on experience in combining the legal and business worlds.

MSA/MBA—Professional Accounting Program

GENERAL REQUIREMENTS

ACCT 6217 Corporate Governance, Ethics, and Financial Reporting	3 SH
ACCT 6220 Corporate Financial Reporting and Decision Making 1	3 SH
ACCT 6221 Corporate Financial Reporting and Decision Making 2	6 SH
ACCT 6222 Corporate and Governmental/Nonprofit Financial Reporting and Decision Making	6 SH
ACCT 6223 Audit and Other Assurance Services	6 SH
ACCT 6224 Taxation of Individuals and Business Entities	6 SH
ACCT 6226 Strategic Cost Management	3 SH
ACCT 6227 Accounting for Business Combinations	3 SH
ACCT 6228 Contemporary Issues in Accounting Theory	3 SH
ENTR 6211 Entrepreneurship: Services and Retail Business Creation	3 SH
FINA 6200 Value Creation through Financial Decision Making	3 SH
HRMG 6200 Managing People and Organizations	3 SH
INTB 6200 Managing the Global Enterprise	3 SH
MECN 6200 Global Competition and Market Dominance	3 SH
MGMT 6211 Business Law and Professional Ethics	3 SH
MGSC 6200 Information Analysis	3 SH
MGSC 6201 Information Systems and Technology	3 SH
MGSC 6206 Management of Service and Manufacturing Operations	3 SH

MKTG 6200 Creating and Sustaining Customer Markets	3 SH
STRT 6200 Strategic Decision Making in a Changing Environment	3 SH

PROGRAM TOTAL CREDITS 72.0 SH

MSF/MBA—Full-Time Program

GENERAL REQUIREMENTS

ACCT 6208 Financial Reporting and Managerial Decision Making	4 SH
BUSN 6200 Career Management	0 SH
BUSN 6207 Developing Critical Skills in Real Time	2 SH
ENTR 6208 Innovation and Enterprise Growth	3 SH
FINA 6203 Investment Analysis	3 SH
FINA 6204 International Finance Management	3 SH
FINA 6205 Financial Strategy	3 SH
FINA 6206 Finance Seminar	3 SH
FINA 6208 Financial Management for Value Creation	4 SH
HRMG 6208 Effective Organizational and Human Behavior	3 SH
INTB 6208 Global Management	3 SH
INTB 6230 International Field Study	3 SH
MECN 6208 Economics for Managerial Decision Making	2 SH
MGSC 6205 Management of Information Resources	2 SH
MGSC 6207 Data Analysis for Decision Making	2 SH
MGSC 6208 Operations Management	2 SH
MKTG 6208 Marketing and Customer Value	4 SH
SCHM 6208 Managing the Supply Chain	2 SH
STRT 6208 Strategic Decisions for Growth	3 SH
Graduate finance electives	12 SH
Graduate business electives	9 SH

PROGRAM TOTAL CREDITS 72.0 SH

MSF/MBA—Evening Program

GENERAL REQUIREMENTS

ACCT 6200 Financial Reporting and Managerial Decision Making 1	3 SH
ACCT 6201 Financial Reporting and Managerial Decision Making 2	1.5 SH
ENTR 6200 Enterprise Growth and Innovation	3 SH
FINA 6200 Value Creation through Financial Decision Making	3 SH
FINA 6203 Investment Analysis	3 SH
FINA 6204 International Finance Management	3 SH
FINA 6205 Financial Strategy	3 SH
FINA 6206 Finance Seminar	3 SH
HRMG 6200 Managing People and Organizations	3 SH
INTB 6200 Managing the Global Enterprise	3 SH

MECN 6200 Global Competition and Market Dominance	3 SH
MGSC 6200 Information Analysis	3 SH
MGSC 6204 Managing Information Resources	1.5 SH
MGSC 6206 Management of Service and Manufacturing Operations	3 SH
MKTG 6200 Creating and Sustaining Customer Markets	3 SH
STRT 6200 Strategic Decision Making in a Changing Environment	3 SH
Graduate finance electives	12 SH
Graduate business electives	15 SH

PROGRAM TOTAL CREDITS 72.0 SH

MS/MBA in Nursing

GENERAL REQUIREMENTS

ACCT 6200 Financial Reporting and Managerial Decision Making 1	3 SH
ACCT 6201 Financial Reporting and Managerial Decision Making 2	1.5 SH
ENTR 6200 Enterprise Growth and Innovation	3 SH
FINA 6200 Value Creation through Financial Decision Making	3 SH
INTB 6200 Managing the Global Enterprise	3 SH
MECN 6200 Global Competition and Market Dominance	3 SH
MGSC 6200 Information Analysis	3 SH
MGSC 6206 Management of Service and Manufacturing Operations	3 SH
MKTG 6200 Creating and Sustaining Customer Markets	3 SH
NRSNG 5118 Healthcare System and Professional Role Development	3 SH
NRSNG 5121 Epidemiology and Population Health	3 SH
NRSNG 5124 Research Applications	1 SH
NRSNG 6301 Human Resources and Operations	3 SH
NRSNG 6302 Health Policy and Law	3 SH
NRSNG 6303 Nursing and Business	2 SH
NRSNG 6304 Healthcare Informatics	4 SH
NRSNG 6305 Case Management	3 SH
NRSNG 6500 Nursing Administration Practicum 1	4 SH
NRSNG 6501 Nursing Administration Practicum 2	4 SH
NRSNG 6502 Healthcare Informatics Practicum	2 SH
NRSNG 7105 Translating Research Evidence into Practice	3 SH
STRT 6200 Strategic Decision Making in a Changing Environment	3 SH
Graduate business specialization electives	5 SH

PROGRAM TOTAL CREDITS 68.5 SH

JD/MBA

Concurrent degree candidates follow a set schedule, as follows:

YEAR 1

Nine months of traditional first-year law study, followed by a three-month legal co-op in the summer.

YEAR 2 AND YEAR 3

Twelve months of courses in the business school, three months of law school courses during the fall and spring quarters, and two law/business co-ops in the winter and summer quarters.

YEAR 4

Three months of law school courses in the fall, a final law/business co-op in the winter, and three months of law courses in the spring, with Commencement ceremonies for both schools in the spring.

College of Computer and Information Science

www.ccs.neu.edu/graduate

LARRY A. FINKELSTEIN, PhD, Dean

Agnes H. Chan, PhD, Associate Dean and Director
of Graduate Studies

Doreen L. Hodgkin, MEd, Associate Dean, Administration
and Student Affairs

Bryan Lackaye, EdD, Assistant Dean for Graduate Programs

202 West Village H
617.373.2462
617.373.5121 (fax)
gradschool@ccs.neu.edu

The College of Computer and Information Science (CCIS) maintains a strong research program with significant funding from the major federal research agencies and private industry. With a substantial increase in faculty strength and research funding in recent years, we are actively seeking highly motivated, bright, hardworking students who are interested in pursuing a PhD degree in computer science or in the interdisciplinary field of information assurance. Graduate students and faculty members are involved in exciting projects in a wide range of research areas, including programming languages, software engineering, distributed and parallel computing, cryptography, network security, health informatics, network science, databases, information retrieval, and artificial intelligence. Colloquia and weekly research seminars contribute to the vibrant research atmosphere in the college.

Our curriculum encompasses both the breadth and depth needed for graduate school. Specialized, advanced courses for PhD students in computer science, information assurance, and personal health informatics are designed to prepare all students for research early in their doctoral education.

The MS curriculum in computer science combines the study of basic algorithms and theoretical computer science principles with advanced programming and software design methods. It offers students the opportunity to develop the analytical and problem-solving skills needed to pursue challenging professional careers.

In addition, we offer two interdisciplinary master's degree programs for working professionals: the MS in Health Informatics program, which seeks to prepare graduates to use information technology to improve healthcare delivery and outcomes; and the MS in Information Assurance program, which focuses on information technology and incorporates the understanding of the social sciences, law, criminology, and management needed to prevent and combat cyber attacks.

Three student laboratories house a mix of Linux and Windows workstations and separate research lab facilities. In addition, the Information Assurance Laboratory provides students with hands-on experience in information assurance exercises in an isolated network environment.

All faculty and supported graduate students have their own workstations. Our computing facilities, supported by our own systems administrators and assisted by the student crew, are connected via a high-speed network and serviced by a cadre of dedicated data servers.

Our college is a tightly knit community, and the faculty, staff, and students interact regularly through half-yearly town hall meetings, weekly teas, and seminars. A diverse, multicultural graduate student body and faculty members encourage rich extracurricular interaction. The student chapter of the Association for Computing Machinery organizes a number of social events to promote friendship and camaraderie within the CCIS community.

Transferring to the CCIS

A maximum of 9 semester hours of credit obtained at another institution may be accepted toward the degree, provided the credits consist of work taken at the graduate level for graduate credit, carry grades of 3.000 or better, have been earned at an accredited institution, and have not been used toward any other degree. Transfer credit will be offered only for courses that match a course offered at Northeastern University and that have been approved by the graduate committee. However, **no** transfer credits will be given for courses listed as interdisciplinary.

Academic Requirements for PhD Programs

A minimum of 16 semester hours of course work beyond the master's degree (excluding the six required core courses), or 48 semester hours of course work beyond the BS/BA degree, is required of all students.

ADMISSION TO CANDIDACY

All students must demonstrate sufficient knowledge in the fundamentals of computer science, as well as the ability to carry out research in an area of computer science.

The student must maintain a minimum GPA of 3.500 among the six courses satisfying the above course requirements and a grade of B or better in each of these courses. Students who have taken equivalent courses in other institutions may petition to be exempted from the course(s) (subject to the approval of the PhD committee). Each student may repeat a course once for no more than three out of the six courses if they do not receive a B or better in the course. Students with an MS in Computer Science may petition to the PhD committee for an exemption from these

courses. Petition forms are available in the college administrative office at 202 West Village H.

The fields listed do not necessarily represent areas of specialization or separate tracks within the PhD program. Rather, they attempt to delineate areas on which the student must be examined in order to measure his or her ability to complete the degree. Therefore, they may be adjusted in the future to reflect changes in the discipline of computer science and in faculty interests within the CCIS. Similarly, these fields do not represent the only areas in which a student may write his or her dissertation. They are, however, intended to serve as a basis for performing fundamental research in computer science.

RESEARCH/SURVEY PAPER

To demonstrate research ability, the student is required to submit to the PhD committee a research or a survey paper in an area of specialty under the supervision of a faculty advisor. Normally, the length of the paper should not exceed 15 pages. A submitted paper from a student is considered to have fulfilled the paper requirement if:

1. The paper has been submitted to a selective conference.
2. The student has made a substantial contribution to the paper.
3. The advisor has endorsed the paper with a written statement indicating the student's contribution.
4. The PhD committee has voted on a positive recommendation.

Upon completion of the course and the research paper requirements, the student is admitted to candidacy for the PhD degree. It is highly recommended that the student complete the candidacy requirement by the end of his or her second year.

RESIDENCY

One year of continuous full-time study is required after admission to the PhD candidacy. It is expected that during this period the student will make substantial progress in preparing for the comprehensive examination.

COMPREHENSIVE EXAMINATION

The examination is taken after the student has achieved sufficient depth in a field of study in order to prepare a prospectus for the PhD dissertation. This process should take place no later than the fall semester of the fifth year in residence. Prior to taking the comprehensive examination, the student prepares a thesis proposal for the examination, which describes the proposed research, including the relevant background materials from the literature. The thesis proposal should clearly specify the research problems to be attacked, the techniques to be used, and a schedule of milestones toward completion. Normally, the thesis proposal should not exceed 15 pages, excluding appendices and bibliography.

The thesis proposal must be approved by the comprehensive committee. It is strongly recommended that the same members should serve on both the comprehensive and thesis committees. With the help of the advisor, a student selects the comprehensive committee, consisting of four members to be approved by the PhD committee. The four members must include the advisor, two other

faculty members from the college, and an external examiner (optional for comprehensive committee).

To help the PhD committee to make an informed decision, a copy of the external examiner's resumé should be submitted at the same time. Upon approval of the written proposal, the student has to present the proposed work orally in a public forum, followed by a closed-door oral examination from the comprehensive committee. The student may take the comprehensive examination twice, at most.

DOCTORAL DISSERTATION

Upon successful completion of solving the research proposed in the thesis proposal, the candidate has an opportunity to prepare the dissertation for approval by the doctoral committee. The dissertation must contain results of extensive research and make an original contribution to the field of computer science. The work should give evidence of the candidate's ability to carry out independent research. It is expected that the dissertation should be of sufficient quality to merit publication in a reputable journal in computer science.

Doctoral Committee

If the thesis committee is the same as the comprehensive committee, no further approval is needed. If the thesis committee is changed in its composition, the approval process will follow that of the comprehensive committee.

Dissertation Defense

The dissertation defense is held in accordance with the regulations of the University Graduate Council. It consists of a lecture given by the candidate on the subject matter of the dissertation. This is followed by questions from the doctoral committee and others in attendance concerning the results of the dissertation as well as any related matters. The examination is chaired by the PhD advisor.

TIME AND TIME LIMITATION

After the establishment of degree candidacy, a maximum of five years will be allowed for the completion of the degree requirements, unless an extension is granted by the college graduate committee.

COMPUTER SCIENCE

Our PhD in Computer Science program seeks to prepare students to conduct state-of-the-art computer science research in preparation for careers in government, industry, and academia. Similarly, our MS in Computer Science program offers students the opportunity to broadly expand their knowledge in the field while focusing on one of our curricular specialties:

- Artificial intelligence
- Computer science theory
- Database management
- Graphics and robotics
- Human/computer interaction
- Information security
- Networks
- Programming languages
- Software engineering
- Systems

Graduate education in computer science also features the top-ranked Northeastern co-op program, enabling students to supplement their classroom education with real-world experience in the field. We have consistently placed more than 95 percent of our students in co-op positions. The college partners with several high-profile companies, including:

- Amazon
- Bloomberg
- EMC Corporation
- Fidelity Investments
- IBM Corporation
- Intuit
- Kronos
- MathWorks
- Microsoft
- Nokia
- Phase Forward
- SeaChange International
- Verizon Communications

Admission Requirements

Applicants must submit an official application, official transcripts from all colleges/universities attended, a personal statement, official scores of the GRE General Test, and three letters of recommendation. International students must also submit official scores of the TOEFL examination. Acceptance into the CCIS is granted upon recommendation of the college graduate committee after a review of the completed application.

Candidates must have completed the undergraduate material listed below:

- Experience in some high-level procedural language, e.g., C, C++, Java, Scheme, ML
- Data structures
- Computer organization
- One year of college calculus
- Discrete mathematics

Industrial experience in these areas may be an acceptable substitute for formal course work. Students may be accepted provisionally while completing these deficiencies and may take graduate courses concurrently as their preparation allows.

MSCS—Master of Science in Computer Science

YEAR 1, FALL SEMESTER

CS 5010 Programming Design Paradigm	4 SH
<i>Coreq.</i> CS 5011	
CS 5011 Recitation for CS 5010	0 SH
<i>Coreq.</i> CS 5010	
CCIS concentration elective	4 SH

YEAR 1, SPRING SEMESTER

CS 5500 or CS 5600	4 SH
CS 5800 Algorithms	4 SH

YEAR 2, FALL SEMESTER

CCIS concentration elective	4 SH
CCIS elective	4 SH

YEAR 2, SPRING SEMESTER

CCIS elective	4 SH
CCIS elective	4 SH

PROGRAM TOTAL CREDITS 32.0 SH

PhD in Computer Science

GENERAL REQUIREMENTS

CS 7400 Intensive Principles of Programming Languages	4 SH
CS 7600 Intensive Computer Systems	4 SH
CS 7800 Advanced Algorithms	4 SH
CS 7805 Theory of Computation	4 SH
Two CCIS specialization courses	8 SH
Open electives	16 SH

PROGRAM TOTAL CREDITS 40.0 SH

HEALTH INFORMATICS

MS in Health Informatics

See Bouvé College of Health Sciences interdisciplinary programs, page 145, for curriculum information.

PhD in Personal Health Informatics

ADMITTANCE

Students will be accepted with either of the following:

- A bachelor's or higher degree in a technical discipline (e.g., computer science or information science, computer systems engineering) with either academic or work experience demonstrating a commitment to working in health.
- A bachelor's or higher degree in a health science discipline (e.g., nursing, medicine, physical therapy, pharmacy, public health) with either some academic course work in technology, such as a course in programming or design, or work experience where the applicant participated in the development, adaptation, or evaluation of consumer- or patient-facing health technology. (Otherwise outstanding applicants without programming skills may be advised to take an introductory programming course prior to entry, and otherwise outstanding applicants without any formal experience working in health settings may be advised to spend some time volunteering in a medical or community health setting prior to entry.)

Applicants will be expected to have a minimum 3.000 undergraduate GPA; a minimum total GRE score of 300 or equivalent; a minimum GRE academic writing score of 3.5; and, for international applicants, a minimum TOEFL score of 105.

DEGREE REQUIREMENTS

Year One

Students take core courses in theoretical foundations of health interface design, software engineering, human-computer interaction, and statistics. Some course content links with a usability evaluation practicum requirement, where all students are paired for a semester with a practitioner in a health field. In the practicum, the students shadow the professional and study patients and their information needs. The student develops proposals for improving patient care using patient-facing technology.

Year Two

In addition to other core courses (research methods, healthcare data standards), students participate in a two-semester course, where they work in teams to assess needs in the field using experiences from their practicums and collaboratively design, develop, deploy, and evaluate a personal health or wellness interface technology, either in a local clinical setting or among a population of at-risk individuals associated with one of Bouvé's centers. This research offers practical experience working in the field with consumers/patients, creating sophisticated technology, conducting formal needs assessment and evaluation, and writing

high-quality publications. Modules throughout the course, taught by faculty affiliated with the personal health informatics doctoral program, offer additional core material such as running clinical trials, health dialogue systems, computerized sensing systems, etc.

Years Three–Five

Students work on individual research projects. We anticipate that students graduating from this program will have multiple, strong publications showing proficiency in building and deploying novel technologies for consumer- and patient-focused care.

CREDIT REQUIREMENT

A minimum of 48 credit hours of course work beyond a BS is required.

MINIMUM ACADEMIC STANDARDS AND REQUIREMENTS

Residency Requirement

The residency requirement will follow the University Graduate Council By-Law policy.

Dissertation Advising

Each student will have one primary advisor from the personal health informatics doctoral program faculty.

Dissertation Committee

The committee will consist of at least three members: the dissertation advisor, one additional personal health informatics doctoral program faculty member, and one member external to Northeastern who is an expert in the specific personal health informatics topic of research. The dissertation committee shall include experts with both health and technology backgrounds. The dissertation advisor must be a full-time member of the Northeastern University faculty.

Qualifying Examination

The qualifying examination consists of a three-part exam conducted by a committee of three personal health informatics doctoral program faculty members, each overseeing one part of the exam. The research core of the exam is fulfilled with submission of a high-quality paper to a strong peer-reviewed conference or journal. The health component of the exam is fulfilled when the student passes a written exam developed by a personal health informatics doctoral program faculty member with a health sciences background, and the technical component of the exam is fulfilled when the student passes an exam developed by a personal health informatics doctoral program faculty member with a technical background. The content of the written exams and the paper topic are developed in consultation with each faculty member.

Degree Candidacy

A student is considered a PhD degree candidate upon meeting these conditions:

- Completion of core courses with a minimum GPA of 3.000 overall on the core courses
- Completion of the qualifying examination

Comprehensive Exam

A PhD student must submit a written dissertation proposal to the dissertation committee. The proposal should identify the research problem, the research plan, and its potential impact on the field. A presentation of the proposal will be made in an open forum, and the student must successfully defend it before the dissertation committee.

Dissertation Defense

A PhD student must complete and defend a dissertation that involves original research in personal health informatics.

CURRICULUM REQUIREMENTS**Required and Elective Courses**

The curriculum is designed to provide all PhD students with a strong foundation in principles critical to the design and evaluation of personal health interfaces. All students take six core courses (24 semester hours) and the user-interface practicum (2 semester hours). All students must also fulfill the programming fundamentals requirement (4 semester hours) and the statistics fundamentals requirement (4 semester hours), where some flexibility in course selection allows tailoring based on background and experience. Two additional research electives (8 semester hours) are selected based on research interests from the personal health informatics electives list. Students are also expected to participate in the personal health informatics seminar series each semester.

PROGRAM ASSESSMENT**Learning Outcomes**

This program seeks to produce graduates who are capable of leading and performing independent, new research projects related to personal health informatics and who are well prepared to enter into a number of potential career paths, including industrial research positions, government consultants, postdoctoral or junior faculty positions in academic institutions in either technology programs or schools of health science, public health, or medicine.

Degree Outcomes

The dissertation committee evaluates whether the student has produced a significant contribution to personal health informatics research. The process used by the dissertation committee is based on an assessment of the goals and objectives described in the written PhD proposal. Student success can also be measured in the number and quality of publications generated by the research.

Improving Effectiveness

Publication venues will provide a means to assess the quality of the program, as well as the research projects. External research funding and incoming student quality will be used to measure program strength. In addition, graduates will be asked for feedback concerning their training and program preparation.

YEAR 1, FALL SEMESTER

CS 5010 Program Design Paradigm or other approved advanced programming course	4 SH
HINF 5200 Theoretical Foundations in Personal Health Informatics	4 SH

YEAR 1, SPRING SEMESTER

CS 5340 Computer/Human Interaction	4 SH
CS 6350 Empirical Research Methods	4 SH
HINF 5XXX Personal Health Informatics Usability Evaluation Practicum (pending approval)	2 SH

YEAR 2, FALL SEMESTER

HINF 5XXX Personal Health Interface System Design, Development, and Evaluation 1 (pending approval)	4 SH
MATH 7245 or MATH 7343 or PHTH 5210 Research	3 or 4 SH 1 SH

YEAR 2, SPRING SEMESTER

HINF 5XXX Health Data Systems Standards and Interchange (pending approval)	4 SH
HINF 5XXX Personal Health Interface System Design, Development, and Evaluation 2 (pending approval)	5 SH

YEAR 3, FALL SEMESTER

Personal health informatics graduate elective	4 SH
Research (candidacy preparation)	1 SH

YEAR 3, SPRING SEMESTER

Personal health informatics graduate elective	4 SH
Research (comprehensive exam)	1 SH

YEAR 4, FALL SEMESTER

Research	1 SH
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YEAR 4, SPRING SEMESTER

Research (dissertation proposal defense)	1 SH
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CREDIT REQUIREMENT 48.0 SH

INFORMATION ASSURANCE

We offer both the PhD and MS degree programs in information assurance to meet a wide range of student needs. Each provides interdisciplinary knowledge and skills, focusing on information technology as well as how law, policy, and human behavior influence measures to address global threats to cyberspace.

Our MS in Information Assurance program combines an understanding of information technology with relevant knowledge from law, the social sciences, criminology, and management. The MS in Information Assurance program is designed for working professionals and others who want knowledge they can apply in their workplaces to assess and manage information security risks effectively. The program provides a natural path to the PhD in Information Assurance program for students who want to pursue research in the field and careers involving research.

The research-focused, interdisciplinary PhD in Information Assurance program combines a strong technical foundation with a policy and social sciences perspective. It seeks to prepare graduates to advance the reliability and security of cyberspace in industry, academia, and government. The interdisciplinary nature of the program distinguishes it from traditional doctoral degree programs in computer science, computer engineering, or electrical engineering and makes it unique in the Boston area.

Admission Requirements

Admission to the Master of Science in Information Assurance program requires:

- A bachelor's degree.
- Knowledge of basic information technology concepts and mathematics. To ensure an adequate background, students are expected to have taken courses or have experience in introductory computer systems and discrete mathematics. If students do not have this preparation, their advisors will assign the necessary prerequisite courses.
- The Graduate Record Examination (GRE) is highly recommended for applicants to the MS in Information Assurance program who would like to be considered for financial assistance. A combined GRE score of 1100 and writing score of 3, or a TOEFL score of 250 CBT/100 IBT, is recommended. English tests may be required of international students when they arrive on campus.
- International students must submit official scores on the TOEFL examination and a Declaration and Certification of Finances (DCF) form (if applicable).

MSIA—Master of Science in Information Assurance

GENERAL REQUIREMENTS

IA 5010 Foundations of Information Assurance	4 SH
IA 5120, 5130, 5150, 5200, 5210, 5240, 5250 or 6120	16 SH
IA 7900 Capstone Project/Seminar	4 SH
Elective courses CS 5200, 5500, 5600, 5700, 5770, 6540, 6740; CRIM 7224, 7242, 7252; or MGMT 6215	8 SH

PROGRAM TOTAL CREDITS 32.0 SH

PhD in Information Assurance

GENERAL REQUIREMENTS

CS 5700 or EECE 7336	4 SH
CS 5770 Software Vulnerabilities and Security	4 SH
CS 6740 or CS 6750	4 SH
IA 5200 Security Risk Management and Assessment	4 SH
IA 5240 Cyberlaw: Privacy, Ethics, and Digital Rights	4 SH
Other required course work	28 SH

PROGRAM TOTAL CREDITS 48.0 SH

INTERDISCIPLINARY

MS in Game Science and Design

See the College of Arts, Media and Design, page 43, for curriculum information.

College of Engineering

www.coe.neu.edu/gse

NADINE AUBRY, PhD, *Dean*

Sara Wadia-Fascetti, PhD, *Associate Dean for Research and Graduate Studies*

130 Snell Engineering Center
617.373.2711

The Graduate School of Engineering (GSE) offers research and professional degree programs designed to prepare students for technical and leadership positions in industrial organizations, government laboratories, research laboratories, and educational institutions. We offer traditional day and part-time evening Master of Science and doctoral degree programs. Increasingly, more and more courses and degree programs are offered either partially or entirely in an online or hybrid format for distance learners.

Graduate Degree Programs in Engineering

DOCTOR OF PHILOSOPHY

- Bioengineering
- Chemical engineering
- Civil engineering
- Computer engineering
- Electrical engineering
- Industrial engineering
- Information assurance
- Interdisciplinary engineering
- Mechanical engineering

MASTER OF SCIENCE

- Chemical engineering
 - Chemical engineering with graduate certificate in engineering leadership
- Civil engineering
 - Construction management
 - Environmental engineering
 - Geotechnical/geoenvironmental engineering
 - Structural engineering
 - Transportation engineering
 - Civil engineering with graduate certificate in engineering leadership
- Computer systems engineering
 - Engineering software design
 - Computer systems engineering with graduate certificate in engineering leadership

- Electrical and computer engineering
 - Communications, control, and signal processing
 - Computer engineering
 - Electromagnetics, plasma, and optics
 - Microsystems, materials, and devices
 - Power systems, power electronics, and motion control
 - Electrical and computer engineering with graduate certificate in engineering leadership
 - Electrical and computer engineering leadership
- Energy systems
 - Energy systems with graduate certificate in engineering leadership
- Engineering management
 - Engineering management with graduate certificate in engineering leadership
- Industrial engineering
 - Industrial engineering with graduate certificate in engineering leadership
- Information systems
- Mechanical engineering
 - Material science and engineering
 - Mechanics and design
 - Thermofluids engineering
 - Mechanical engineering with graduate certificate in engineering leadership
- Operations research
 - Operations research with graduate certificate in engineering leadership
- Sustainable building systems
- Telecommunications systems management

GRADUATE CERTIFICATE

- Graduate certificate in engineering leadership

Learning Outcomes

DOCTOR OF PHILOSOPHY

The PhD programs' student learning outcomes are:

- A graduate-level understanding of basic disciplinary concepts
- Ability to formulate a research plan
- Ability to communicate orally a research plan
- Ability to conduct independent research

MASTER OF SCIENCE

The MS programs' student learning outcome is:

- A graduate-level understanding of basic disciplinary concepts

Admission Requirements

In order to be minimally qualified to pursue admission through the GSE, a candidate must have successfully completed or be in the process of completing an undergraduate bachelor's degree from a regionally accredited U.S. college or university or its equivalent from a foreign college or university. Any offer of acceptance is contingent upon a candidate's successful completion of an undergraduate bachelor's degree from a regionally accredited U.S. college or university or its equivalent from a foreign college or university.

For most GSE programs, in order to be qualified for admissions consideration from an undergraduate academic preparation standpoint, candidates are required to have had an engineering major directly related to their graduate program of interest, but some exceptions* are made. For the MS in Engineering Management program, a degree in mathematics or physics with linear algebra and multivariable calculus, or students of any major with the equivalent background in mathematics as an engineering major, are acceptable. For the MS in Energy Systems program, quantitative business or finance majors are acceptable if candidates also have some background in computer science and calculus. For the MS in Information Systems program, any technical major (i.e., science, mathematics) is acceptable. For mechanical engineering programs, majors in applied physics are acceptable. For the MS in Operations Research program, majors in any science discipline, including computer science and mathematics, are acceptable; other majors considered are economics, business, or other liberal arts with some background in calculus and linear algebra. For the MS in Telecommunications Systems Management program, majors in mathematics, physics, or computer science are acceptable.

In terms of the admissions process, note that every element of any candidate's background is considered, that there is no single factor that determines whether or not a candidate is admitted, that there are no guarantees of admission for any candidate, and that the decision rests solely with the appropriate faculty admissions committee. The GSE does not have a minimum GPA standard for admissions consideration, although the quality/difficulty of a candidate's undergraduate preparation is considered relative to a candidate's GPA.

Application requirements:*

- Online application.
- Statement of purpose.
- Professional resumé.
- Transcript(s) from any and all colleges or universities attended evidencing all courses, grades, and credits, as well as any diploma(s) or provisional certificate(s) evidencing that degree(s) have been conferred.
- Two letters of recommendation.
- Official GRE scores are required for applicants who have not received an ABET (Accreditation Board for Engineering and Technology)–accredited BS in Engineering from a U.S. school.
- Proof of English-language proficiency (for non-native English-language speakers). Official TOEFL or IELTS scores are

required of applicants whose native language is not English. Note that applicants who hold or will hold a graduate or undergraduate degree from a college or university in a country where English is the official and predominantly spoken language before beginning any graduate engineering program at Northeastern, if admitted, are exempt from this requirement.

*Interested candidates should check the official website of their program of interest for additional exceptions and/or application requirements.

Funding Opportunities

The Graduate School of Engineering offers full-time graduate students various types of highly competitive funding awards based on merit, as well as prestigious fellowships.

STIPENDED GRADUATE ASSISTANTSHIPS (SGA)

SGAs are typically awarded to PhD students. Awardees are offered a stipend, health insurance waiver, and tuition remission for approved course work. In exchange, students must work 20 hours per week for the applicable semesters. Stipends are considered taxable income. There are two categories of SGA appointments:

Graduate Research Assistantships (GRA)

Graduate research assistantships (GRA) are awarded to students who have a strong academic background and demonstrate an interest and proficiency in research. These appointments are typically funded by research grants made to faculty members by industry or government agencies. The continuation of any GRA is contingent upon funding availability.

Graduate Teaching Assistantships (GTA)

Graduate teaching assistantships (GTA) are awarded by academic departments and are available to students with proficiency in teaching. These positions generally require the performance of teaching-related duties such as grading, conducting recitations and laboratories, and occasionally teaching undergraduate classes. GTAs are required to attend various training sessions and workshops sponsored by the College of Engineering and the university. In addition, GTAs who speak English as a second language must attend training sessions sponsored by Global Student Services.

Note: SGAs are typically awarded upon acceptance to a degree program. Continuing students interested in a GRA or GTA should discuss their interest with their academic advisor.

FELLOWSHIPS AND SCHOLARSHIPS

Dean's Fellowships and Distinguished Dean's Fellowships

Dean's Fellowships and Distinguished Dean's Fellowships are prestigious awards offered upon admission to PhD students who demonstrate exceptional academic promise. Awardees are offered a stipend, health insurance waiver, tuition remission for approved course work, and teacher training. In exchange, students must work 20 hours per week for the applicable semesters. Stipends are considered taxable income.

Northeastern University Excellence Fellowship

Northeastern University Excellence Fellowships are awarded upon admission to students who show exceptional academic merit during their undergraduate degree programs.

Dean's Scholarships

Dean's Scholarships are awarded competitively to a limited number of well-qualified MS-level students. The scholarship provides a considerable tuition waiver.

Double Husky Scholarships

Double Husky Scholarships are awarded to alumni with a bachelor's degree from Northeastern University enrolled in a full-time master's degree program. The scholarship provides a 25 percent tuition waiver.

Note: All assistantship and fellowship appointments are considered a financial resource and may impact a student's financial aid award (if applicable) as determined by Student Financial Services.

Cooperative Education Policies

Full-time graduate engineering students are eligible to participate in the cooperative education (co-op) program. The graduate engineering students who participate in the co-op program are involved in extensive preparation, activity, and reflection activities.

ELIGIBILITY REQUIREMENTS

- Students must successfully complete the one-credit hour "Introduction to Cooperative Education" course with a satisfactory grade of S.
- When students wish to pursue a co-op experience, students *must*:
 - Be a full-time student at Northeastern University
 - Meet the minimum GPA requirement for their program (see table below)
 - Have *no* disciplinary or academic probation issues and *no* incomplete courses (no I grade in their records)
 - Have at least one semester left in their program after co-op
 - Have a valid I-20 (for international students)
- Students must also meet the professional communication standards for placement in a co-op position (i.e., must have sufficient English-language abilities for effective, professional communication among employers and co-workers during the co-op experience). For students who feel that their English-language abilities are not up to par to be eligible to participate in co-op, there is an English as a second language course offered at the College of Professional Studies that students may take before registering for the "Introduction to Cooperative Education."
- You may set up an appointment with the director of the College of Engineering graduate co-op program (b.satvat@neu.edu) to resolve any outstanding issues.
- Final decision regarding any exceptions to the above rules and regulations rest with the director of the College of Engineering graduate cooperative education program.

Program	Minimum GPA*	Minimum Semesters Completed
Information systems	3.000	2
Civil and environmental engineering	3.250	1
Electrical and computer engineering	3.400	1
All other programs	3.200	1

*Minimum GPA requirements will NOT be waived under any circumstances.

RULES AND RESTRICTIONS:

- Graduate School of Engineering offers only co-op opportunities to the graduate students. Internships are not available.
- Students may not hold an SGA at the university during the semesters planned for co-op.
- Students may participate in co-op activities with a single company for four, six, or eight months (six and eight months are preferred). The duration of co-op **cannot** be longer than eight months or shorter than four months.
- Students on four-month co-op assignments are allowed to have their co-op extended to a maximum of eight months.
- Students cannot participate in co-op activities continuously for a full calendar year (with either one or multiple companies).
- Students are allowed to take at the most one course during the fall and spring semesters while participating in co-op activities. Students participating in co-op during the full summer are only allowed to take a single course over the entire summer (summer I and summer II courses are not allowed).
- Students are permitted to participate in a second co-op during the summer semesters only. Students are not allowed to utilize any active co-op opportunities available on Placepro Database for their second co-op activities or return to their previous co-op employer.
- Third co-op is not permitted under any circumstances.
- There are no real connections between co-op activities (CPT) and Pre-OPT. Participating in one or more co-op assignments does not preclude participating in Pre-OPT activities unless the total amount of co-op assignment exceeds 12 months. Please contact your program director and/or the International Student and Scholar Institute personnel for more details regarding Pre-OPT.
- Students who wish to create their own co-op placement outside the Placepro Database must gain approval from the director of cooperative education before contacting the potential employer.

Online and Video Streaming Examination Policy

EXAM ADMINISTRATION

Students living within 50 miles of Boston who are enrolled in online and video-streamed sections are strongly encouraged to take exams at the Boston campus. In cases where a student is unable to travel to campus for exams, the student must make arrangements for an exam proctor. The Graduate School of Engineering reserves the right to reject any proctor application.

PROCTORING

Student Responsibilities

Students must make arrangements for a proctor. Proctors must be preapproved (at least three weeks prior to the first exam). Students are required to complete and submit a Proctor Approval form at the beginning of the semester.

Proctor Responsibilities

The proctor is responsible for administering exams to the students per the instructor's directions and in accordance with the Academic Honesty and Integrity Policy in order to maintain the security and integrity of the exam process.

Faculty Responsibilities

To administer each exam, the instructor will make arrangements for the exchange of exam materials with the proctor.

ACADEMIC POLICIES AND PROCEDURES

1.0 COURSE REGISTRATION AND WITHDRAWAL

1.1 Overview

Degree program curricula and faculty information for each academic department are listed below in the "Academic Programs" section. Course descriptions can be found on the registrar's website: www.northeastern.edu/registrar/cdr.html. Students must follow the curriculum of their program of study published in the *Graduate School of Engineering Student Guide and Catalog*, or *University Graduate Catalog* (2012 and beyond), for the year in which they matriculate. Any change in course work or other program requirements must be approved by the student's program advisor or departmental graduate officer. In addition, students must complete any preparatory courses stipulated at the time of admission.

Registration is mandatory. Any student attending a course who has failed to register properly before the end of the third week of classes in a given semester will not receive a grade at the end of the semester, even if he or she has completed all required course work.

Students must be registered in their last semester of study. Students finishing their requirements in the summer semester must be registered in the full summer, summer 1, or summer 2 term.

Due to last-minute scheduling changes, the Graduate School of Engineering must occasionally substitute faculty or change class meeting times after the registration period has begun. Any student who initially registered for the original course will automatically be registered for the new version should no major schedule conflicts be apparent. Otherwise, the graduate school or the department will contact all registered students for alternatives. Students should not register for an excessive number of courses or for double sections with the intention of dropping half or more of the courses during the first week of classes. Over-registering complicates course and room scheduling and closes courses prematurely to genuinely interested students.

Any student who is financially withdrawn by Student Accounts prior to the start of any given semester will not be permitted to register for that semester until he or she rectifies the outstanding financial obligation.

Northeastern University reserves the right to cancel, postpone, combine, or modify any course.

1.2 Course Selection

Minimum required number of courses: Full-time students (domestic and international) in the Graduate School of Engineering must enroll on a continuous basis and carry a minimum of 8 semester hours of credit per semester.

Any student who holds an SGA is considered full-time if enrolled in a minimum of 6 semester hours of credit. All graduate students who are registered for Dissertation, Dissertation or Thesis Continuation, or PhD Candidacy Preparation are considered full-time. The graduate school does not require part-time students to maintain any minimum enrollment.

Students should formulate a program of study in consultation with their assigned program advisor or departmental graduate officer during fall or spring orientation.

Courses other than required core courses are offered according to demand and are subject to faculty availability. Students should preselect courses whenever possible and plan to take them when offered, maintaining flexibility with alternate courses in mind. Not all courses are offered every year; however, the graduate school will do everything possible to assure continuity of programs and to permit students to make continuous progress toward their degrees.

To register for a course offered by another graduate school at Northeastern, a student must have approval from the Graduate School of Engineering before he or she can request permission from the other graduate school to register for the course. More information is available below in Section 4.

Full-time students may register for a maximum of 16 semester hours per semester. Part-time students may register for a maximum of 8 semester hours per semester. However, a student may petition his or her program advisor or departmental graduate officer for a course overload.

Students who need assistance in course selection, course sequencing, waivers, and/or transfer credits should contact their program advisor, departmental graduate officer, or the Graduate School of Engineering.

1.3 Dissertation Continuation and Thesis Continuation

Once department requirements are met, PhD students must register for two consecutive semesters (excluding the summer term) of Dissertation before registering for its continuation. Students must register for Dissertation Continuation in each subsequent semester (excluding the summer term) until the dissertation is completed and approved by the Graduate School of Engineering.

Master's degree students who are completing a thesis must register for a total of 8 semester hours of Thesis. Students who have not completed their thesis, but have already registered for the required number of thesis hours, must register for Thesis Continuation in each subsequent semester, excluding the summer term, until the thesis is completed and approved by the Graduate School of Engineering. However, students completing their dissertation or thesis in the summer term must register for the appropriate continuation course in the summer term.

Dissertation Continuation and Thesis Continuation do not carry semester hours of credit; however, students who register are considered to be in full-time status. During graduation clearance, the Graduate School of Engineering will retroactively register students who fail to register for the correct sequence of Dissertation Continuation or Thesis Continuation. Once these retroactive registrations are posted on a student's record, Student Accounts will send a tuition bill to the student.

2.0 ACADEMIC STANDARDS AND DEGREE REQUIREMENTS

2.1 Academic Requirements

All students must satisfactorily complete an approved program of correlated work of graduate caliber and such other study as may be required by the academic department in which they are enrolled. Regardless of classification, any student whose record is not satisfactory may be withdrawn from the Graduate School of Engineering for poor performance.

To qualify for any degree from the graduate school, a student must attain a cumulative grade-point average (GPA) of 3.000 or higher with no more than 8 semester hours below the grade of B- in all courses applied toward that degree, exclusive of any prerequisite courses required of students admitted provisionally to their program. A student must also earn a grade of C or higher in all required core courses. Individual programs may have additional, more stringent, requirements. The Graduate School of Engineering allows students to attempt 8 semester hours of credit beyond stated minimum degree requirements in order to attain the required 3.000 GPA for graduation. Within the above limitations for extra or repeated courses, a student must repeat any required core course in which he or she earns below a grade of C.

2.2 Academic Probation

STUDENT'S ACADEMIC STANDING

Academic standing at Northeastern University is determined by a student's cumulative grade-point average (GPA). All graduate students are expected to maintain a cumulative GPA of 3.000 or higher each term to remain in good academic standing and to progress toward graduation. Students falling below a cumulative

GPA of 3.000 are placed on academic probation for each academic term in which the cumulative GPA is below 3.000. This will be noted on the student's unofficial transcript.

ACADEMIC PROBATION POLICY

Academic probation is a period of time when a student must address and remediate academic deficiencies.

A student placed on academic probation will receive written notification by the Graduate School of Engineering (hereafter referred to as the graduate school). The student's academic advisor will also receive notification of the student's probationary status. An Academic Probation Action Plan to clear the deficiency must be developed by the student and the student's academic advisor. It is the student's responsibility to complete an action plan (with input from the advisor) that documents how the deficiency will be remediated. This action plan must be signed by the academic advisor and the student, and a copy must be submitted to the graduate school as soon as possible and no later than seven business days from the start of the next academic term. If the action plan is not received by this deadline, the graduate school will cancel the student's course registration(s). *Failure to file an action plan may be cause for dismissal from the program.* The graduate school reserves the right to reject or change the action plan.

DISMISSAL FROM PROGRAM

A student (part-time or full-time) placed on probation for a cumulative GPA of less than 3.000 will have one academic term to raise the cumulative GPA greater than or equal to 3.000. *A student that has a cumulative GPA less than 3.000 for two consecutive terms is subject to dismissal by the university.*

The graduate school may request an extension of one additional academic term; however, this request requires significant justification and demonstration that the student can achieve a cumulative GPA greater than or equal to 3.000 with a one-term extension. No additional extensions will be considered by the university. The university has final authority over dismissal decisions. If requesting an extension, the academic advisor must attach a detailed justification to the action plan and submit it to the graduate school no later than 10 business days from the end of the term.

Students being dismissed from their program will receive written notification from the Graduate School of Engineering.

END OF PROBATIONARY PERIOD

Part III of the Academic Probation Action Plan must be completed by the student's academic advisor at the end of the academic term following the term in which the student was first placed on probation. This process must be initiated by the student. A copy of the action plan, with part III completed by the advisor, must be filed with the graduate school within 10 business days from the end of the term. The graduate school will review the advisor's recommendation. The university will make the final decision regarding the student's academic status.

APPEALS PROCESS

A student may appeal a dismissal from their program of study due to failure to achieve academic standards set forth in this academic probation policy within the designated period of academic probation. To initiate an appeal, the student must send a written request to the associate dean of the graduate school detailing the reasons the student is appealing the dismissal. The written request must be signed by the student, and the appeal must be received by the Graduate School of Engineering within 30 business days from the day the student received written notification of dismissal. The graduate school will respond to the appeal within 10 business days of the date of receipt.

2.3 Prerequisite Courses/Undergraduate Courses

Students are not awarded credit toward degree requirements for prerequisite courses unless expressly stated by the student's academic department. Students may occasionally be permitted by their advisor to take undergraduate courses. However, undergraduate courses do not count toward a graduate degree and may affect a student's eligibility to receive federal financial aid.

3.0 ADMINISTRATIVE PROCEDURES

3.1 Personal Information

All students are responsible for maintaining valid personal contact information on the myNEU Web portal. A student may not use a departmental mailbox as his or her mailing address.

4.0 PETITIONS

4.1 Overview

The petition procedures described below are required in all cases so that the Graduate School of Engineering may maintain a complete and accurate file for all students. All petitions, unless otherwise noted, must be formally made on a Graduate School of Engineering petition form and approved by a student's advisor or departmental graduate officer and by the director of the graduate school. Other approvals may be required as stipulated by the graduate school upon petition review.

4.2 Elective Outside Approved List of Courses for Program of Study

Graduate School of Engineering–approved degree programs and courses for each are found in this *Northeastern University Graduate Catalog*. Students must follow the curriculum of their program of study published in the year in which they matriculate. If a student wishes to take a course that is not on the list of approved courses for their program, the student must request permission from their academic advisor to take the course **before** registering for the course. Failure to obtain permission to take the course may result in the course not counting toward the student's graduate degree. The petition must be submitted to the Graduate School of Engineering for review/approval.

Note: Students enrolled in a PhD program are not subject to this requirement. Course selection is considered a matter between the student, his or her academic advisor, and department.

4.3 Change in Status Classification

Students may petition to change their student status from full-time to part-time study within the same program by filing a petition form in the Graduate School of Engineering. Departmental approval is not required in this case. However, students who hold an assistantship, or whose department requires full-time students to complete a project or thesis, must have departmental approval to change status. International students are subject to the rules governing their immigration status and should consult with an advisor in the International Student and Scholar Institute before filing a status change petition.

Those who wish to change status from part-time to full-time study within the same program must have completed a minimum of 8 semester hours of course work with a minimum 3.000 GPA. Students in this case must submit a petition form to their advisor or departmental graduate officer for approval.

4.4 Change in Degree Concentration

A student who wishes to change his or her major area of concentration within the same program must submit a completed petition form to his or her program advisor or departmental graduate officer for approval. The advisor will then forward the petition form to the graduate school for final approval.

4.5 Change in Degree Program

A student who wishes to change his or her degree program must reapply for admission to that program. This means a new application. The application fee is waived. Documents such as transcripts, letters of recommendation, exam scores, etc., need not be resubmitted.

4.6 Course Waiver

A student may petition to waive any core, or required, course when he or she has completed equivalent or similar course work elsewhere. The student must submit a completed petition form, along with a course description and official transcript from the institution where he or she completed the course.

Note: Course waivers do not decrease the number of required semester hours in any program of study.

BIOENGINEERING

www.coe.neu.edu/gse/programs/BioE/BION/index.html

JEFFREY W. RUBERTI, PhD

Associate Professor, Program Director

365 Snell Engineering Center

617.373.3984

617.373.2910 (fax)

Jeffrey W. Ruberti, PhD, *Associate Professor*, j.ruberti@neu.edu

Our interdisciplinary Doctor of Philosophy (PhD) program in bioengineering draws on faculty across the university and reflects the significant strengths of bioengineering research in multiple areas. Students accepted to the bioengineering program will undertake a rigorous core curriculum in basic bioengineering science followed by an immersion track curriculum. There are currently eight tracks from which to choose:

- Track 1: Biomedical Imaging and Signal Processing
- Track 2: Biomechanics and Mechanobiology
- Track 3: BioMEMs/BioNANO
- Track 4: Biochemical and Bioenvironmental Engineering
- Track 5: Motor Control
- Track 6: Biocomputing
- Track 7: Cell and Tissue Engineering
- Track 8: General Bioengineering Studies

Biology can inspire engineering. Increasingly, discoveries in the life sciences reveal processes, complexity, and control without analogy in the limited world of traditional engineering. Current methods of producing nanoscale control over molecules cannot reproduce the organization found in even the simplest organisms. Energy capture, robust control, remediation, and self-assembly are all employed with efficiency unparalleled by anything in today's laboratories. At the same time, traditional engineering disciplines struggle to find new and complex challenges. The last 50 years of basic life science research have gradually peeled the layers of complexity from biological processes, unmasking the fundamental underpinnings on which biological systems are constructed. Bioinspired engineering has the potential to transform the technological landscape of the 21st century. Astonishingly, it represents merely one of the myriad opportunities presented at the interface of biology and engineering.

The field of bioengineering is broad and includes all research at the interface of engineering and biology—this includes bioprocesses, environmental microbiology, biomaterials and tissue engineering, bioelectricity, biomechanics, biomedical and biological imaging, nanotechnology in medicine and the environment, and engineering design for human interfacing. At Northeastern, bioengineering PhD students have an opportunity to be trained to appreciate advances in bioengineering across a wide range of disciplines while they perform highly focused and cutting-edge bioengineering research with one of our many affiliated faculty.

Degree Requirements

Completion of the PhD degree requires students to successfully complete the following requirements:

- **Curriculum:** The curriculum comprises a strong fundamental, broad core of courses that is then coupled with one of a series of available tracks for depth in a particular field of study. The detailed course requirements are outlined below.
- **Qualifying exam (written):** To qualify to continue in the PhD program, students must pass the bioengineering comprehensive qualifying examination, which comprises the synthesis of knowledge derived from the core curriculum and current literature in the form of an NIH-style proposal. Oral defense of the proposal is required to pass the exam.
- **Thesis committee:** The thesis committee (minimum of three members) must have at least one faculty member from the list of bioengineering-affiliated faculty in the College of Engineering.
- **Area exam:** PhD students must submit a “prospectus” to their thesis committee in the form of a 15-page NIH research plan and successfully defend the research plan in the form of an open presentation to their thesis committee.
- **Thesis:** PhD candidates must satisfactorily complete and defend a thesis dissertation describing original research in bioengineering.

PhD in Bioengineering

Note: “TBD” stands for “to be determined.”

PhD degree: Requires a minimum of 16 semester hours of course work beyond the master's degree and PhD dissertation. The required course distribution is shown in the table below.

Requirements	Credits
Required core courses	24 SH
Required and elective track courses	24 SH
Advanced seminar	0 SH
Dissertation	0 SH
Minimum semester hours required	48 SH

The core emphasizes the breadth of topics that our graduates must appreciate as internationally competitive bioengineers. It utilizes existing courses within the College of Engineering as well as introducing new/external courses that are necessary and will be developed.

Track 1: PhD in Bioengineering—Biomedical Imaging and Signal Processing Track

Track Managers: *Dana Brooks and Deniz Erdogmus*

The biomedical imaging and signal processing track reflects Northeastern University's outstanding research profile in various aspects of biological and biomedical imaging and image processing and signal processing. This is evidenced by the Gordon Center for Subsurface Sensing and Imaging Systems, the Center for Communications and Digital Signal Processing Research, and the strong externally funded active research groups and faculty

whose interest lie at the intersection of imaging, signal processing technologies, and biological and medical applications.

The courses listed below concentrate largely on general mathematical methods for signal and image processing and image formation and on image acquisition modalities and applications. Research in this area takes place at the intersection of these technical streams, and students completing the track will have a sufficiently strong background in the component areas to be able to carry out high-quality research efforts. Bioengineering PhD candidates may complete this track by taking at least two of the restricted electives and sufficient unrestricted electives to meet course requirements as specified by their degree program in addition to their core bioengineering curriculum.

GENERAL REQUIREMENTS

BIOE 5100 Medical Physiology	4 SH
BIOE 7374 Special Topics in Bioengineering	4 SH
BIOE 7390 Seminar	0 SH
BIOE 9990 Dissertation	0 SH
EECE 7200 Linear Systems Analysis	4 SH
EECE 7203 Complex Variable Theory and Differential Equations	4 SH
EECE 7204 Applied Probability and Stochastic Processes	4 SH
Course work from the list “Additional Required Courses,” below	12 SH
Course work from the list “Suggested Track Elective Courses,” below	16 SH

PROGRAM TOTAL CREDITS 48.0 SH

ADDITIONAL REQUIRED COURSES

BIOE 7001 Biomaterials	4 SH
CHME 5630 Biochemical Engineering	4 SH
EECE 5664 Biomedical Signal Processing	4 SH
ME 5667 Solid Mechanics of Cells and Tissues	4 SH

SUGGESTED TRACK ELECTIVE COURSES

BIOL 5553 Biology of Muscle: Molecules to Movements	4 SH
BIOL 5581 Biological Imaging	4 SH
BIOL 5587 Comparative Neurobiology	4 SH
BIOL 5603 Computational Neuroscience	4 SH
BIOL 6200 Bioinformatics Programming	4 SH
BIOL 6302 Bioinformatics Methods and Algorithms	5 SH
BIOL 6308 Bioinformatics Computational Methods 1	4 SH
BIOL 6309 Bioinformatics Computational Methods 2	4 SH
CHEM 5612 Principles of Mass Spectrometry	3 SH
CHEM 5613 Optical Methods of Analysis	3 SH
CHEM 5637 Foundations of Spectroscopy	3 SH
EECE 4512 Biomedical Electronics	4 SH
EECE 4692 Subsurface Sensing and Imaging	4 SH
EECE 5646 Optics for Engineers	4 SH
EECE 5648 Biomedical Optics	4 SH
EECE 7202 Electromagnetic Theory 1	4 SH
EECE 7271 Computational Methods in Electromagnetics	4 SH

EECE 7280 Fourier and Binary Optics	4 SH
EECE 7281 Fourier Optics	4 SH
EECE 7284 Optical Properties of Matter	4 SH
EECE 7293 Modern Imaging	4 SH
EECE 7310 Modern Signal Processing	4 SH
EECE 7311 Two Dimensional Signal and Image Processing	4 SH
EECE 7312 Statistical and Adaptive Signal Processing	4 SH
EECE 7313 Pattern Recognition	4 SH
EECE 7314 Auditory Signal Processing	4 SH
EECE 7323 Numerical Optimization Methods	4 SH
EECE 7335 Detection and Estimation Theory	4 SH
EECE 7337 Information Theory	4 SH
EXSC 6200 Cardiopulmonary Physiology	3 SH
PHSC 6226 Imaging in Medicine and Drug Discovery	2 SH
PHYS 7741 Biological Physics 2	4 SH
PSYC 5120 Proseminar in Sensation	3 SH
PSYC 5130 Proseminar in Perception	3 SH
PSYC 7220 Seminar in Sensation	3 SH
PSYC 7230 Seminar in Perception	3 SH
PSYC 7300 Advanced Quantitative Analysis	3 SH
PT 5138 Neuroscience	4 SH
Coreq. PT 5139	
PT 5139 Lab for PT 5138	1 SH
Coreq. PT 5138	
SLPA 0300 Anatomy and Physiology of the Vocal Mechanism	3 SH
SLPA 5111 Anatomy and Physiology of the Auditory System	3 SH
SLPA 6209 Psychoacoustics	2 SH
SLPA 6301 Speech Science	3 SH

Track 2: PhD in Bioengineering—Biomechanics and Mechanobiology Track

Track Managers: Sinan Muftu and Jeffrey Ruberti

Biomechanics and mechanobiology are linked by the biological response to applied forces and strains. To understand the overall effect of load on biological systems, it is important to consider not only the deformation and shear rates that result from force application but also the short- and long-term biological responses. The biomechanics and mechanobiology track reflects this understanding and leverages the strong faculty research at Northeastern, which is attempting to tie biomechanics to biological responses at multiple scales.

The biomechanics track is designed to capitalize on the substantial expertise in the mechanical and industrial engineering department, which has a strong fundamental research program in biomechanics. Faculty in the department perform investigations that comprise theoretical, computational, and experimental investigations. Students who select this track must take all of the restricted electives in addition to the bioengineering core curriculum and sufficient unrestricted electives to meet course requirements as specified by their degree program.

GENERAL REQUIREMENTS

BIOE 5100 Medical Physiology	4 SH
BIOE 7374 Special Topics in Bioengineering	4 SH
BIOE 7390 Seminar	0 SH
BIOE 9990 Dissertation	0 SH
BIOL 5553 Biology of Muscle: Molecules to Movements	4 SH
ME 5665 Musculoskeletal Biomechanics	4 SH
ME 7210 Elasticity and Plasticity	4 SH
Course work from the list "Additional Required Courses," below	12 SH
Course work from the list "Mathematical Methods for Bioengineers," below	4 SH
Course work from the list "Suggested Track Elective Courses," below	12 SH

PROGRAM TOTAL CREDITS **48.0 SH**

ADDITIONAL REQUIRED COURSES

BIOE 7001 Biomaterials	4 SH
CHME 5630 Biochemical Engineering	4 SH
EECE 5664 Biomedical Signal Processing	4 SH
ME 5667 Solid Mechanics of Cells and Tissues	4 SH

MATHEMATICAL METHODS FOR BIOENGINEERS

CHME 7320 Chemical Engineering Mathematics	4 SH
EECE 7200 Linear Systems Analysis	4 SH
EECE 7203 Complex Variable Theory and Differential Equations	4 SH
ME 7205 Advanced Mathematical Methods for Mechanical Engineers	4 SH

SUGGESTED TRACK ELECTIVE COURSES

EECE 7367 Robotics and Automation Systems	4 SH
ME 5650 Advanced Mechanics of Materials	4 SH
ME 5655 Dynamics and Mechanical Vibration	4 SH
ME 5657 Finite Element Method	4 SH
ME 5659 Control and Mechatronics	4 SH
ME 5667 Solid Mechanics of Cells and Tissues	4 SH
ME 7238 Advanced Finite Element Method	4 SH
ME 7240 Composite Materials	4 SH
ME 7245 Fracture Mechanics and Failure Analysis	4 SH
ME 7255 Continuum Mechanics	4 SH
ME 7275 Essentials of Fluid Dynamics	4 SH
ME 7280 Statistical Thermodynamics	4 SH
ME 7325 Two Phase Flow	4 SH
PT 5133 Kinesiology	3 SH
Coreq. PT 5134	
PT 5170 Motor Control	3 SH
Coreq. PT 5171	
PT 6215 Assistive Technology	3 SH
Coreq. PT 6216	

**Track 3: PhD in Bioengineering—
BioMEMs/BioNANO Track****Track Managers: Nicol McGruer and Shashi Murthy**

The bioMEMs/bioNANO track reflects Northeastern University's strength as indicated by the NSF Center for High Rate Nanomanufacturing, the NSF/NCI Nanomedicine IGERT training grant, and the strong pharmaceutical sciences department. In addition, Northeastern also has a research presence in MEMs that, when combined with the bioengineering curriculum, presents significant interdisciplinary opportunities for students in the program. Students may choose to complete this track by taking three of the restricted electives in addition to their core bioengineering curriculum and sufficient unrestricted electives to meet course requirements of their degree program.

GENERAL REQUIREMENTS

BIOE 5100 Medical Physiology	4 SH
BIOE 7374 Special Topics in Bioengineering	4 SH
BIOE 7390 Seminar	0 SH
BIOE 9990 Dissertation	0 SH
ME 6260 Introduction to Microelectromechanical Systems (MEMs)	4 SH
ME 7262 Nanomanufacturing 1	4 SH
PHYS 5260 Introduction to Nanoscience and Nanotechnology	4 SH
Course work from the list "Additional Required Courses," below	12 SH
Course work from the list "Mathematical Methods for Bioengineers," below	4 SH
Course work from the list "Suggested Track Elective Courses," below	12 SH

PROGRAM TOTAL CREDITS **48.0 SH**

ADDITIONAL REQUIRED COURSES

BIOE 7001 Biomaterials	4 SH
CHME 5630 Biochemical Engineering	4 SH
EECE 5664 Biomedical Signal Processing	4 SH
ME 5667 Solid Mechanics of Cells and Tissues	4 SH

MATHEMATICAL METHODS FOR BIOENGINEERS

CHME 7320 Chemical Engineering Mathematics	4 SH
EECE 7200 Linear Systems Analysis	4 SH
EECE 7203 Complex Variable Theory and Differential Equations	4 SH
ME 7205 Advanced Mathematical Methods for Mechanical Engineers	4 SH

SUGGESTED TRACK ELECTIVE COURSES

CHEM 5613 Optical Methods of Analysis	3 SH
CHEM 5638 Molecular Modeling	3 SH
CHEM 7247 Advances in Nanomaterials	3 SH
CHME 5699 Special Topics in Chemical Engineering	4 SH
EECE 5606 Micro- and Nanofabrication	4 SH
PHSC 5100 Concepts in Pharmaceutical Science	2 SH
PHSC 6210 Drug Design, Evaluation, and Development	2 SH

PHSC 6226 Imaging in Medicine and Drug Discovery	2 SH
PHYS 7731 Biological Physics 1	4 SH
PMST 6250 Advanced Physical Pharmacy	2 SH
PMST 6252 Pharmacokinetics and Drug Metabolism	3 SH
PMST 6254 Advanced Drug Delivery System	3 SH
PMST 6256 Advanced Pharmacokinetics	2 SH

Track 4: PhD in Bioengineering—Biochemical and Bioenvironmental Track

Track Managers: Rebecca Carrier and April Gu

The track reflects strengths in biochemical engineering and bioenvironmental engineering by active research programs focused in pharmaceutical bioprocessing, biomaterials, tissue engineering, drug delivery, environmental microbiology, biotreatment/bioremediation, and environmental modeling. Students wishing to pursue this track should take two of the restricted electives listed below in addition to the bioengineering core curriculum and sufficient unrestricted electives to meet the course requirements of their degree program.

GENERAL REQUIREMENTS

BIOE 5100 Medical Physiology	4 SH
BIOE 7374 Special Topics in Bioengineering	4 SH
BIOE 7390 Seminar	0 SH
BIOE 9990 Dissertation	0 SH
Course work from the list “Additional Required Courses,” below	12 SH
Course work from the list “Mathematical Methods for Bioengineers,” below	4 SH
Course work from the list “Required Biochemical and Bioenvironmental Courses,” below	8 SH
Course work from the list “Suggested Track Electives,” below	16 SH

PROGRAM TOTAL CREDITS 48.0 SH

ADDITIONAL REQUIRED COURSES

BIOE 7001 Biomaterials	4 SH
CHME 5630 Biochemical Engineering	4 SH
EECE 5664 Biomedical Signal Processing	4 SH
ME 5667 Solid Mechanics of Cells and Tissues	4 SH

MATHEMATICAL METHODS FOR BIOENGINEERS

CHME 7320 Chemical Engineering Mathematics	4 SH
EECE 7200 Linear Systems Analysis	4 SH
EECE 7203 Complex Variable Theory and Differential Equations	4 SH
ME 7205 Advanced Mathematical Methods for Mechanical Engineers	4 SH

REQUIRED BIOCHEMICAL AND BIOENVIRONMENTAL COURSES

BIOL 6300 Biochemistry	4 SH
CHME 5630 Biochemical Engineering	4 SH
CHME 7340 Chemical Engineering Kinetics	4 SH
CHME 7350 Transport Phenomena	4 SH
CIVE 7251 Environmental Biological Processes	4 SH

SUGGESTED TRACK ELECTIVES

BIOL 5579 Biochemistry/Molecular Biology Experimental Approaches	5 SH
BIOL 5581 Biological Imaging	4 SH
BIOL 6200 Bioinformatics Programming	4 SH
BIOL 6301 Molecular Cell Biology	4 SH
BIOL 6308 Bioinformatics Computational Methods 1	4 SH
BIOL 6309 Bioinformatics Computational Methods 2	4 SH
CHEM 5612 Principles of Mass Spectrometry	3 SH
CHEM 5613 Optical Methods of Analysis	3 SH
CHEM 5620 Protein Chemistry	3 SH
CHEM 5621 Principles of Chemical Biology for Chemists	3 SH
CHEM 5660 Analytical Biochemistry	3 SH
CHEM 5686 Fundamentals of Molecular Structure and Electronics	3 SH
CHEM 7317 Analytical Biotechnology	3 SH
CHME 7330 Chemical Engineering Thermodynamics	4 SH
PHSC 5100 Concepts in Pharmaceutical Science	2 SH
PHSC 6210 Drug Design, Evaluation, and Development	2 SH
PHSC 6218 Biomedical Chemical Analysis	2 SH
PHSC 6226 Imaging in Medicine and Drug Discovery	2 SH
PHSC 6290 Biophysical Methods in Drug Discovery	2 SH
PHYS 7731 Biological Physics 1	4 SH
PMST 6250 Advanced Physical Pharmacy	2 SH
PMST 6252 Pharmacokinetics and Drug Metabolism	3 SH
PMST 6254 Advanced Drug Delivery System	3 SH
PMST 6256 Advanced Pharmacokinetics	2 SH

Track 5: PhD in Bioengineering—Motor Control Track

Track Managers: Rifat Sipahi and Dagmar Sternad

The motor control track is designed to capitalize on the collective expertise of cross-disciplinary collaborations between existing Northeastern faculty whose research lies at the intersection of sensorimotor control systems, neuroscience, and dynamical systems. Insights into learning and coordination of functional motor behavior provides the basis for a better understanding of neurological diseases of motor function such as stroke, Parkinson’s disease, and cerebral palsy. Insights will be the foundation for designing better therapy and rehabilitation.

Students who select this track must take four out of five restricted electives in addition to the bioengineering core curriculum and unrestricted elective courses to meet requirements of the track program.

GENERAL REQUIREMENTS

BIOE 5100 Medical Physiology	4 SH
BIOE 7374 Special Topics in Bioengineering	4 SH
BIOE 7390 Seminar	0 SH
BIOE 9990 Dissertation	0 SH
Course work from the list “Additional Required Courses,” below	12 SH
Course work from the list “Mathematical Methods for Bioengineers,” below	4 SH
Course work from the list “Required Motor Control Track Courses,” below	16 SH
Course work from the list “Suggested Motor Control Track Electives,” below	8 SH

PROGRAM TOTAL CREDITS **48.0 SH**

ADDITIONAL REQUIRED COURSES

BIOE 7001 Biomaterials	4 SH
CHME 5630 Biochemical Engineering	4 SH
EECE 5664 Biomedical Signal Processing	4 SH
ME 5667 Solid Mechanics of Cells and Tissues	4 SH

MATHEMATICAL METHODS FOR BIOENGINEERS

CHME 7320 Chemical Engineering Mathematics	4 SH
EECE 7200 Linear Systems Analysis	4 SH
EECE 7203 Complex Variable Theory and Differential Equations	4 SH
ME 7205 Advanced Mathematical Methods for Mechanical Engineers	4 SH

REQUIRED MOTOR CONTROL TRACK COURSES

BIOL 5553 Biology of Muscle: Molecules to Movements	4 SH
BIOL 5601 Multidisciplinary Approaches in Motor Control	4 SH
ME 5659 Control and Mechatronics	4 SH
ME 5665 Musculoskeletal Biomechanics	4 SH

SUGGESTED MOTOR CONTROL TRACK ELECTIVES

BIOL 5587 Comparative Neurobiology	4 SH
CS 5335 Robotic Science and Systems <i>Coreq.</i> CS 5336	4 SH
CS 5336 Lab for CS 5335 <i>Coreq.</i> CS 5335	0 SH
CSYE 5250 Robot Mechanics and Control	4 SH
EECE 7200 Linear Systems Analysis	4 SH
EECE 7204 Applied Probability and Stochastic Processes	4 SH
EECE 7213 System Identification and Adaptive Control	4 SH
EECE 7214 Optimal and Robust Control	4 SH
EECE 7310 Modern Signal Processing	4 SH
IE 7280 Statistical Methods in Engineering	4 SH
IE 7315 Human Factors Engineering	4 SH
ME 5655 Dynamics and Mechanical Vibration	4 SH
ME 6200 Mathematical Methods for Mechanical Engineers 1	4 SH

ME 6201 Mathematical Methods for Mechanical Engineers 2	4 SH
ME 7350 Graduate Seminar in Robotics	1 SH
PHYS 7301 Classical Mechanics/Math Methods	4 SH
PHYS 7321 Computational Physics	4 SH
PHYS 7735 Nonlinear Dynamics	4 SH
PHYS 7741 Biological Physics 2	4 SH
PSYC 5180 Quantitative Methods 1	3 SH
PSYC 5181 Quantitative Methods 2	3 SH
PT 5138 Neuroscience <i>Coreq.</i> PT 5139	4 SH
PT 5139 Lab for PT 5138 <i>Coreq.</i> PT 5138	1 SH
PT 5150 Motor Control, Development, and Learning <i>Coreq.</i> PT 5151	4 SH
PT 5151 Lab for PT 5150 <i>Coreq.</i> PT 5150	1 SH

Track 6: PhD in Bioengineering—Biocomputing Track

Track Managers: Stefano Basagni and Miriam Leeser

The biocomputing track draws on strengths in computer engineering and computation applied to bioengineering applications. Bioengineering MS or PhD candidates may complete this track by taking both of the restricted electives and sufficient unrestricted electives to meet course requirements as specified by their degree program.

GENERAL REQUIREMENTS

BIOE 5100 Medical Physiology	4 SH
BIOE 7374 Special Topics in Bioengineering	4 SH
BIOE 7390 Seminar	0 SH
BIOE 9990 Dissertation	0 SH
EECE 7205 Fundamentals of Computer Engineering	4 SH
EECE 7360 Combinatorial Optimization	4 SH
Course work from the list “Additional Required Courses,” below	12 SH
Course work from the list “Mathematical Methods for Bioengineers,” below	4 SH
Course work from the list “Suggested Track Electives,” below	16 SH

PROGRAM TOTAL CREDITS **48.0 SH**

ADDITIONAL REQUIRED COURSES

BIOE 7001 Biomaterials	4 SH
CHME 5630 Biochemical Engineering	4 SH
EECE 5664 Biomedical Signal Processing	4 SH
ME 5667 Solid Mechanics of Cells and Tissues	4 SH

MATHEMATICAL METHODS FOR BIOENGINEERS

CHME 7320 Chemical Engineering Mathematics	4 SH
EECE 7200 Linear Systems Analysis	4 SH
EECE 7203 Complex Variable Theory and Differential Equations	4 SH
ME 7205 Advanced Mathematical Methods for Mechanical Engineers	4 SH

SUGGESTED TRACK ELECTIVES

BIOL 5553 Biology of Muscle: Molecules to Movements	4 SH
BIOL 5581 Biological Imaging	4 SH
BIOL 5587 Comparative Neurobiology	4 SH
BIOL 6200 Bioinformatics Programming	4 SH
BIOL 6302 Bioinformatics Methods and Algorithms	5 SH
BIOL 6308 Bioinformatics Computational Methods 1	4 SH
BIOL 6309 Bioinformatics Computational Methods 2	4 SH
CS 5100 Foundations of Artificial Intelligence	4 SH
CS 5200 Database Management Systems	4 SH
CS 5210 Implementation of Database Management Systems	4 SH
CS 5310 Computer Graphics	4 SH
CS 5320 Digital Image Processing	4 SH
CS 5330 Pattern Recognition and Computer Vision	4 SH
CS 5400 Principles of Programming Language	4 SH
CS 5600 Computer Systems	4 SH
CS 5800 Algorithms	4 SH
CS 6110 Knowledge Based Systems	4 SH
CS 6140 Machine Learning	4 SH
CS 6200 Information Retrieval	4 SH
CS 6410 Compilers	4 SH
CS 6610 Parallel Computing	4 SH
CS 6810 Distributed Algorithms	4 SH
EECE 7200 Linear Systems Analysis	4 SH
EECE 7203 Complex Variable Theory and Differential Equations	4 SH
EECE 7204 Applied Probability and Stochastic Processes	4 SH
EECE 7313 Pattern Recognition	4 SH
EECE 7339 Testing and Design for Testability	4 SH
EECE 7350 Software Engineering 1	4 SH
EECE 7351 Software Engineering 2	4 SH
EECE 7352 Computer Architecture	4 SH
EECE 7353 VLSI Design	4 SH
EECE 7354 VLSI Architecture	4 SH
EECE 7357 Fault-Tolerant Computers	4 SH
EECE 7358 Parallel Architecture for High-Performance Computing	4 SH
EECE 7359 Multiprocessor Architectures	4 SH
EECE 7361 Digital Hardware Synthesis	4 SH
EECE 7364 Mobile and Wireless Networking	4 SH
EECE 7365 Distributed Systems	4 SH
EECE 7367 Robotics and Automation Systems	4 SH
EECE 7368 High-Level Design of Hardware-Software Systems	4 SH
EECE 7389 Robot Vision and Sensors	4 SH
OR 6205 Deterministics Operations Research	4 SH
OR 7230 Probabilistic Operation Research	4 SH

Track 7: PhD in Bioengineering—Cell and Tissue Engineering Track**Track Managers: Anand Asthagiri and Erin Cram**

Cell and tissue engineering is a major strength at Northeastern University with several research labs focused on understanding and engineering living cells and tissues. These labs are elucidating the quantitative principles that govern cell fate decisions and are developing design strategies to promote the assembly and patterning of multicellular systems into viable, functional tissues. Cells are remarkable physicochemical systems that sense, respond, and actively reshape their rich microenvironment. Parsing the dialogue between the microenvironment and cells and elucidating design strategies to engineer the dynamic cellular milieu has far-reaching implications for biomedicine, including applications such as tissue engineering and the development of novel therapeutic strategies.

This pioneering, multidisciplinary research is enabled by strengths at Northeastern in key foundational areas, such as biomolecular engineering, computational modeling, developmental biology, imaging, materials science, micro- and nanofluidics, mechanobiology, molecular cell biology, and systems biology.

Cell and tissue engineering is widely recognized as a core subfield of bioengineering. A formal track in this area offers our students a program of study that capitalizes on a major strength at Northeastern.

GENERAL REQUIREMENTS

BIOE 5100 Medical Physiology	4 SH
BIOE 7374 Special Topics in Bioengineering	4 SH
BIOE 7390 Seminar	0 SH
BIOE 9990 Dissertation	0 SH
BIOL 6401 Research Methods and Critical Analysis in Molecular Cell Biology	4 SH
CHME 5699 Special Topics in Chemical Engineering	4 SH
CHME 7340 Chemical Engineering Kinetics	4 SH
Course work from the list “Additional Required Courses,” below	12 SH
Course work from the list “Mathematical Methods for Bioengineers,” below	4 SH
Course work from the list “Suggested Track Elective Courses,” below	12 SH

PROGRAM TOTAL CREDITS 48.0 SH

ADDITIONAL REQUIRED COURSES

BIOE 7001 Biomaterials	4 SH
CHME 5630 Biochemical Engineering	4 SH
EECE 5664 Biomedical Signal Processing	4 SH
ME 5667 Solid Mechanics of Cells and Tissues	4 SH

MATHEMATICAL METHODS FOR BIOENGINEERS

CHME 7320 Chemical Engineering Mathematics	4 SH
EECE 7200 Linear Systems Analysis	4 SH
EECE 7203 Complex Variable Theory and Differential Equations	4 SH
ME 7205 Advanced Mathematical Methods for Mechanical Engineers	4 SH

SUGGESTED TRACK ELECTIVE COURSES

BIOL 5307 Biological Electron Microscopy	4 SH
BIOL 5577 Developmental Biology	4 SH
BIOL 5579 Biochemistry/Molecular Biology Experimental Approaches	5 SH
BIOL 5581 Biological Imaging	4 SH
CHME 7350 Transport Phenomena	4 SH
EECE 5648 Biomedical Optics	4 SH
ME 5667 Solid Mechanics of Cells and Tissues	4 SH
PHYS 7741 Biological Physics 2	4 SH

Track 8: PhD in Bioengineering—General Bioengineering Studies Track*Track Manager: Jeffrey Ruberti***GENERAL REQUIREMENTS**

BIOE 5100 Medical Physiology	4 SH
BIOE 7374 Special Topics in Bioengineering	4 SH
BIOE 7390 Seminar	0 SH
BIOE 9990 Dissertation	0 SH
Course work from the list “Additional Required Courses,” below	12 SH
Course work from the list “Mathematical Methods for Bioengineers,” below	4 SH
Course work from the list “Suggested Track Electives,” below	24 SH

PROGRAM TOTAL CREDITS 48.0 SH**ADDITIONAL REQUIRED COURSES**

BIOE 7001 Biomaterials	4 SH
CHME 5630 Biochemical Engineering	4 SH
EECE 5664 Biomedical Signal Processing	4 SH
ME 5667 Solid Mechanics of Cells and Tissues	4 SH

MATHEMATICAL METHODS FOR BIOENGINEERS

CHME 7320 Chemical Engineering Mathematics	4 SH
EECE 7200 Linear Systems Analysis	4 SH
EECE 7203 Complex Variable Theory and Differential Equations	4 SH
ME 7205 Advanced Mathematical Methods for Mechanical Engineers	4 SH

SUGGESTED TRACK ELECTIVES

BIOE 7374 Special Topics in Bioengineering	4 SH
BIOL 5553 Biology of Muscle: Molecules to Movements	4 SH
BIOL 5579 Biochemistry/Molecular Biology Experimental Approaches	5 SH

BIOL 5581 Biological Imaging	4 SH
BIOL 5587 Comparative Neurobiology	4 SH
BIOL 5601 Multidisciplinary Approaches in Motor Control	4 SH
BIOL 6200 Bioinformatics Programming	4 SH
BIOL 6300 Biochemistry	4 SH
BIOL 6301 Molecular Cell Biology	4 SH
BIOL 6302 Bioinformatics Methods and Algorithms	5 SH
BIOL 6308 Bioinformatics Computational Methods 1	4 SH
BIOL 6309 Bioinformatics Computational Methods 2	4 SH
CAEP 6202 Research, Evaluation, and Data Analysis	3 SH
CHEM 5612 Principles of Mass Spectrometry	3 SH
CHEM 5613 Optical Methods of Analysis	3 SH
CHEM 5620 Protein Chemistry	3 SH
CHEM 5621 Principles of Chemical Biology for Chemists	3 SH
CHEM 5637 Foundations of Spectroscopy	3 SH
CHEM 5638 Molecular Modeling	3 SH
CHEM 5660 Analytical Biochemistry	3 SH
CHEM 5686 Fundamentals of Molecular Structure and Electronics	3 SH
CHEM 7247 Advances in Nanomaterials	3 SH
CHEM 7317 Analytical Biotechnology	3 SH
CHME 5155 Nanotechnology in Engineering	4 SH
CHME 5630 Biochemical Engineering	4 SH
CHME 7260 Special Topics in Chemical Engineering	4 SH
CHME 7330 Chemical Engineering Thermodynamics	4 SH
CHME 7340 Chemical Engineering Kinetics	4 SH
CHME 7350 Transport Phenomena	4 SH
CIVE 7251 Environmental Biological Processes	4 SH
CS 5100 Foundations of Artificial Intelligence	4 SH
CS 5200 Database Management Systems	4 SH
CS 5210 Implementation of Database Management Systems	4 SH
CS 5310 Computer Graphics	4 SH
CS 5320 Digital Image Processing	4 SH
CS 5330 Pattern Recognition and Computer Vision	4 SH
CS 5400 Principles of Programming Language	4 SH
CS 5600 Computer Systems	4 SH
CS 5800 Algorithms	4 SH
CS 6110 Knowledge Based Systems	4 SH
CS 6140 Machine Learning	4 SH
CS 6200 Information Retrieval	4 SH
CS 6410 Compilers	4 SH
CS 6610 Parallel Computing	4 SH
CS 6810 Distributed Algorithms	4 SH
EECE 4512 Biomedical Electronics	4 SH
EECE 4692 Subsurface Sensing and Imaging	4 SH
EECE 5646 Optics for Engineers	4 SH
EECE 5648 Biomedical Optics	4 SH
EECE 7200 Linear Systems Analysis	4 SH
EECE 7202 Electromagnetic Theory I	4 SH
EECE 7203 Complex Variable Theory and Differential Equations	4 SH

EECE 7204 Applied Probability and Stochastic Processes	4 SH	ME 7255 Continuum Mechanics	4 SH
EECE 7205 Fundamentals of Computer Engineering	4 SH	ME 7262 Nanomanufacturing 1	4 SH
EECE 7211 Nonlinear Control	4 SH	ME 7275 Essentials of Fluid Dynamics	4 SH
EECE 7213 System Identification and Adaptive Control	4 SH	ME 7325 Two Phase Flow	4 SH
EECE 7214 Optimal and Robust Control	4 SH	OR 6205 Deterministics Operations Research	4 SH
EECE 7236 Special Topics in Control	4 SH	OR 7230 Probabilistic Operation Research	4 SH
EECE 7271 Computational Methods in Electromagnetics	4 SH	PHSC 5100 Concepts in Pharmaceutical Science	2 SH
EECE 7280 Fourier and Binary Optics	4 SH	PHSC 6210 Drug Design, Evaluation, and Development	2 SH
EECE 7281 Fourier Optics	4 SH	PHSC 6218 Biomedical Chemical Analysis	2 SH
EECE 7284 Optical Properties of Matter	4 SH	PHSC 6226 Imaging in Medicine and Drug Discovery	2 SH
EECE 7293 Modern Imaging	4 SH	PHSC 6246 Pharmacokinetics and Biopharmaceutics	3 SH
EECE 7310 Modern Signal Processing	4 SH	PHSC 6290 Biophysical Methods in Drug Discovery	2 SH
EECE 7311 Two Dimensional Signal and Image Processing	4 SH	PHYS 3601 Classical Dynamics	4 SH
EECE 7312 Statistical and Adaptive Signal Processing	4 SH	PHYS 5260 Introduction to Nanoscience and Nanotechnology	4 SH
EECE 7313 Pattern Recognition	4 SH	PHYS 7731 Biological Physics 1	4 SH
EECE 7314 Auditory Signal Processing	4 SH	PHYS 7735 Nonlinear Dynamics	4 SH
EECE 7335 Detection and Estimation Theory	4 SH	PHYS 7741 Biological Physics 2	4 SH
EECE 7337 Information Theory	4 SH	PMST 6250 Advanced Physical Pharmacy	2 SH
EECE 7339 Testing and Design for Testability	4 SH	PMST 6252 Pharmacokinetics and Drug Metabolism	3 SH
EECE 7350 Software Engineering 1	4 SH	PMST 6254 Advanced Drug Delivery System	3 SH
EECE 7351 Software Engineering 2	4 SH	PMST 6256 Advanced Pharmacokinetics	2 SH
EECE 7352 Computer Architecture	4 SH	PSYC 5120 Proseminar in Sensation	3 SH
EECE 7353 VLSI Design	4 SH	PSYC 5130 Proseminar in Perception	3 SH
EECE 7354 VLSI Architecture	4 SH	PSYC 7220 Seminar in Sensation	3 SH
EECE 7357 Fault-Tolerant Computers	4 SH	PSYC 7230 Seminar in Perception	3 SH
EECE 7358 Parallel Architecture for High-Performance Computing	4 SH	PSYC 7300 Advanced Quantitative Analysis	3 SH
EECE 7359 Multiprocessor Architectures	4 SH	PT 5133 Kinesiology	3 SH
EECE 7360 Combinatorial Optimization	4 SH	<i>Coreq.</i> PT 5134	
EECE 7361 Digital Hardware Synthesis	4 SH	PT 5138 Neuroscience	4 SH
EECE 7364 Mobile and Wireless Networking	4 SH	<i>Coreq.</i> PT 5139	
EECE 7365 Distributed Systems	4 SH	PT 5139 Lab for PT 5138	1 SH
EECE 7367 Robotics and Automation Systems	4 SH	<i>Coreq.</i> PT 5138	
EECE 7368 High-Level Design of Hardware-Software Systems	4 SH	PT 5170 Motor Control	3 SH
EECE 7389 Robot Vision and Sensors	4 SH	<i>Coreq.</i> PT 5171	
EXSC 6200 Cardiopulmonary Physiology	3 SH	PT 5171 Lab for PT 5170	1 SH
EXSC 6230 Musculoskeletal Pathophysiology	3 SH	<i>Coreq.</i> PT 5170	
EXSC 6231 Musculoskeletal Assessment	2 SH	PT 6215 Assistive Technology	3 SH
EXSC 6263 Research Design and Methodology	3 SH	<i>Coreq.</i> PT 6216	
IE 7280 Statistical Methods in Engineering	4 SH	SLPA 0300 Anatomy and Physiology of the Vocal Mechanism	3 SH
ME 5650 Advanced Mechanics of Materials	4 SH	SLPA 5111 Anatomy and Physiology of the Auditory System	3 SH
ME 5657 Finite Element Method	4 SH	SLPA 6209 Psychoacoustics	2 SH
ME 5659 Control and Mechatronics	4 SH	SLPA 6301 Speech Science	3 SH
ME 5665 Musculoskeletal Biomechanics	4 SH		
ME 6260 Introduction to Microelectromechanical Systems (MEMs)	4 SH		
ME 7210 Elasticity and Plasticity	4 SH		
ME 7238 Advanced Finite Element Method	4 SH		
ME 7240 Composite Materials	4 SH		
ME 7245 Fracture Mechanics and Failure Analysis	4 SH		

CHEMICAL ENGINEERING

www.northeastern.edu/che

THOMAS J. WEBSTER, PHD
Professor and Chair

313 Snell Engineering Center
617.373.2989
617.373.2209 (fax)
Thomas J. Webster, PhD, *Professor and Chair*, th.webster@neu.edu

The department offers a Master of Science and a Doctor of Philosophy in Chemical Engineering. The MS degree is offered as either a thesis or a nonthesis degree. Most courses are offered in the late afternoon or early evening to make them accessible to part-time students pursuing full-time industrial careers. A full-time MS student may apply for participation in the cooperative education plan. Master's students pursuing the thesis option must first gain the consent of their advisor prior to participating in the cooperative education plan. The MS thesis and PhD degrees are only offered as a full-time program. Any deviations from the curriculum must be addressed by petition to the graduate committee and will be considered on a case-by-case basis.

Candidates pursuing a thesis MS or a PhD are able to select thesis topics from a diverse range of faculty research interests. New graduate students can learn about ongoing research topics from individual faculty members, faculty websites, and graduate student seminars. Graduate student seminars are held on a regular basis and provide an interactive forum for learning and exchanging research ideas.

Master's Degree in Chemical Engineering

The Master of Science in Chemical Engineering is normally pursued by students with a Bachelor of Science in Chemical Engineering or closely allied fields. Students wishing to pursue the master's degree but with undergraduate educational backgrounds other than chemical engineering may be required to complete supplementary undergraduate course work. These courses are in addition to the minimum course requirements. Students enrolled in the program are encouraged to seek guidance from their instructors and advisor regarding additional course work that may supplement the graduate curriculum.

Students originally admitted to the master's degree program may petition the chemical engineering graduate committee for admission to the PhD program. If admission is granted, then the student must satisfy all the requirements of the doctoral degree program, including the requirements for doctoral candidacy. For further information, see the section "PhD in Chemical Engineering," below.

COURSE REQUIREMENTS

A minimum of 32 semester hours (SH) of academic work is required of all full-time students (continuous and cooperative education full-time students) to qualify for the Master of Science degree in chemical engineering. **If pursuing a thesis option**, at least 8 semester hours of thesis credit must be included as part of these 32 semester hours of credits. In addition, each student pursuing a thesis option must enroll in the department's seminar course for each semester they are matriculating toward their degree. Students enrolled in the department's seminar course are encouraged to participate in the seminar by providing a research presentation regarding their research project under the guidance of their advisor. The faculty advisor and the student establish the sequence of courses that students take to pursue the Master of Science in Chemical Engineering. Full-time Master of Science degree students who complete the required 8 semester hours of thesis work (CHME 7990) are required to register for CHME 7996 Thesis Continuation (0 SH) each semester until their thesis is completed. Note that although no credits are associated with CHME 7996 Thesis Continuation, a student registered for this course is considered full-time. **If pursuing a nonthesis option**, students must complete a minimum of 32 semester hours of course work and no enrollment in the seminar course is required. Required core courses and example elective courses for all graduate students are provided below.

THESIS REQUIREMENTS

Students pursuing a Master of Science in Chemical Engineering with thesis must submit to the Graduate School of Engineering a written thesis that is approved by the thesis committee and department head. The graduate school requirements and electronic submittal instructions can be found on the Web at www.coe.neu.edu/gse. MS with thesis students must also complete an oral master's thesis defense in order to successfully complete the program. The student will be expected to form a master's thesis committee, composed of a minimum of three members, one who is the advisor, one other faculty member from the chemical engineering department, and one member from outside of the department. The oral presentation will be open to the public, including students, faculty, and the candidate's committee.

PART-TIME STUDENTS

Part-time students may progress according to their abilities within the seven-year time limit. A minimum of 32 semester hours of academic course work is required for part-time students. The thesis and seminar course are not required for part-time students pursuing a master's degree.

Master of Science students wishing to change their status from part-time to full-time must notify the chemical engineering department and make a formal petition to the Graduate School of Engineering. Refer to the regulations of the Graduate School of Engineering for further information on academic administrative policies.

DEPARTURE PRIOR TO THESIS COMPLETION

Occasionally, students have left the chemical engineering department prior to completion of all degree requirements. In such instances, longtime intervals have often elapsed before thesis or manuscript submission. Accordingly, the department has adopted the guideline that a student cannot submit a thesis for credit beyond three years after the student stops actively pursuing the research. Exceptions may be granted upon petition to the departmental graduate committee. Petitions must demonstrate extenuating circumstances and prove that the research is still of value to the profession.

Degree Requirements	Thesis Option	Nonthesis Option
Required core courses	16 SH	16 SH
Master of Science thesis	8 SH	N/A
Seminar	0 SH	N/A
Elective courses*	8 SH	16 SH
Minimum semester hours required**	32 SH	32 SH

*Students may complete a maximum of 8 semester hours (thesis option) or 12 semester hours (nonthesis option) of course work for credit outside of the chemical engineering department under guidance of their advisor and approval of the chemical engineering graduate coordinator.

**Exclusive of any preparatory undergraduate courses.

MSCHE—Master of Science in Chemical Engineering—Course Work Option**GENERAL REQUIREMENTS**

CHME 7320 Chemical Engineering Mathematics	4 SH
CHME 7330 Chemical Engineering Thermodynamics	4 SH
CHME 7340 Chemical Engineering Kinetics	4 SH
CHME 7350 Transport Phenomena	4 SH
Course work from the list “Chemical Engineering Electives,” below	16 SH

PROGRAM TOTAL CREDITS 32.0 SH

CHEMICAL ENGINEERING ELECTIVES

CHME 5204 Heterogeneous Catalysis	4 SH
CHME 5630 Biochemical Engineering	4 SH
CHME 7201 Fluid Mechanics	4 SH
CHME 7202 Chemical Process Heat Transfer	4 SH
CHME 7205 Numerical Techniques in Chemical Engineering	4 SH
CHME 7210 Advanced Chemical Engineering Calculations	4 SH
CHME 7220 Electronic Materials, Thin Films, and Nanostructures	4 SH
CHME 7221 Thin Film Technology	4 SH
CHME 7222 Principals of Membrane Processes	4 SH
CHME 7231 Chemical Process Dynamics and Control	4 SH
CHME 7240 Polymer Science	4 SH
CHME 7260 Special Topics in Chemical Engineering	4 SH

CHME 7261 Special Topics in Chemical Engineering	2 SH
CHME 7978 Independent Study	1 to 4 SH
ENGR 5670 Sustainable Energy: Materials, Conversion, Storage, and Usage	4 SH
ENGR 6150 Nanotechnology in Engineering	4 SH

MSCHE—Master of Science in Chemical Engineering—Thesis Option**GENERAL REQUIREMENTS**

CHME 7320 Chemical Engineering Mathematics	4 SH
CHME 7330 Chemical Engineering Thermodynamics	4 SH
CHME 7340 Chemical Engineering Kinetics	4 SH
CHME 7350 Transport Phenomena	4 SH
CHME 7390 Seminar	0 SH
CHME 7990 MS Thesis	8 SH
Course work from the list “Chemical Engineering Electives,” below	8 SH

PROGRAM TOTAL CREDITS 32.0 SH

CHEMICAL ENGINEERING ELECTIVES

CHME 5204 Heterogeneous Catalysis	4 SH
CHME 5630 Biochemical Engineering	4 SH
CHME 7201 Fluid Mechanics	4 SH
CHME 7202 Chemical Process Heat Transfer	4 SH
CHME 7205 Numerical Techniques in Chemical Engineering	4 SH
CHME 7210 Advanced Chemical Engineering Calculations	4 SH
CHME 7220 Electronic Materials, Thin Films, and Nanostructures	4 SH
CHME 7221 Thin Film Technology	4 SH
CHME 7222 Principals of Membrane Processes	4 SH
CHME 7231 Chemical Process Dynamics and Control	4 SH
CHME 7240 Polymer Science	4 SH
CHME 7260 Special Topics in Chemical Engineering	4 SH
CHME 7261 Special Topics in Chemical Engineering	2 SH
CHME 7978 Independent Study	1 to 4 SH
ENGR 5670 Sustainable Energy: Materials, Conversion, Storage, and Usage	4 SH
ENGR 6150 Nanotechnology in Engineering	4 SH

MSCHE—Master of Science in Chemical Engineering with Graduate Certificate in Engineering Leadership**GENERAL REQUIREMENTS**

CHME 7320 Chemical Engineering Mathematics	4 SH
CHME 7330 Chemical Engineering Thermodynamics	4 SH
CHME 7340 Chemical Engineering Kinetics	4 SH
CHME 7350 Transport Phenomena	4 SH
ENLR 5121 Engineering Leadership 1	2 SH
ENLR 5122 Engineering Leadership 2	2 SH
ENLR 5131 Scientific Foundations of Engineering 1	2 SH

ENLR 5132 Scientific Foundations of Engineering 2	2 SH
ENLR 7440 Engineering Leadership Challenge Project 1	4 SH
ENLR 7442 Engineering Leadership Challenge Project 2	4 SH

PROGRAM TOTAL CREDITS **32.0 SH**

PhD in Chemical Engineering

Each student admitted to the PhD program in chemical engineering will initially be designated a *doctoral student*. Upon successful completion of the requirements for doctoral candidacy as described below, a student is reclassified as a *doctoral candidate*. After establishing candidacy, a student must complete a program of academic course work and a dissertation under the direction of a dissertation advisor. All doctoral candidates must also pass a final oral examination. Additional details for departmental procedures on advisor selection, committee selection, candidacy proposal defense, and dissertation defense are provided in the *Chemical Engineering Graduate Student Guidebook*, available online at www.northeastern.edu/che/.

QUALIFYING FOR DOCTORAL CANDIDACY

To qualify for doctoral candidacy, the student must demonstrate mastery of the four core areas of chemical engineering (thermodynamics, kinetics, transport, and mathematics) through course performance. To become a doctoral candidate, students must earn a 3.500 GPA, typically at the end of the first year, as an average considering all four core courses.

In addition, each student must also demonstrate critical thinking, analysis, and experimental planning skills related to their dissertation research topic through a written candidacy proposal and an oral defense of this proposal. The student must pass, as determined by the student's dissertation committee, this oral candidacy proposal defense in order to advance to doctoral candidacy. The oral presentation will be open to students, faculty, and the student's committee. The student earns the classification of *doctoral candidate* upon successful completion of these requirements.

COURSE REQUIREMENTS

A minimum of 24 semester hours (SH) of academic course work, **not including any independent study credits**, beyond the bachelor's degree is required. The 24 semester hours must include at least 16 semester hours of academic course work (exclusive of thesis or dissertation) taken at Northeastern University. All four of the core courses (see table below) must be included in the student's academic graduate course work. Students are required to register for CHME 9990 Dissertation for two consecutive semesters. This is then followed by registration for CHME 9996 Dissertation Continuation in each semester thereafter until the dissertation has been completed and defended. **Note: No course credits are awarded for CHME 9990 Dissertation or CHME 9996 Dissertation Continuation; however, a student is considered full-time if registered for either of these courses.** If a student who was working on a master's thesis is pursuing a PhD

without first completing the master's thesis, the 8 semester hours of master's thesis credit earned during the first years of study can be transferred to independent study credits but **not** counted toward the 24-semester-hour minimum course requirements for the PhD degree. All students pursuing a doctoral degree must enroll in the department's seminar course for each semester they are matriculating toward their degree.

Students will be advised on their courses for the first semester by the chemical engineering graduate coordinator during orientation. After the first semester, students will work with their advisor to determine appropriate courses and course schedule to meet their educational needs and aspirations. Upon consultation with the dissertation advisor, a student may take up to 44 semester hours of course credit without additional financial penalty. Students and advisors should keep in mind that the requirements for doctoral candidacy include all four core courses and the proposal defense and that the university residency requirement requires two semesters of academic studies after becoming a doctoral candidate.

LANGUAGE REQUIREMENT

There is no foreign language requirement for the Doctor of Philosophy degree. However, each candidate must be proficient in technical writing and oral presentation in the English language. The graduate committee may require additional course work to improve language proficiency, if necessary.

RESIDENCE REQUIREMENT

A student satisfies the residence requirement by completing one academic year of full-time graduate studies during two consecutive academic semesters after qualifying for doctoral candidacy. Additional required course work (exclusive of seminars) may be completed during this period.

DISSERTATION

After a student establishes doctoral candidacy, he or she must complete a dissertation that embodies the results of extended original research and includes material suitable for publication. The student is responsible for proposing a dissertation committee to be approved by the dissertation advisor at least one month prior to the dissertation defense. The committee must have a minimum of three members, in addition to the primary advisor. The primary dissertation advisor must be a faculty member in the chemical engineering department. Additionally, one of these committee members must be external to the Department of Chemical Engineering. Committee membership is not limited to faculty at Northeastern University, nor to engineering faculty. The student is encouraged to consider experts in the dissertation topic and to work with the dissertation advisor to create a meaningful and helpful committee. The dissertation committee will approve the dissertation in its final form. Required dissertation format is the same as for the MS thesis, and the graduate school requirements and electronic submittal instructions can be found on the Web at www.coe.neu.edu/gse. Students are responsible for contacting the Graduate School of Engineering for any updates to dissertation requirements and appropriate deadlines.

DISSERTATION DEFENSE AND FINAL ORAL EXAMINATION

This comprehensive examination includes the public dissertation defense as well as a final oral examination to include the subject matter of the doctoral dissertation and significant developments in the field of the dissertation work. The oral presentation will be open to the public, including students, faculty, and the student's committee.

DEPARTURE PRIOR TO DISSERTATION COMPLETION

Occasionally, students have left the chemical engineering department prior to completion of all degree requirements. In such instances, a student cannot submit a dissertation for credit beyond three years after he or she stops actively pursuing the research. Exceptions may be granted upon petition to the departmental graduate committee. Petitions must demonstrate extenuating circumstances and prove that the research is still of value to the profession.

GENERAL REQUIREMENTS

CHME 7320 Chemical Engineering Mathematics	4 SH
CHME 7330 Chemical Engineering Thermodynamics	4 SH
CHME 7340 Chemical Engineering Kinetics	4 SH
CHME 7350 Transport Phenomena	4 SH
CHME 9990 Dissertation	0 SH
Approved graduate course work	8 SH

PROGRAM TOTAL CREDITS 24.0 SH

CIVIL AND ENVIRONMENTAL ENGINEERING

www.civ.neu.edu

JEROME F. HAJJAR, PHD, PE

Professor and Chair

400 Snell Engineering Center

617.373.2444

617.373.4419 (fax)

Jerome F. Hajjar, *Professor and Chair*, jf.hajjar@neu.edu

The Department of Civil and Environmental Engineering (CEE) offers graduate programs leading to the degrees of Master of Science in Civil Engineering, Master of Science (without specification), and Doctor of Philosophy in Civil Engineering. At the master's level, five areas of concentration are offered:

- Construction management
- Environmental engineering
- Geotechnical/geoenvironmental engineering
- Structural engineering
- Transportation engineering

Students may pursue the Master of Science degree program on either a full- or part-time basis. Students must pursue the PhD program on a basis consistent with the residence requirements for the degree as described in the curriculum requirements. The curriculum includes areas of concentration in construction management, environmental engineering, geotechnical/geoenvironmental engineering, structural engineering, and transportation engineering. Students in all master's degree programs must complete a minimum of 32 semester hours of approved course work (exclusive of any preparatory courses) with a minimum GPA of 3.000.

Master's Degree in Civil Engineering with Concentration in Construction Management

This program includes required core courses primarily from the CEE department, complemented by electives in civil and environmental engineering, mechanical and industrial engineering, and business administration. Based on proven proficiency in given areas, students may waive certain core courses and replace them with alternate elective courses.

	With Report	With Thesis	Course Work Only
Degree Requirements			
Required core courses	17 SH	17 SH	17 SH
Elective courses	11 SH	7 SH	15 SH
Master of Science report/thesis	4 SH	8 SH	
Minimum semester hours required	32 SH	32 SH	32 SH

MSCivE—Master of Science in Civil Engineering with Concentration in Construction Management— Course Work Option

GENERAL REQUIREMENTS

ACCT 6200 Financial Reporting and Managerial Decision Making 1	3 SH
CIVE 7220 Construction Management	4 SH
CIVE 7221 Construction Project Control and Organization	2 SH
CIVE 7230 Legal Aspects of Civil Engineering	4 SH
IE 6200 Engineering Probability and Statistics	4 SH
Course work from the list “Construction Course Option Electives,” below	15 SH

PROGRAM TOTAL CREDITS 32.0 SH

CONSTRUCTION COURSE OPTION ELECTIVES

ACCT 6201 Financial Reporting and Managerial Decision Making 2	1.5 SH
CIVE 7231 Alternative Project Delivery Systems in Construction	2 SH
CIVE 7240 Construction Equipment and Modeling	4 SH
CIVE 7301 Advanced Soil Mechanics	4 SH
CIVE 7302 Advanced Foundation Engineering	4 SH
EMGT 5300 Engineering/Organizational Psychology	4 SH
EMGT 6305 Financial Management for Engineers	4 SH
IE 7215 Simulation Analysis	4 SH
IE 7290 Reliability Analysis and Risk Assessment	4 SH
IE 7615 Neural Networks in Engineering	4 SH
INFO 6210 Data Management and Database Design	4 SH
INFO 6215 Business Analysis and Information Engineering	4 SH
INFO 6245 Planning and Managing Information Systems Development	4 SH
OR 6205 Deterministics Operations Research	4 SH

MSCivE—Master of Science in Civil Engineering with Concentration in Construction Management— Report Option

GENERAL REQUIREMENTS

ACCT 6200 Financial Reporting and Managerial Decision Making 1	3 SH
CIVE 7220 Construction Management	4 SH
CIVE 7221 Construction Project Control and Organization	2 SH
CIVE 7230 Legal Aspects of Civil Engineering	4 SH
CIVE 8674 Master’s Report	4 SH
IE 6200 Engineering Probability and Statistics	4 SH
Course work from the list “Construction Report Option Electives,” below	11 SH

PROGRAM TOTAL CREDITS 32.0 SH

CONSTRUCTION REPORT OPTION ELECTIVES

ACCT 6201 Financial Reporting and Managerial Decision Making 2	1.5 SH
CIVE 7231 Alternative Project Delivery Systems in Construction	2 SH
CIVE 7240 Construction Equipment and Modeling	4 SH
CIVE 7301 Advanced Soil Mechanics	4 SH
CIVE 7302 Advanced Foundation Engineering	4 SH
EMGT 5300 Engineering/Organizational Psychology	4 SH
EMGT 6305 Financial Management for Engineers	4 SH
IE 7215 Simulation Analysis	4 SH
IE 7290 Reliability Analysis and Risk Assessment	4 SH
IE 7615 Neural Networks in Engineering	4 SH
INFO 6210 Data Management and Database Design	4 SH
INFO 6215 Business Analysis and Information Engineering	4 SH
INFO 6245 Planning and Managing Information Systems Development	4 SH
OR 6205 Deterministics Operations Research	4 SH

MSCivE—Master of Science in Civil Engineering with Concentration in Construction Management— Thesis Option

GENERAL REQUIREMENTS

ACCT 6200 Financial Reporting and Managerial Decision Making 1	3 SH
CIVE 7220 Construction Management	4 SH
CIVE 7221 Construction Project Control and Organization	2 SH
CIVE 7230 Legal Aspects of Civil Engineering	4 SH
CIVE 7990 MS Thesis	8 SH
IE 6200 Engineering Probability and Statistics	4 SH
Course work from the list “Construction Thesis Option Electives,” below	7 SH

PROGRAM TOTAL CREDITS 32.0 SH

CONSTRUCTION THESIS OPTION ELECTIVES

ACCT 6201 Financial Reporting and Managerial Decision Making 2	1.5 SH
CIVE 7231 Alternative Project Delivery Systems in Construction	2 SH
CIVE 7240 Construction Equipment and Modeling	4 SH
CIVE 7301 Advanced Soil Mechanics	4 SH
CIVE 7302 Advanced Foundation Engineering	4 SH
EMGT 5300 Engineering/Organizational Psychology	4 SH
EMGT 6305 Financial Management for Engineers	4 SH
IE 7215 Simulation Analysis	4 SH
IE 7290 Reliability Analysis and Risk Assessment	4 SH
IE 7615 Neural Networks in Engineering	4 SH
INFO 6210 Data Management and Database Design	4 SH
INFO 6215 Business Analysis and Information Engineering	4 SH

INFO 6245 Planning and Managing Information Systems Development	4 SH
OR 6205 Deterministics Operations Research	4 SH

In addition, students may take graduate courses outside those courses listed above with the approval of their advisor.

Master's Degree in Civil Engineering with Concentration in Environmental Engineering

This program includes study in water and wastewater treatment and disposal, water resources and watershed management, and hazardous waste and groundwater remediation and protection.

Degree Requirements	With Report	With Thesis	Course Work Only
Required core courses	12 SH	12 SH	12 SH
Elective courses	16 SH	12 SH	20 SH
Master of Science report/thesis	4 SH	8 SH	
Minimum semester hours required	32 SH	32 SH	32 SH

MSCivE—Master of Science in Civil Engineering with Concentration in Environmental Engineering—Course Work Option

GENERAL REQUIREMENTS

CIVE 7250 Environmental Chemistry	4 SH
CIVE 7251 Environmental Biological Processes	4 SH
CIVE 7260 Hydrology	4 SH
Course work from the list “Environmental Course Option Electives,” below	20 SH

PROGRAM TOTAL CREDITS 32.0 SH

ENVIRONMENTAL COURSE OPTION ELECTIVES

CIVE 5270 Environmental Protection and Management	4 SH
CIVE 5271 Solid and Hazardous Waste Management	4 SH
CIVE 5321 Geoenvironmental Engineering	4 SH
CIVE 5536 Hydrologic Engineering	4 SH
CIVE 7252 Water and Wastewater Treatment Processes	4 SH
CIVE 7253 Advanced Municipal and Industrial Wastewater Treatment Processes	4 SH
CIVE 7261 Surface Water Hydraulics and Quality Modeling	4 SH
CIVE 7262 Watershed Management	4 SH
CIVE 7263 Groundwater Hydraulics and Quality Modeling	4 SH
CIVE 7322 Engineering Geology	4 SH
IE 6200 Engineering Probability and Statistics	4 SH

MSCivE—Master of Science in Civil Engineering with Concentration in Environmental Engineering—Report Option

GENERAL REQUIREMENTS

CIVE 7250 Environmental Chemistry	4 SH
CIVE 7251 Environmental Biological Processes	4 SH
CIVE 7260 Hydrology	4 SH
CIVE 8674 Master's Report	4 SH
Course work from the list “Environmental Report Option Electives,” below	16 SH

PROGRAM TOTAL CREDITS 32.0 SH

ENVIRONMENTAL REPORT OPTION ELECTIVES

CIVE 5270 Environmental Protection and Management	4 SH
CIVE 5271 Solid and Hazardous Waste Management	4 SH
CIVE 5321 Geoenvironmental Engineering	4 SH
CIVE 5536 Hydrologic Engineering	4 SH
CIVE 7252 Water and Wastewater Treatment Processes	4 SH
CIVE 7253 Advanced Municipal and Industrial Wastewater Treatment Processes	4 SH
CIVE 7261 Surface Water Hydraulics and Quality Modeling	4 SH
CIVE 7262 Watershed Management	4 SH
CIVE 7263 Groundwater Hydraulics and Quality Modeling	4 SH
CIVE 7322 Engineering Geology	4 SH
IE 6200 Engineering Probability and Statistics	4 SH

MSCivE—Master of Science in Civil Engineering with Concentration in Environmental Engineering—Thesis Option

GENERAL REQUIREMENTS

CIVE 7250 Environmental Chemistry	4 SH
CIVE 7251 Environmental Biological Processes	4 SH
CIVE 7260 Hydrology	4 SH
CIVE 7990 MS Thesis	8 SH
Course work from the list “Environmental Thesis Option Electives,” below	12 SH

PROGRAM TOTAL CREDITS 32.0 SH

ENVIRONMENTAL THESIS OPTION ELECTIVES

CIVE 5270 Environmental Protection and Management	4 SH
CIVE 5271 Solid and Hazardous Waste Management	4 SH
CIVE 5321 Geoenvironmental Engineering	4 SH
CIVE 5536 Hydrologic Engineering	4 SH
CIVE 7252 Water and Wastewater Treatment Processes	4 SH
CIVE 7253 Advanced Municipal and Industrial Wastewater Treatment Processes	4 SH
CIVE 7261 Surface Water Hydraulics and Quality Modeling	4 SH

CIVE 7262 Watershed Management	4 SH
CIVE 7263 Groundwater Hydraulics and Quality Modeling	4 SH
CIVE 7322 Engineering Geology	4 SH
IE 6200 Engineering Probability and Statistics	4 SH

Students may choose the remaining 12–20 semester hours of elective course work from the list above. In addition, students may take courses outside this list with the approval of their advisor.

Master's Degree in Civil Engineering with Concentration in Geotechnical/Geoenvironmental Engineering

This program includes study in the areas of soil mechanics/foundations and geoenvironmental engineering.

Degree Requirements	With Report	With Thesis	Course Work Only
Required core courses	8 SH	8 SH	8 SH
Elective courses	20 SH	16 SH	24 SH
Master of Science report/thesis	4 SH	8 SH	
Minimum semester hours required	32 SH	32 SH	32 SH

MSCivE—Master of Science in Civil Engineering with Concentration in Geotechnical/Geoenvironmental Engineering—Course Work Option

GENERAL REQUIREMENTS

CIVE 7301 Advanced Soil Mechanics	4 SH
CIVE 7302 Advanced Foundation Engineering	4 SH
Course work from the list “Geotechnical/Geoenvironmental Course Option Electives,” below	24 SH

PROGRAM TOTAL CREDITS 32.0 SH

GEOTECHNICAL/GEOENVIRONMENTAL COURSE OPTION ELECTIVES

CIVE 5270 Environmental Protection and Management	4 SH
CIVE 5271 Solid and Hazardous Waste Management	4 SH
CIVE 5321 Geoenvironmental Engineering	4 SH
CIVE 5536 Hydrologic Engineering	4 SH
CIVE 7230 Legal Aspects of Civil Engineering	4 SH
CIVE 7240 Construction Equipment and Modeling	4 SH
CIVE 7250 Environmental Chemistry	4 SH
CIVE 7251 Environmental Biological Processes	4 SH
CIVE 7260 Hydrology	4 SH
CIVE 7263 Groundwater Hydraulics and Quality Modeling	4 SH
CIVE 7303 Geotechnical Instrumentation	2 SH
CIVE 7311 Soil and Foundation Dynamics	4 SH
CIVE 7312 Earthquake Engineering	4 SH
CIVE 7322 Engineering Geology	4 SH
CIVE 7330 Advanced Structural Analysis	4 SH
CIVE 7331 Structural Dynamics	4 SH
IE 6200 Engineering Probability and Statistics	4 SH

IE 7290 Reliability Analysis and Risk Assessment	4 SH
ME 5657 Finite Element Method	4 SH
ME 7205 Advanced Mathematical Methods for Mechanical Engineers	4 SH

MSCivE—Master of Science in Civil Engineering with Concentration in Geotechnical/Geoenvironmental Engineering—Report Option

GENERAL REQUIREMENTS

CIVE 7301 Advanced Soil Mechanics	4 SH
CIVE 7302 Advanced Foundation Engineering	4 SH
CIVE 8674 Master's Report	4 SH
Course work from the list “Geotechnical/Geoenvironmental Report Option Electives,” below	20 SH

PROGRAM TOTAL CREDITS 32.0 SH

GEOTECHNICAL/GEOENVIRONMENTAL REPORT OPTION ELECTIVES

CIVE 5270 Environmental Protection and Management	4 SH
CIVE 5271 Solid and Hazardous Waste Management	4 SH
CIVE 5321 Geoenvironmental Engineering	4 SH
CIVE 5536 Hydrologic Engineering	4 SH
CIVE 7230 Legal Aspects of Civil Engineering	4 SH
CIVE 7240 Construction Equipment and Modeling	4 SH
CIVE 7250 Environmental Chemistry	4 SH
CIVE 7251 Environmental Biological Processes	4 SH
CIVE 7260 Hydrology	4 SH
CIVE 7263 Groundwater Hydraulics and Quality Modeling	4 SH
CIVE 7303 Geotechnical Instrumentation	2 SH
CIVE 7311 Soil and Foundation Dynamics	4 SH
CIVE 7312 Earthquake Engineering	4 SH
CIVE 7322 Engineering Geology	4 SH
CIVE 7330 Advanced Structural Analysis	4 SH
CIVE 7331 Structural Dynamics	4 SH
IE 6200 Engineering Probability and Statistics	4 SH
IE 7290 Reliability Analysis and Risk Assessment	4 SH
ME 5657 Finite Element Method	4 SH
ME 7205 Advanced Mathematical Methods for Mechanical Engineers	4 SH

MSCivE—Master of Science in Civil Engineering with Concentration in Geotechnical/Geoenvironmental Engineering—Thesis Option

GENERAL REQUIREMENTS

CIVE 7301 Advanced Soil Mechanics	4 SH
CIVE 7302 Advanced Foundation Engineering	4 SH
CIVE 7990 MS Thesis	8 SH
Course work from the list “Geotechnical/Geoenvironmental Thesis Option Electives,” below	16 SH

PROGRAM TOTAL CREDITS 32.0 SH

GEOTECHNICAL/GEOENVIRONMENTAL THESIS**OPTION ELECTIVES**

CIVE 5270 Environmental Protection and Management	4 SH
CIVE 5271 Solid and Hazardous Waste Management	4 SH
CIVE 5321 Geoenvironmental Engineering	4 SH
CIVE 5536 Hydrologic Engineering	4 SH
CIVE 7230 Legal Aspects of Civil Engineering	4 SH
CIVE 7240 Construction Equipment and Modeling	4 SH
CIVE 7250 Environmental Chemistry	4 SH
CIVE 7251 Environmental Biological Processes	4 SH
CIVE 7260 Hydrology	4 SH
CIVE 7263 Groundwater Hydraulics and Quality Modeling	4 SH
CIVE 7303 Geotechnical Instrumentation	2 SH
CIVE 7311 Soil and Foundation Dynamics	4 SH
CIVE 7312 Earthquake Engineering	4 SH
CIVE 7322 Engineering Geology	4 SH
CIVE 7330 Advanced Structural Analysis	4 SH
CIVE 7331 Structural Dynamics	4 SH
IE 6200 Engineering Probability and Statistics	4 SH
IE 7290 Reliability Analysis and Risk Assessment	4 SH
ME 5657 Finite Element Method	4 SH
ME 7205 Advanced Mathematical Methods for Mechanical Engineers	4 SH

The CEE department also encourages geotechnical/geoenvironmental engineering students to choose elective courses from the structural engineering program.

Master's Degree in Civil Engineering with Concentration in Structures

This program includes courses in structural analysis and design, dynamics of structures, earthquake engineering, and structural mechanics.

Degree Requirements	Course		
	With Report	With Thesis	Work Only
Required core courses	8 SH	8 SH	8 SH
Restricted electives	12 SH	12 SH	12 SH
Other electives	8 SH	4 SH	12 SH
Master of Science report/thesis	4 SH	8 SH	
Minimum semester hours required	32 SH	32 SH	32 SH

MSCivE—Master of Science in Civil Engineering with Concentration in Structures—Course Work Option**GENERAL REQUIREMENTS**

CIVE 7330 Advanced Structural Analysis	4 SH
CIVE 7331 Structural Dynamics	4 SH
Course work from the list "Restricted Electives," below	12 SH
Course work from the list "Structures Course Option Electives," below	12 SH

PROGRAM TOTAL CREDITS 32.0 SH

RESTRICTED ELECTIVES

CIVE 5522 Structural Analysis 2	4 SH
CIVE 7251 Environmental Biological Processes	4 SH
CIVE 7340 Seismic Analysis and Design	4 SH
CIVE 7341 Structural Reliability	4 SH
CIVE 7342 System Identification	4 SH
CIVE 7350 Behavior of Concrete Structures	4 SH
CIVE 7354 Wind Engineering	4 SH
CIVE 7355 Advanced Bridge Design	4 SH

STRUCTURES COURSE OPTION ELECTIVES

MATH 7241 Probability 1	4 SH
MATH 7342 Mathematical Statistics	4 SH
MATH 7343 Applied Statistics	4 SH
MATL 7365 Properties and Processing of Electronic Materials	4 SH
ME 5240 Computer Aided Design and Manufacturing	4 SH
ME 5650 Advanced Mechanics of Materials	4 SH
ME 5655 Dynamics and Mechanical Vibration	4 SH
ME 5657 Finite Element Method	4 SH
ME 5659 Control and Mechatronics	4 SH
ME 6200 Mathematical Methods for Mechanical Engineers 1	4 SH
ME 6201 Mathematical Methods for Mechanical Engineers 2	4 SH
ME 7205 Advanced Mathematical Methods for Mechanical Engineers	4 SH
ME 7210 Elasticity and Plasticity	4 SH
ME 7232 Theory of Plates and Shells	4 SH
ME 7238 Advanced Finite Element Method	4 SH
ME 7245 Fracture Mechanics and Failure Analysis	4 SH
ME 7255 Continuum Mechanics	4 SH

MSCivE in Civil Engineering with Concentration in Structures—Report Option**GENERAL REQUIREMENTS**

CIVE 7330 Advanced Structural Analysis	4 SH
CIVE 7331 Structural Dynamics	4 SH
CIVE 8674 Master's Report	4 SH
Course work from the list "Restricted Electives," below	12 SH
Course work from the list "Structures Report Option Electives," below	8 SH

PROGRAM TOTAL CREDITS 32.0 SH

RESTRICTED ELECTIVES

CIVE 5522 Structural Analysis 2	4 SH
CIVE 7251 Environmental Biological Processes	4 SH
CIVE 7340 Seismic Analysis and Design	4 SH
CIVE 7341 Structural Reliability	4 SH
CIVE 7342 System Identification	4 SH
CIVE 7350 Behavior of Concrete Structures	4 SH
CIVE 7354 Wind Engineering	4 SH
CIVE 7355 Advanced Bridge Design	4 SH

STRUCTURES REPORT OPTION ELECTIVES

MATH 7241 Probability 1	4 SH
MATH 7342 Mathematical Statistics	4 SH
MATH 7343 Applied Statistics	4 SH
MATL 7365 Properties and Processing of Electronic Materials	4 SH
ME 5240 Computer Aided Design and Manufacturing	4 SH
ME 5650 Advanced Mechanics of Materials	4 SH
ME 5655 Dynamics and Mechanical Vibration	4 SH
ME 5657 Finite Element Method	4 SH
ME 5659 Control and Mechatronics	4 SH
ME 6200 Mathematical Methods for Mechanical Engineers 1	4 SH
ME 6201 Mathematical Methods for Mechanical Engineers 2	4 SH
ME 7205 Advanced Mathematical Methods for Mechanical Engineers	4 SH
ME 7210 Elasticity and Plasticity	4 SH
ME 7232 Theory of Plates and Shells	4 SH
ME 7238 Advanced Finite Element Method	4 SH
ME 7245 Fracture Mechanics and Failure Analysis	4 SH
ME 7255 Continuum Mechanics	4 SH

MSCivE—Master of Science in Civil Engineering with Concentration in Structures—Thesis Option

GENERAL REQUIREMENTS

CIVE 7330 Advanced Structural Analysis	4 SH
CIVE 7331 Structural Dynamics	4 SH
CIVE 7990 MS Thesis	8 SH
Course work from the list “Restricted Electives,” below	12 SH
Course work from the list “Structures Thesis Option Electives,” below	4 SH

PROGRAM TOTAL CREDITS 32.0 SH

RESTRICTED ELECTIVES

CIVE 5522 Structural Analysis 2	4 SH
CIVE 7251 Environmental Biological Processes	4 SH
CIVE 7340 Seismic Analysis and Design	4 SH
CIVE 7341 Structural Reliability	4 SH
CIVE 7342 System Identification	4 SH
CIVE 7350 Behavior of Concrete Structures	4 SH
CIVE 7354 Wind Engineering	4 SH
CIVE 7355 Advanced Bridge Design	4 SH

STRUCTURES THESIS OPTION ELECTIVES

MATH 7241 Probability 1	4 SH
MATH 7342 Mathematical Statistics	4 SH
MATH 7343 Applied Statistics	4 SH
MATL 7365 Properties and Processing of Electronic Materials	4 SH
ME 5240 Computer Aided Design and Manufacturing	4 SH
ME 5650 Advanced Mechanics of Materials	4 SH

ME 5655 Dynamics and Mechanical Vibration	4 SH
ME 5657 Finite Element Method	4 SH
ME 5659 Control and Mechatronics	4 SH
ME 6200 Mathematical Methods for Mechanical Engineers 1	4 SH
ME 6201 Mathematical Methods for Mechanical Engineers 2	4 SH
ME 7205 Advanced Mathematical Methods for Mechanical Engineers	4 SH
ME 7210 Elasticity and Plasticity	4 SH
ME 7232 Theory of Plates and Shells	4 SH
ME 7238 Advanced Finite Element Method	4 SH
ME 7245 Fracture Mechanics and Failure Analysis	4 SH
ME 7255 Continuum Mechanics	4 SH

Master’s Degree in Civil Engineering with Concentration in Transportation

This program is designed for students with career goals in transportation engineering and transportation planning. Core courses in transportation planning and engineering are supported by related courses in applied mathematics, engineering, economics, policy, and management.

Degree Requirements	With Report	With Thesis	Course Work Only
Required core courses	12 SH	12 SH	12 SH
Restricted electives	8 SH	8 SH	12 SH
Other electives	8 SH	4 SH	8 SH
Master of Science report/thesis	4 SH	8 SH	
Minimum semester hours required	32 SH	32 SH	32 SH

MSCivE—Master of Science in Civil Engineering with Concentration in Transportation—Course Work Option

GENERAL REQUIREMENTS

CIVE 5373 Transportation Planning and Engineering	4 SH
CIVE 5376 Traffic Engineering	4 SH
IE 6200 Engineering Probability and Statistics	4 SH
Course work from the list “Restricted Electives,” below	12 SH
Two approved electives	8 SH

PROGRAM TOTAL CREDITS 32.0 SH

RESTRICTED ELECTIVES

CIVE 7380 Transportation Performance Models	4 SH
CIVE 7381 Transportation Demand Models	4 SH
CIVE 7385 Public Transportation	4 SH
IE 7215 Simulation Analysis	4 SH
IE 7280 Statistical Methods in Engineering	4 SH

MSCivE—Master of Science in Civil Engineering with Concentration in Transportation—Report Option

GENERAL REQUIREMENTS

CIVE 5373 Transportation Planning and Engineering	4 SH
CIVE 5376 Traffic Engineering	4 SH
CIVE 8674 Master's Report	4 SH
IE 6200 Engineering Probability and Statistics	4 SH
Course work from the list "Restricted Electives," below	8 SH
Two approved electives	8 SH

PROGRAM TOTAL CREDITS 32.0 SH

RESTRICTED ELECTIVES

CIVE 7380 Transportation Performance Models	4 SH
CIVE 7381 Transportation Demand Models	4 SH
CIVE 7385 Public Transportation	4 SH
IE 7215 Simulation Analysis	4 SH
IE 7280 Statistical Methods in Engineering	4 SH

MSCivE—Master of Science in Civil Engineering with Concentration in Transportation—Thesis Option

GENERAL REQUIREMENTS

CIVE 5373 Transportation Planning and Engineering	4 SH
CIVE 5376 Traffic Engineering	4 SH
CIVE 7990 MS Thesis	8 SH
IE 6200 Engineering Probability and Statistics	4 SH
Course work from the list "Restricted Electives," below	8 SH
Approved elective	4 SH

PROGRAM TOTAL CREDITS 32.0 SH

RESTRICTED ELECTIVES

CIVE 7380 Transportation Performance Models	4 SH
CIVE 7381 Transportation Demand Models	4 SH
CIVE 7385 Public Transportation	4 SH
IE 7215 Simulation Analysis	4 SH
IE 7280 Statistical Methods in Engineering	4 SH

Master's Degree in Civil Engineering with Graduate Certificate in Engineering Leadership

The department also offers a Master of Science degree in civil engineering with a graduate certificate in engineering leadership from the Gordon Leadership Program. Students pursuing this degree must complete 16 semester hours of course work in the Gordon Leadership Program and 16–17 semester hours of course work in a civil engineering discipline (construction management, environmental engineering, geotechnical/geoenvironmental engineering, structural engineering, or transportation engineering). For some civil engineering disciplines, a petition is required to include course work from the Gordon Leadership Program in lieu of civil engineering restricted electives. All students complete the following Gordon Engineering Leadership Program requirements.

MSCivE—Master of Science in Civil Engineering with Graduate Certificate in Engineering Leadership with Concentration in Construction Management

GENERAL REQUIREMENTS

ACCT 6200 Financial Reporting and Managerial Decision Making 1	3 SH
CIVE 7220 Construction Management	4 SH
CIVE 7221 Construction Project Control and Organization	2 SH
CIVE 7230 Legal Aspects of Civil Engineering	4 SH
ENLR 5121 Engineering Leadership 1	2 SH
ENLR 5122 Engineering Leadership 2	2 SH
ENLR 5131 Scientific Foundations of Engineering 1	2 SH
ENLR 5132 Scientific Foundations of Engineering 2	2 SH
ENLR 7440 Engineering Leadership Challenge Project 1	4 SH
ENLR 7442 Engineering Leadership Challenge Project 2	4 SH
IE 6200 Engineering Probability and Statistics	4 SH

PROGRAM TOTAL CREDITS 33.0 SH

MSCivE—Master of Science in Civil Engineering with Graduate Certificate in Engineering Leadership with Concentration in Environmental Engineering

GENERAL REQUIREMENTS

CIVE 7250 Environmental Chemistry	4 SH
CIVE 7251 Environmental Biological Processes	4 SH
CIVE 7260 Hydrology	4 SH
ENLR 5121 Engineering Leadership 1	2 SH
ENLR 5122 Engineering Leadership 2	2 SH
ENLR 5131 Scientific Foundations of Engineering 1	2 SH
ENLR 5132 Scientific Foundations of Engineering 2	2 SH
ENLR 7440 Engineering Leadership Challenge Project 1	4 SH
ENLR 7442 Engineering Leadership Challenge Project 2	4 SH
Advisor-approved CIVE course	4 SH

PROGRAM TOTAL CREDITS 32.0 SH

MSCivE—Master of Science in Civil Engineering with Graduate Certificate in Engineering Leadership with Concentration in Geotechnical/Geoenvironmental Engineering

GENERAL REQUIREMENTS

CIVE 7301 Advanced Soil Mechanics	4 SH
CIVE 7302 Advanced Foundation Engineering	4 SH
ENLR 5121 Engineering Leadership 1	2 SH
ENLR 5122 Engineering Leadership 2	2 SH
ENLR 5131 Scientific Foundations of Engineering 1	2 SH
ENLR 5132 Scientific Foundations of Engineering 2	2 SH

ENLR 7440 Engineering Leadership Challenge Project 1	4 SH
ENLR 7442 Engineering Leadership Challenge Project 2	4 SH
Advisor-approved CIVE restricted electives	8 SH

PROGRAM TOTAL CREDITS 32.0 SH

MSCivE—Master of Science in Civil Engineering with Graduate Certificate in Engineering Leadership with Concentration in Structural Engineering

GENERAL REQUIREMENTS

CIVE 7330 Advanced Structural Analysis	4 SH
CIVE 7331 Structural Dynamics	4 SH
ENLR 5121 Engineering Leadership 1	2 SH
ENLR 5122 Engineering Leadership 2	2 SH
ENLR 5131 Scientific Foundations of Engineering 1	2 SH
ENLR 5132 Scientific Foundations of Engineering 2	2 SH
ENLR 7440 Engineering Leadership Challenge Project 1	4 SH
ENLR 7442 Engineering Leadership Challenge Project 2	4 SH
Advisor-approved CIVE restricted electives	8 SH

PROGRAM TOTAL CREDITS 32.0 SH

MSCivE—Master of Science in Civil Engineering with Graduate Certificate in Engineering Leadership with Concentration in Transportation Engineering

GENERAL REQUIREMENTS

CIVE 5373 Transportation Planning and Engineering	4 SH
CIVE 5376 Traffic Engineering	4 SH
ENLR 5121 Engineering Leadership 1	2 SH
ENLR 5122 Engineering Leadership 2	2 SH
ENLR 5131 Scientific Foundations of Engineering 1	2 SH
ENLR 5132 Scientific Foundations of Engineering 2	2 SH
ENLR 7440 Engineering Leadership Challenge Project 1	4 SH
ENLR 7442 Engineering Leadership Challenge Project 2	4 SH
IE 6200 Engineering Probability and Statistics	4 SH
Advisor-approved CIVE restricted elective	4 SH

PROGRAM TOTAL CREDITS 32.0 SH

PHD in Civil Engineering

Award of the Doctor of Philosophy degree is based on exceptional performance in course work as well as evidence of ability to formulate and execute original research. The PhD program has two components: (1) An academic program of graduate-level courses that provides depth in a specific area of civil engineering (the major field) as well as other course work that provides additional exposure at an advanced level to one or more disciplines; and (2) the dissertation, an extended independent

research effort on a relevant technical problem resulting in an original contribution to the field.

Each student's mastery of subject matter is measured by a qualifying examination covering a subset of subjects selected from the major field. A doctoral dissertation committee periodically monitors research progress, and the candidate is required to present and defend his or her research results before an expanded group of faculty and research staff upon completion of the work.

The doctoral program is deliberately designed to be flexible with respect to subject area. Since the PhD is primarily a research degree, the program must be adaptable to changes in research needs.

QUALIFYING EXAMINATION AND DEGREE CANDIDACY

The qualifying exam includes written and oral components. Its content depends upon the educational background and objectives of the student. In general, the written component covers subject matter at the master's degree level selected from the major field and includes basic engineering and science disciplines, as well as civil engineering application areas. The oral component measures general comprehension and aptitude for research. If a student fails the exam, he or she may retake it one time with the permission of the qualifying examination committee.

Students must take the qualifying exam during the first 18 months of their PhD program. PhD students who start their graduate program at Northeastern with a BS degree shall take the qualifying exam within the first 30 months after entering the program. Upon successful completion of the exam, the student is classified as a doctoral candidate.

DISSERTATION

Once degree candidacy is established, a doctoral candidate may proceed with his or her dissertation. The candidate must write a dissertation proposal and name a civil and environmental engineering faculty member as the dissertation advisor. A dissertation committee formed by the student and his or her dissertation advisor will monitor progress and approve the final document. The dissertation committee shall have no fewer than four members, at least two of whom must be full-time faculty from the CEE department. Each doctoral candidate must defend his or her dissertation within seven years from the start of the PhD program.

COURSE REQUIREMENTS

Each student, along with a faculty advisor, must jointly develop a proposal defining the content of the academic program, subject to review by the qualifying examination committee. Intellectual rigor, connectivity of subject matter, and compatibility with departmental interests are critical issues. The qualifying exam committee's approval of the proposal represents a mutual agreement between the student and the committee. The CEE department encourages flexibility in program definition, especially in areas where complementary courses exist in other departments or where expertise resides outside the department and where the

objective is to introduce new technology in civil engineering practice.

The academic program must include at least 52 semester hours of graduate-level course work beyond the bachelor's degree. Students with a master's degree in civil engineering must complete a minimum of 20 semester hours of course work at Northeastern University.

A student may count no more than 4 semester hours of independent study (such as special project in civil engineering) toward the minimum course requirements. A minimum of 40 semester hours must be related to the major field but may include courses from other departments when appropriate.

Upon successful completion of the qualifying exam and the majority of required course work, each doctoral candidate must register in two consecutive semesters for CIVE 9990 Dissertation. Upon completion of this sequence, the candidate must register for CIVE 9996 Dissertation Continuation in every semester until the dissertation is complete. Students may not register for Continuation until they fulfill the two-semester dissertation sequence.

RESIDENCE REQUIREMENT

Students must complete at least two successive semesters of full-time study on campus to establish residence. The total effort for a PhD program involves a minimum of three years of full-time work beyond the bachelor's degree. Students who enter the doctoral program with a Master of Science degree may complete the requirements in less time but should anticipate at least two years of full-time effort.

LANGUAGE REQUIREMENT

Each doctoral candidate must be proficient in technical writing and oral presentation in the English language. The qualifying examination committee may require additional course work in the case of any deficiency in these areas.

COMPREHENSIVE EXAMINATION

The comprehensive exam is a defense of the doctoral research work and an examination on subject matter related to the dissertation area.

PhD in Civil Engineering—Advanced Degree Entrance

GENERAL REQUIREMENTS

Required course work	20 SH
CIVE 9990 Dissertation	0 SH

PROGRAM TOTAL CREDITS 20.0 SH

PhD in Civil Engineering—Bachelor's Degree Entrance

GENERAL REQUIREMENTS

Required course work	52 SH
CIVE 9990 Dissertation	0 SH

PROGRAM TOTAL CREDITS 52.0 SH

COMPUTER SYSTEMS ENGINEERING

www.coe.neu.edu/gse/pm/CSE/

KAL BUGRARA, PhD

Program Director

130 Snell Engineering

617.373.4448

617.373.2501 (fax)

Kal Bugrara, PhD, *Program Director*, kmb@coe.neu.edu

The Master of Science in Computer Systems Engineering degree is offered by the electrical and computer engineering department and may be pursued on a full- or part-time basis.

Graduates of the program have been very successful in obtaining employment during the last 10 years. Many have chosen to work in the Boston area, which has a large number of companies that employ software developers. Graduates of the program have also obtained employment in the New York City area; Washington, D.C.; Silicon Valley, including San Francisco; Seattle (Washington); and several cities in Texas. We expect the employment opportunities for our graduates to remain high.

MSCSE—Master of Science in Computer Systems Engineering with Concentration in Engineering Software Design—Course Work Option

GENERAL REQUIREMENTS

CSYE 6205 Concepts of Object-Oriented Design with C++	4 SH
CSYE 6220 Enterprise Software Design	4 SH
CSYE 7230 Software Engineering	4 SH
Course work from the list "Approved Electives," below	20 SH

PROGRAM TOTAL CREDITS 32.0 SH

APPROVED ELECTIVES

CSYE 6210 Component Software Development	4 SH
CSYE 7215 Foundations of Parallel, Concurrent, and Multithreaded Programming	4 SH
CSYE 7225 Mobile Wireless Computing	4 SH
CSYE 7280 Human-Computer Interaction	4 SH
CSYE 7374 Special Topics in Computer Systems Engineering	4 SH
CSYE 7978 Independent Study	1 to 4 SH
EMGT 5220 Engineering Project Management	4 SH
INFO 5100 Application Engineering and Development	4 SH
INFO 6210 Data Management and Database Design	4 SH
INFO 6220 Operating Systems	4 SH
INFO 6225 Networks, Telecommunications, and Distributed Systems	4 SH
INFO 6240 C++ Object-Oriented Design	4 SH
INFO 6250 Web Development Tools and Methods	4 SH

INFO 7275 Advanced Database Management Systems	4 SH
INFO 7285 Organizational Change and IT	4 SH
INFO 7300 Engineering Secure Software Systems	4 SH

MSCSE—Master of Science in Computer Systems Engineering with Concentration in Engineering Software Design—Thesis Option

GENERAL REQUIREMENTS

CSYE 6205 Concepts of Object-Oriented Design with C++	4 SH
CSYE 6220 Enterprise Software Design	4 SH
CSYE 7230 Software Engineering	4 SH
CSYE 7990 MS Thesis	8 SH
Course work from the list “Approved Electives,” below	12 SH

PROGRAM TOTAL CREDITS **32.0 SH**

APPROVED ELECTIVES

CSYE 6210 Component Software Development	4 SH
CSYE 7215 Foundations of Parallel, Concurrent, and Multithreaded Programming	4 SH
CSYE 7225 Mobile Wireless Computing	4 SH
CSYE 7280 Human-Computer Interaction	4 SH
CSYE 7374 Special Topics in Computer Systems Engineering	4 SH
CSYE 7978 Independent Study	1 to 4 SH
EMGT 5220 Engineering Project Management	4 SH
INFO 5100 Application Engineering and Development	4 SH
INFO 6210 Data Management and Database Design	4 SH
INFO 6220 Operating Systems	4 SH
INFO 6225 Networks, Telecommunications, and Distributed Systems	4 SH
INFO 6240 C++ Object-Oriented Design	4 SH
INFO 6250 Web Development Tools and Methods	4 SH
INFO 7275 Advanced Database Management Systems	4 SH
INFO 7285 Organizational Change and IT	4 SH
INFO 7300 Engineering Secure Software Systems	4 SH

MSCSE—Master of Science in Computer Systems Engineering with Graduate Certificate in Engineering Leadership with Concentration in Engineering Software Design

GENERAL REQUIREMENTS

CSYE 6205 Concepts of Object-Oriented Design with C++	4 SH
CSYE 6220 Enterprise Software Design	4 SH
CSYE 7230 Software Engineering	4 SH
ENLR 5121 Engineering Leadership 1	2 SH
ENLR 5122 Engineering Leadership 2	2 SH
ENLR 5131 Scientific Foundations of Engineering 1	2 SH
ENLR 5132 Scientific Foundations of Engineering 2	2 SH

ENLR 7440 Engineering Leadership Challenge Project 1	4 SH
ENLR 7442 Engineering Leadership Challenge Project 2	4 SH
Course work from the list “Approved Electives,” below	4 SH

PROGRAM TOTAL CREDITS **32.0 SH**

APPROVED ELECTIVES

CSYE 6210 Component Software Development	4 SH
CSYE 7215 Foundations of Parallel, Concurrent, and Multithreaded Programming	4 SH
CSYE 7225 Mobile Wireless Computing	4 SH
CSYE 7280 Human-Computer Interaction	4 SH
CSYE 7374 Special Topics in Computer Systems Engineering	4 SH
CSYE 7978 Independent Study	1 to 4 SH
EMGT 5220 Engineering Project Management	4 SH
INFO 5100 Application Engineering and Development	4 SH
INFO 6210 Data Management and Database Design	4 SH
INFO 6220 Operating Systems	4 SH
INFO 6225 Networks, Telecommunications, and Distributed Systems	4 SH
INFO 6240 C++ Object-Oriented Design	4 SH
INFO 6250 Web Development Tools and Methods	4 SH
INFO 7275 Advanced Database Management Systems	4 SH
INFO 7285 Organizational Change and IT	4 SH
INFO 7300 Engineering Secure Software Systems	4 SH

ELECTRICAL AND COMPUTER ENGINEERING

www.ece.neu.edu

SHEILA S. HEMAMI, PhD
Professor and Chair

407 Dana Research Center
617.373.3051
617.373.4431 (fax)
Faith Crisley, *Graduate Coordinator*, f.crisley@neu.edu

The Department of Electrical and Computer Engineering (ECE) offers the following graduate degree programs:

- Master of Science in Electrical and Computer Engineering (MSECE)
- Master of Science in Electrical and Computer Engineering Leadership (MSECEL)
- Doctor of Philosophy in Computer Engineering (PhD)
- Doctor of Philosophy in Electrical Engineering (PhD)

All degrees can be pursued on either a full or part-time basis consistent with residence requirements for the degrees. The curriculum includes areas of concentration in communications, control, and signal processing; computer engineering; electromagnetics, plasma, and optics; microsystems, materials, and devices; and power systems, power electronics, and motion control.

MSECE and MSECEL students pursue their degree by selecting one of the two tracks—MSECE with thesis and course track (MS/T) or MSECE course-only track (MS/C). Students in all master's degree programs must complete a minimum of 32 semester hours of approved course work (exclusive of any preparatory courses) with a minimum GPA of 3.000. Full-time students are responsible for meeting with their faculty academic or research advisor early in their program of study to determine an appropriate sequence of course work. Part-time students should follow the curriculum requirements and confer with their faculty academic advisor as needed.

Master of Science Degree Requirements

Students must complete a minimum of 32 semester hours of approved course work with a minimum GPA of 3.000. MS/T track students must complete an 8-semester-hour thesis as part of their program of study.

Research assistants may not change their areas of concentration without approval of their academic or thesis advisor and the ECE graduate affairs committee (GAC). Students who select MS/T track must form a thesis committee comprised of at least three members. The thesis committee must include the thesis advisor and at least two members must be ECE faculty. The student shall present the thesis to this committee and to the ECE

department at-large in the form of a seminar before final approval of the thesis.

The ECE department requires the master's degree students who hold assistantships to register for 8 semester hours of course work per semester. Students may register for EECE 8986 Research (0 credit, full-time equivalent) to fulfill the registration requirement if they have completed course work and thesis registration requirements.

Doctor of Philosophy Degree Requirements

The ECE department offers doctoral degree programs both in electrical and in computer engineering.

QUALIFYING EXAM AND DEGREE CANDIDACY

The PhD qualifying exam is the examination for admissions to the doctoral programs in electrical engineering and in computer engineering. It is a written exam in the student's major area, and some areas include an oral exam. The exam has the dual purposes of serving as an indicator of the student's capability for successful completion of the PhD in Electrical Engineering or in Computer Engineering and of serving as a guide to the student's advisor in developing a suitable plan of study, tailored to the individual needs of the student. Students are tested on graduate course material as specified by the faculty in the chosen area.

A student who has matriculated in the PhD program is considered a predoctoral student. Upon successful completion of the qualifying exam, the student is designated a PhD candidate. All predoctoral students who hold a master's degree or its equivalent must take this exam in the spring semester of their first academic year of study. A student who fails the qualifying exam will be permitted to retake the exam only once.

RESIDENCE REQUIREMENT

One year of full-time graduate work or two consecutive years of part-time graduate work satisfy the residence requirement. In the latter case, the student's advisor must approve a detailed schedule in order to ensure that the student devotes at least half of the time to the requirements of the Graduate School of Engineering.

DISSERTATION

Within one semester after passing the PhD qualifying exam, the PhD candidate must form a dissertation committee and petition the ECE graduate committee for approval of this committee. A dissertation committee must have at least three members. Two of the committee members must be full-time ECE faculty, and the committee must include the student's advisor. The chair of the committee must be a faculty member in the ECE department.

The dissertation committee must design an appropriate program of study that prepares the student to be a successful doctoral-level engineer as well as direct the candidate's dissertation research. The dissertation committee will approve the dissertation in final form.

DISSERTATION AND DISSERTATION CONTINUATION REGISTRATION

Upon successful completion of the PhD qualifying exam and the majority of required course work, the PhD candidate must register in two consecutive semesters for Dissertation. Upon completion of this sequence, the student must register for Dissertation Continuation in every semester until the dissertation is completed. A student may not register for continuation until he or she fulfills the two-semester sequence.

REGISTRATION REQUIREMENTS FOR PRE-DOCTORAL AND PhD CANDIDATE GRADUATE ASSISTANTS

The ECE department requires that predoctoral students and PhD candidates who hold research or teaching assistantships register for 8 semester hours of course work per semester. PhD candidates may register for EECE 9986 Research (0 credit, full-time equivalent) to fulfill the registration requirement if they have passed the PhD qualifying exam.

PhD candidates may use the research course to meet the 8-semester-hour registration requirement for the PhD degree.

COMPREHENSIVE EXAM/PROPOSAL STAGE

Within three years of the establishment of degree candidacy, each PhD candidate must demonstrate, by means of comprehensive exam, subject matter knowledge satisfactory for the award of the degree.

The comprehensive exam is an oral exam administered by the student's dissertation advisor/committee. Normally, the exam will be given at the time the student submits his or her dissertation proposal to the dissertation advisor/committee for approval. As part of this exam, the dissertation advisor/committee will review the student's doctoral program and his or her performance in graduate courses, as well as examine the student on subject matter related to his or her graduate course work and dissertation subject area.

FINAL THESIS DEFENSE

The final thesis defense will include the subject matter of the dissertation and significant developments in the field of the dissertation work. Other related fields may be included if recommended by the examining faculty.

Electrical and Computer Engineering PhD Course Requirements

The student and his or her dissertation committee determine the program of study. A typical program comprises 24 semester hours of course work beyond the Master of Science degree. However, as a minimum, the PhD program must include at least 16 semester hours of course work. At least 8 semester hours of the PhD course requirements must be graduate-level ECE courses. All students must achieve a minimum cumulative GPA of 3.000.

MSECE—Master of Science in Electrical and Computer Engineering with Concentration in Communications, Control, and Signal Processing—Course Work Option

GENERAL REQUIREMENTS

Course work from the list “Approved Concentration Courses,” below 32 SH

PROGRAM TOTAL CREDITS 32.0 SH

APPROVED CONCENTRATION COURSES

EECE 5580 Classical Control Systems	4 SH
EECE 5610 Digital Control Systems	4 SH
EECE 5680 Electric Drives	4 SH
EECE 5682 Power Systems Analysis 1	4 SH
EECE 5684 Power Electronics	4 SH
EECE 5686 Electrical Machines	4 SH
EECE 5698 Special Topics in Electrical and Computer Engineering	4 SH
EECE 7200 Linear Systems Analysis	4 SH
EECE 7203 Complex Variable Theory and Differential Equations	4 SH
EECE 7204 Applied Probability and Stochastic Processes	4 SH
EECE 7211 Nonlinear Control	4 SH
EECE 7212 Multivariable Control Systems	4 SH
EECE 7213 System Identification and Adaptive Control	4 SH
EECE 7214 Optimal and Robust Control	4 SH
EECE 7221 Power System Operation and Control	4 SH
EECE 7236 Special Topics in Control	4 SH
EECE 7240 Analog Integrated Circuit Design	4 SH
EECE 7242 Integrated Circuits for Communications and Mixed-Signal Processing	4 SH
EECE 7245 Microwave Circuit Design for Wireless Communication	4 SH
EECE 7270 Electromagnetic Theory 2	4 SH
EECE 7271 Computational Methods in Electromagnetics	4 SH
EECE 7272 Radar System	4 SH
EECE 7273 Remote Sensing	4 SH
EECE 7280 Fourier and Binary Optics	4 SH
EECE 7286 IR Imaging	4 SH
EECE 7287 Optical Detection	4 SH
EECE 7293 Modern Imaging	4 SH
EECE 7310 Modern Signal Processing	4 SH
EECE 7311 Two Dimensional Signal and Image Processing	4 SH
EECE 7312 Statistical and Adaptive Signal Processing	4 SH
EECE 7313 Pattern Recognition	4 SH
EECE 7314 Auditory Signal Processing	4 SH
EECE 7315 Digital Image Processing	4 SH
EECE 7316 Modern Spectral Analysis and Array Processing	4 SH
EECE 7317 Digital Filter Banks and Wavelets	4 SH
EECE 7323 Numerical Optimization Methods	4 SH

EECE 7327 Special Topics in Signal Processing 1	4 SH	EECE 7203 Complex Variable Theory and Differential Equations	4 SH
EECE 7328 Special Topics in Signal Processing 2	4 SH	EECE 7204 Applied Probability and Stochastic Processes	4 SH
EECE 7329 Special Topics in Signal Processing 3	4 SH	EECE 7211 Nonlinear Control	4 SH
EECE 7330 Multi-User Detection	4 SH	EECE 7212 Multivariable Control Systems	4 SH
EECE 7331 Network Communications and Performance Engineering	4 SH	EECE 7213 System Identification and Adaptive Control	4 SH
EECE 7332 Error Correcting Codes	4 SH	EECE 7214 Optimal and Robust Control	4 SH
EECE 7333 Spread Spectrum Communication Systems	4 SH	EECE 7221 Power System Operation and Control	4 SH
EECE 7334 Wireless Communications	4 SH	EECE 7236 Special Topics in Control	4 SH
EECE 7335 Detection and Estimation Theory	4 SH	EECE 7240 Analog Integrated Circuit Design	4 SH
EECE 7336 Digital Communications	4 SH	EECE 7242 Integrated Circuits for Communications and Mixed-Signal Processing	4 SH
EECE 7337 Information Theory	4 SH	EECE 7245 Microwave Circuit Design for Wireless Communication	4 SH
EECE 7338 Local Area Networks and Interworking	4 SH	EECE 7270 Electromagnetic Theory 2	4 SH
EECE 7340 Broadband Communications Networks	4 SH	EECE 7271 Computational Methods in Electromagnetics	4 SH
EECE 7347 Special Topics in Communications 1	4 SH	EECE 7272 Radar System	4 SH
EECE 7348 Special Topics in Communications 2	4 SH	EECE 7273 Remote Sensing	4 SH
EECE 7349 Special Topics in Communications 3	4 SH	EECE 7280 Fourier and Binary Optics	4 SH
EECE 7350 Software Engineering 1	4 SH	EECE 7286 IR Imaging	4 SH
EECE 7351 Software Engineering 2	4 SH	EECE 7287 Optical Detection	4 SH
EECE 7354 VLSI Architecture	4 SH	EECE 7293 Modern Imaging	4 SH
EECE 7358 Parallel Architecture for High-Performance Computing	4 SH	EECE 7310 Modern Signal Processing	4 SH
EECE 7359 Multiprocessor Architectures	4 SH	EECE 7311 Two Dimensional Signal and Image Processing	4 SH
EECE 7360 Combinatorial Optimization	4 SH	EECE 7312 Statistical and Adaptive Signal Processing	4 SH
EECE 7362 Network Computing	4 SH	EECE 7313 Pattern Recognition	4 SH
EECE 7364 Mobile and Wireless Networking	4 SH	EECE 7314 Auditory Signal Processing	4 SH
EECE 7365 Distributed Systems	4 SH	EECE 7315 Digital Image Processing	4 SH
EECE 7367 Robotics and Automation Systems	4 SH	EECE 7316 Modern Spectral Analysis and Array Processing	4 SH
EECE 7387 Special Topics in Computer Networks	4 SH	EECE 7317 Digital Filter Banks and Wavelets	4 SH
EECE 7388 Special Topics in Computer Engineering 2	4 SH	EECE 7323 Numerical Optimization Methods	4 SH
EECE 7389 Robot Vision and Sensors	4 SH	EECE 7327 Special Topics in Signal Processing 1	4 SH
EECE 7398 Special Topics	4 SH	EECE 7328 Special Topics in Signal Processing 2	4 SH
		EECE 7329 Special Topics in Signal Processing 3	4 SH
		EECE 7330 Multi-User Detection	4 SH
		EECE 7331 Network Communications and Performance Engineering	4 SH
		EECE 7332 Error Correcting Codes	4 SH
		EECE 7333 Spread Spectrum Communication Systems	4 SH
		EECE 7334 Wireless Communications	4 SH
		EECE 7335 Detection and Estimation Theory	4 SH
		EECE 7336 Digital Communications	4 SH
		EECE 7337 Information Theory	4 SH
		EECE 7338 Local Area Networks and Interworking	4 SH
		EECE 7340 Broadband Communications Networks	4 SH
		EECE 7347 Special Topics in Communications 1	4 SH
		EECE 7348 Special Topics in Communications 2	4 SH
		EECE 7349 Special Topics in Communications 3	4 SH
		EECE 7350 Software Engineering 1	4 SH
		EECE 7351 Software Engineering 2	4 SH

MSECE—Master of Science in Electrical and Computer Engineering with Concentration in Communications, Control, and Signal Processing—Thesis Option

GENERAL REQUIREMENTS

Course work from the list “Approved Concentration Courses,” below	24 SH
EECE 7990 MS Thesis	8 SH

PROGRAM TOTAL CREDITS **32.0 SH**

APPROVED CONCENTRATION COURSES

EECE 5580 Classical Control Systems	4 SH
EECE 5610 Digital Control Systems	4 SH
EECE 5680 Electric Drives	4 SH
EECE 5682 Power Systems Analysis 1	4 SH
EECE 5684 Power Electronics	4 SH
EECE 5686 Electrical Machines	4 SH
EECE 5698 Special Topics in Electrical and Computer Engineering	4 SH
EECE 7200 Linear Systems Analysis	4 SH

EECE 7354 VLSI Architecture	4 SH	EECE 7214 Optimal and Robust Control	4 SH
EECE 7358 Parallel Architecture for High-Performance Computing	4 SH	EECE 7240 Analog Integrated Circuit Design	4 SH
EECE 7359 Multiprocessor Architectures	4 SH	EECE 7241 Advanced Solid State Devices	4 SH
EECE 7360 Combinatorial Optimization	4 SH	EECE 7242 Integrated Circuits for Communications and Mixed-Signal Processing	4 SH
EECE 7362 Network Computing	4 SH	EECE 7243 Integrated Circuit Fabrication	4 SH
EECE 7364 Mobile and Wireless Networking	4 SH	EECE 7246 Design and Analysis of Digital Integrated Circuits	4 SH
EECE 7365 Distributed Systems	4 SH	EECE 7292 Plasma Processing Seminar	4 SH
EECE 7367 Robotics and Automation Systems	4 SH	EECE 7293 Modern Imaging	4 SH
EECE 7387 Special Topics in Computer Networks	4 SH	EECE 7310 Modern Signal Processing	4 SH
EECE 7388 Special Topics in Computer Engineering 2	4 SH	EECE 7312 Statistical and Adaptive Signal Processing	4 SH
EECE 7389 Robot Vision and Sensors	4 SH	EECE 7315 Digital Image Processing	4 SH
EECE 7398 Special Topics	4 SH	EECE 7316 Modern Spectral Analysis and Array Processing	4 SH

MSECE—Master of Science in Electrical and Computer Engineering with Concentration in Computer Engineering—Course Work Option

GENERAL REQUIREMENTS

Course work from the list “Approved Concentration Courses,” below 32 SH

PROGRAM TOTAL CREDITS 32.0 SH

APPROVED CONCENTRATION COURSES

CS 5100 Foundations of Artificial Intelligence	4 SH	EECE 7332 Error Correcting Codes	4 SH
CS 5200 Database Management Systems	4 SH	EECE 7333 Spread Spectrum Communication Systems	4 SH
CS 5210 Implementation of Database Management Systems	4 SH	EECE 7334 Wireless Communications	4 SH
CS 5310 Computer Graphics	4 SH	EECE 7335 Detection and Estimation Theory	4 SH
CS 5340 Computer/Human Interaction	4 SH	EECE 7336 Digital Communications	4 SH
CS 5400 Principles of Programming Language	4 SH	EECE 7338 Local Area Networks and Interworking	4 SH
CS 5500 Managing Software Development	4 SH	EECE 7339 Testing and Design for Testability	4 SH
CS 5600 Computer Systems	4 SH	EECE 7340 Broadband Communications Networks	4 SH
CS 5770 Software Vulnerabilities and Security	4 SH	EECE 7350 Software Engineering 1	4 SH
CS 6110 Knowledge Based Systems	4 SH	EECE 7351 Software Engineering 2	4 SH
CS 6200 Information Retrieval	4 SH	EECE 7352 Computer Architecture	4 SH
CS 6310 Computational Imaging	4 SH	EECE 7353 VLSI Design	4 SH
CS 6410 Compilers	4 SH	EECE 7354 VLSI Architecture	4 SH
CS 6510 Advanced Software Development	4 SH	EECE 7355 Digital Systems Design with Hardware Description Languages	4 SH
CS 6520 Methods of Software Development	4 SH	EECE 7356 Digital Systems Design and Interfacing with Verilog	4 SH
CS 6530 Analysis of Software Artifacts	4 SH	EECE 7357 Fault-Tolerant Computers	4 SH
CS 6540 Foundations of Formal Methods and Software Analysis	4 SH	EECE 7358 Parallel Architecture for High-Performance Computing	4 SH
CS 6610 Parallel Computing	4 SH	EECE 7359 Multiprocessor Architectures	4 SH
CS 6740 Network Security	4 SH	EECE 7360 Combinatorial Optimization	4 SH
CS 6750 Cryptography and Communications Security	4 SH	EECE 7361 Digital Hardware Synthesis	4 SH
CS 6760 Privacy, Security, and Usability	4 SH	EECE 7362 Network Computing	4 SH
CS 6810 Distributed Algorithms	4 SH	EECE 7363 Interconnection Network for Multicomputers	4 SH
CS 7800 Advanced Algorithms	4 SH	EECE 7364 Mobile and Wireless Networking	4 SH
EECE 5610 Digital Control Systems	4 SH	EECE 7365 Distributed Systems	4 SH
EECE 7205 Fundamentals of Computer Engineering	4 SH	EECE 7366 Special Topics in Computer Engineering 1	4 SH
EECE 7212 Multivariable Control Systems	4 SH	EECE 7367 Robotics and Automation Systems	4 SH
		EECE 7368 High-Level Design of Hardware-Software Systems	4 SH
		EECE 7387 Special Topics in Computer Networks	4 SH
		EECE 7388 Special Topics in Computer Engineering 2	4 SH

EECE 7389 Robot Vision and Sensors	4 SH
EECE 7398 Special Topics	4 SH
MATH 7232 Combinatorial Analysis	4 SH
MATH 7233 Graph Theory	4 SH

MSECE—Master of Science in Electrical and Computer Engineering with Concentration in Computer Engineering—Thesis Option

GENERAL REQUIREMENTS

Course work from the list “Approved Concentration Courses,” below 24 SH

EECE 7990 MS Thesis 8 SH

PROGRAM TOTAL CREDITS 32.0 SH

APPROVED CONCENTRATION COURSES

CS 5100 Foundations of Artificial Intelligence	4 SH
CS 5200 Database Management Systems	4 SH
CS 5210 Implementation of Database Management Systems	4 SH
CS 5310 Computer Graphics	4 SH
CS 5340 Computer/Human Interaction	4 SH
CS 5400 Principles of Programming Language	4 SH
CS 5500 Managing Software Development	4 SH
CS 5600 Computer Systems	4 SH
CS 5770 Software Vulnerabilities and Security	4 SH
CS 6110 Knowledge Based Systems	4 SH
CS 6200 Information Retrieval	4 SH
CS 6310 Computational Imaging	4 SH
CS 6410 Compilers	4 SH
CS 6510 Advanced Software Development	4 SH
CS 6520 Methods of Software Development	4 SH
CS 6530 Analysis of Software Artifacts	4 SH
CS 6540 Foundations of Formal Methods and Software Analysis	4 SH
CS 6610 Parallel Computing	4 SH
CS 6740 Network Security	4 SH
CS 6750 Cryptography and Communications Security	4 SH
CS 6760 Privacy, Security, and Usability	4 SH
CS 6810 Distributed Algorithms	4 SH
CS 7800 Advanced Algorithms	4 SH
EECE 5610 Digital Control Systems	4 SH
EECE 7205 Fundamentals of Computer Engineering	4 SH
EECE 7212 Multivariable Control Systems	4 SH
EECE 7214 Optimal and Robust Control	4 SH
EECE 7240 Analog Integrated Circuit Design	4 SH
EECE 7241 Advanced Solid State Devices	4 SH
EECE 7242 Integrated Circuits for Communications and Mixed-Signal Processing	4 SH
EECE 7243 Integrated Circuit Fabrication	4 SH
EECE 7246 Design and Analysis of Digital Integrated Circuits	4 SH
EECE 7292 Plasma Processing Seminar	4 SH
EECE 7293 Modern Imaging	4 SH

EECE 7310 Modern Signal Processing	4 SH
EECE 7312 Statistical and Adaptive Signal Processing	4 SH
EECE 7315 Digital Image Processing	4 SH
EECE 7316 Modern Spectral Analysis and Array Processing	4 SH
EECE 7317 Digital Filter Banks and Wavelets	4 SH
EECE 7330 Multi-User Detection	4 SH
EECE 7331 Network Communications and Performance Engineering	4 SH
EECE 7332 Error Correcting Codes	4 SH
EECE 7333 Spread Spectrum Communication Systems	4 SH
EECE 7334 Wireless Communications	4 SH
EECE 7335 Detection and Estimation Theory	4 SH
EECE 7336 Digital Communications	4 SH
EECE 7338 Local Area Networks and Interworking	4 SH
EECE 7339 Testing and Design for Testability	4 SH
EECE 7340 Broadband Communications Networks	4 SH
EECE 7350 Software Engineering 1	4 SH
EECE 7351 Software Engineering 2	4 SH
EECE 7352 Computer Architecture	4 SH
EECE 7353 VLSI Design	4 SH
EECE 7354 VLSI Architecture	4 SH
EECE 7355 Digital Systems Design with Hardware Description Languages	4 SH
EECE 7356 Digital Systems Design and Interfacing with Verilog	4 SH
EECE 7357 Fault-Tolerant Computers	4 SH
EECE 7358 Parallel Architecture for High-Performance Computing	4 SH
EECE 7359 Multiprocessor Architectures	4 SH
EECE 7360 Combinatorial Optimization	4 SH
EECE 7361 Digital Hardware Synthesis	4 SH
EECE 7362 Network Computing	4 SH
EECE 7363 Interconnection Network for Multicomputers	4 SH
EECE 7364 Mobile and Wireless Networking	4 SH
EECE 7365 Distributed Systems	4 SH
EECE 7366 Special Topics in Computer Engineering 1	4 SH
EECE 7367 Robotics and Automation Systems	4 SH
EECE 7368 High-Level Design of Hardware-Software Systems	4 SH
EECE 7387 Special Topics in Computer Networks	4 SH
EECE 7388 Special Topics in Computer Engineering 2	4 SH
EECE 7389 Robot Vision and Sensors	4 SH
EECE 7398 Special Topics	4 SH
MATH 7232 Combinatorial Analysis	4 SH
MATH 7233 Graph Theory	4 SH

MSECE—Master of Science in Electrical and Computer Engineering with Concentration in Electromagnetics, Plasma, and Optics— Course Work Option

GENERAL REQUIREMENTS

Course work from the list “Approved Concentration Courses,” below 32 SH

PROGRAM TOTAL CREDITS 32.0 SH

APPROVED CONCENTRATION COURSES

EECE 5682 Power Systems Analysis 1	4 SH
EECE 5696 Energy Harvesting Systems	4 SH
EECE 5698 Special Topics in Electrical and Computer Engineering	4 SH
EECE 7105 Optics for Engineers	4 SH
EECE 7202 Electromagnetic Theory 1	4 SH
EECE 7203 Complex Variable Theory and Differential Equations	4 SH
EECE 7240 Analog Integrated Circuit Design	4 SH
EECE 7243 Integrated Circuit Fabrication	4 SH
EECE 7244 Introduction to Microelectromechanical Systems (MEMS)	4 SH
EECE 7245 Microwave Circuit Design for Wireless Communication	4 SH
EECE 7270 Electromagnetic Theory 2	4 SH
EECE 7271 Computational Methods in Electromagnetics	4 SH
EECE 7272 Radar System	4 SH
EECE 7273 Remote Sensing	4 SH
EECE 7274 Propagation in Artificial Structures	4 SH
EECE 7275 Antennas and Radiation	4 SH
EECE 7276 Microwave Properties of Materials	4 SH
EECE 7277 Microwave Electron Devices	1 to 4 SH
EECE 7280 Fourier and Binary Optics	4 SH
EECE 7281 Fourier Optics	4 SH
EECE 7282 Lasers	4 SH
EECE 7284 Optical Properties of Matter	4 SH
EECE 7285 Opto-electronics and Fiber Optics	4 SH
EECE 7286 IR Imaging	4 SH
EECE 7287 Optical Detection	4 SH
EECE 7290 Plasma Engineering	4 SH
EECE 7291 Plasma Theory	4 SH
EECE 7293 Modern Imaging	4 SH
EECE 7309 Special Topics in Electromagnetics, Plasma, and Optics	4 SH
EECE 7310 Modern Signal Processing	4 SH
EECE 7311 Two Dimensional Signal and Image Processing	4 SH
EECE 7312 Statistical and Adaptive Signal Processing	4 SH
EECE 7313 Pattern Recognition	4 SH
EECE 7314 Auditory Signal Processing	4 SH
EECE 7315 Digital Image Processing	4 SH
EECE 7316 Modern Spectral Analysis and Array Processing	4 SH

EECE 7334 Wireless Communications	4 SH
EECE 7336 Digital Communications	4 SH
EECE 7389 Robot Vision and Sensors	4 SH

MSECE—Master of Science in Electrical and Computer Engineering with Concentration in Electromagnetics, Plasma, and Optics— Thesis Option

GENERAL REQUIREMENTS

Course work from the list “Approved Concentration Courses,” below 24 SH

EECE 7990 MS Thesis 8 SH

PROGRAM TOTAL CREDITS 32.0 SH

APPROVED CONCENTRATION COURSES

EECE 5682 Power Systems Analysis 1	4 SH
EECE 5696 Energy Harvesting Systems	4 SH
EECE 5698 Special Topics in Electrical and Computer Engineering	4 SH
EECE 7105 Optics for Engineers	4 SH
EECE 7202 Electromagnetic Theory 1	4 SH
EECE 7203 Complex Variable Theory and Differential Equations	4 SH
EECE 7240 Analog Integrated Circuit Design	4 SH
EECE 7243 Integrated Circuit Fabrication	4 SH
EECE 7244 Introduction to Microelectromechanical Systems (MEMS)	4 SH
EECE 7245 Microwave Circuit Design for Wireless Communication	4 SH
EECE 7270 Electromagnetic Theory 2	4 SH
EECE 7271 Computational Methods in Electromagnetics	4 SH
EECE 7272 Radar System	4 SH
EECE 7273 Remote Sensing	4 SH
EECE 7274 Propagation in Artificial Structures	4 SH
EECE 7275 Antennas and Radiation	4 SH
EECE 7276 Microwave Properties of Materials	4 SH
EECE 7277 Microwave Electron Devices	1 to 4 SH
EECE 7280 Fourier and Binary Optics	4 SH
EECE 7281 Fourier Optics	4 SH
EECE 7282 Lasers	4 SH
EECE 7284 Optical Properties of Matter	4 SH
EECE 7285 Opto-electronics and Fiber Optics	4 SH
EECE 7286 IR Imaging	4 SH
EECE 7287 Optical Detection	4 SH
EECE 7290 Plasma Engineering	4 SH
EECE 7291 Plasma Theory	4 SH
EECE 7293 Modern Imaging	4 SH
EECE 7309 Special Topics in Electromagnetics, Plasma, and Optics	4 SH
EECE 7310 Modern Signal Processing	4 SH
EECE 7311 Two Dimensional Signal and Image Processing	4 SH

EECE 7312 Statistical and Adaptive Signal Processing	4 SH
EECE 7313 Pattern Recognition	4 SH
EECE 7314 Auditory Signal Processing	4 SH
EECE 7315 Digital Image Processing	4 SH
EECE 7316 Modern Spectral Analysis and Array Processing	4 SH
EECE 7334 Wireless Communications	4 SH
EECE 7336 Digital Communications	4 SH
EECE 7389 Robot Vision and Sensors	4 SH

MSECE—Master of Science in Electrical and Computer Engineering with Concentration in Microsystems, Materials, and Devices— Course Work Option

GENERAL REQUIREMENTS

Course work chosen from the list “Approved Concentration Courses,” below	32 SH
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PROGRAM TOTAL CREDITS 32.0 SH

APPROVED CONCENTRATION COURSES

EECE 5580 Classical Control Systems	4 SH
EECE 5606 Micro- and Nanofabrication	4 SH
EECE 5610 Digital Control Systems	4 SH
EECE 5648 Biomedical Optics	4 SH
EECE 5666 Digital Signal Processing	4 SH
EECE 5680 Electric Drives	4 SH
EECE 5696 Energy Harvesting Systems	4 SH
EECE 7201 Solid State Devices	4 SH
EECE 7240 Analog Integrated Circuit Design	4 SH
EECE 7241 Advanced Solid State Devices	4 SH
EECE 7242 Integrated Circuits for Communications and Mixed-Signal Processing	4 SH
EECE 7243 Integrated Circuit Fabrication	4 SH
EECE 7244 Introduction to Microelectromechanical Systems (MEMS)	4 SH
EECE 7245 Microwave Circuit Design for Wireless Communication	4 SH
EECE 7246 Design and Analysis of Digital Integrated Circuits	4 SH
EECE 7269 Special Topics in Electronics, Semiconductor Devices, and Microfabrication	4 SH
EECE 7270 Electromagnetic Theory 2	4 SH
EECE 7276 Microwave Properties of Materials	4 SH
EECE 7280 Fourier and Binary Optics	4 SH
EECE 7282 Lasers	4 SH
EECE 7284 Optical Properties of Matter	4 SH
EECE 7285 Opto-electronics and Fiber Optics	4 SH
EECE 7291 Plasma Theory	4 SH
EECE 7292 Plasma Processing Seminar	4 SH
EECE 7353 VLSI Design	4 SH

EECE 7354 VLSI Architecture	4 SH
EECE 7355 Digital Systems Design with Hardware Description Languages	4 SH
EECE 7398 Special Topics	4 SH

MSECE—Master of Science in Electrical and Computer Engineering with Concentration in Microsystems, Materials, and Devices— Thesis Option

GENERAL REQUIREMENTS

Course work from the list “Approved Concentration Courses,” below	24 SH
EECE 7990 MS Thesis	8 SH

PROGRAM TOTAL CREDITS 32.0 SH

APPROVED CONCENTRATION COURSES

EECE 5580 Classical Control Systems	4 SH
EECE 5606 Micro- and Nanofabrication	4 SH
EECE 5610 Digital Control Systems	4 SH
EECE 5648 Biomedical Optics	4 SH
EECE 5666 Digital Signal Processing	4 SH
EECE 5680 Electric Drives	4 SH
EECE 5696 Energy Harvesting Systems	4 SH
EECE 7201 Solid State Devices	4 SH
EECE 7240 Analog Integrated Circuit Design	4 SH
EECE 7241 Advanced Solid State Devices	4 SH
EECE 7242 Integrated Circuits for Communications and Mixed-Signal Processing	4 SH
EECE 7243 Integrated Circuit Fabrication	4 SH
EECE 7244 Introduction to Microelectromechanical Systems (MEMS)	4 SH
EECE 7245 Microwave Circuit Design for Wireless Communication	4 SH
EECE 7246 Design and Analysis of Digital Integrated Circuits	4 SH
EECE 7269 Special Topics in Electronics, Semiconductor Devices, and Microfabrication	4 SH
EECE 7270 Electromagnetic Theory 2	4 SH
EECE 7276 Microwave Properties of Materials	4 SH
EECE 7280 Fourier and Binary Optics	4 SH
EECE 7282 Lasers	4 SH
EECE 7284 Optical Properties of Matter	4 SH
EECE 7285 Opto-electronics and Fiber Optics	4 SH
EECE 7291 Plasma Theory	4 SH
EECE 7292 Plasma Processing Seminar	4 SH
EECE 7353 VLSI Design	4 SH
EECE 7354 VLSI Architecture	4 SH
EECE 7355 Digital Systems Design with Hardware Description Languages	4 SH
EECE 7398 Special Topics	4 SH

MSECE—Master of Science in Electrical and Computer Engineering with Concentration in Power Systems—Course Work Option

GENERAL REQUIREMENTS

Course work from the list “Approved Concentration Courses,” below 32 SH

PROGRAM TOTAL CREDITS 32.0 SH

APPROVED CONCENTRATION COURSES

EECE 5580 Classical Control Systems	4 SH
EECE 5610 Digital Control Systems	4 SH
EECE 5680 Electric Drives	4 SH
EECE 5682 Power Systems Analysis 1	4 SH
EECE 5684 Power Electronics	4 SH
EECE 5686 Electrical Machines	4 SH
EECE 5698 Special Topics in Electrical and Computer Engineering	4 SH
EECE 7200 Linear Systems Analysis	4 SH
EECE 7211 Nonlinear Control	4 SH
EECE 7212 Multivariable Control Systems	4 SH
EECE 7213 System Identification and Adaptive Control	4 SH
EECE 7214 Optimal and Robust Control	4 SH
EECE 7220 Power System Analysis 2	4 SH
EECE 7221 Power System Operation and Control	4 SH
EECE 7224 Power Systems State Estimation	4 SH
EECE 7226 Modeling and Simulation of Power System Transients	4 SH
EECE 7236 Special Topics in Control	4 SH
EECE 7237 Special Topics in Power Electronics	4 SH
EECE 7238 Special Topics in Electric Drives	4 SH
EECE 7239 Special Topics in Power Systems	4 SH
EECE 7240 Analog Integrated Circuit Design	4 SH
EECE 7242 Integrated Circuits for Communications and Mixed-Signal Processing	4 SH
ENGR 5670 Sustainable Energy: Materials, Conversion, Storage, and Usage	4 SH

MSECE—Master of Science in Electrical and Computer Engineering with Concentration in Power Systems—Thesis Option

GENERAL REQUIREMENTS

Course work from the list “Approved Concentration Courses,” below 24 SH

EECE 7990 MS Thesis 8 SH

PROGRAM TOTAL CREDITS 32.0 SH

APPROVED CONCENTRATION COURSES

EECE 5580 Classical Control Systems	4 SH
EECE 5610 Digital Control Systems	4 SH
EECE 5680 Electric Drives	4 SH
EECE 5682 Power Systems Analysis 1	4 SH
EECE 5684 Power Electronics	4 SH
EECE 5686 Electrical Machines	4 SH

EECE 5698 Special Topics in Electrical and Computer Engineering	4 SH
EECE 7200 Linear Systems Analysis	4 SH
EECE 7211 Nonlinear Control	4 SH
EECE 7212 Multivariable Control Systems	4 SH
EECE 7213 System Identification and Adaptive Control	4 SH
EECE 7214 Optimal and Robust Control	4 SH
EECE 7220 Power System Analysis 2	4 SH
EECE 7221 Power System Operation and Control	4 SH
EECE 7224 Power Systems State Estimation	4 SH
EECE 7226 Modeling and Simulation of Power System Transients	4 SH
EECE 7236 Special Topics in Control	4 SH
EECE 7237 Special Topics in Power Electronics	4 SH
EECE 7238 Special Topics in Electric Drives	4 SH
EECE 7239 Special Topics in Power Systems	4 SH
EECE 7240 Analog Integrated Circuit Design	4 SH
EECE 7242 Integrated Circuits for Communications and Mixed-Signal Processing	4 SH
ENGR 5670 Sustainable Energy: Materials, Conversion, Storage, and Usage	4 SH

MSECE—Master of Science in Electrical and Computer Engineering with Graduate Certificate in Engineering Leadership—Course Work Option

GENERAL REQUIREMENTS

ENLR 5121 Engineering Leadership 1	2 SH
ENLR 5122 Engineering Leadership 2	2 SH
ENLR 5131 Scientific Foundations of Engineering 1	2 SH
ENLR 5132 Scientific Foundations of Engineering 2	2 SH
ENLR 7440 Engineering Leadership Challenge Project 1	4 SH
ENLR 7442 Engineering Leadership Challenge Project 2	4 SH
Advisor-approved ECE courses	32 SH

PROGRAM TOTAL CREDITS 48.0 SH

MSECE—Master of Science in Electrical and Computer Engineering with Graduate Certificate in Engineering Leadership—Thesis Option

GENERAL REQUIREMENTS

ENLR 5121 Engineering Leadership 1	2 SH
ENLR 5122 Engineering Leadership 2	2 SH
ENLR 5131 Scientific Foundations of Engineering 1	2 SH
ENLR 5132 Scientific Foundations of Engineering 2	2 SH
ENLR 7440 Engineering Leadership Challenge Project 1	4 SH
ENLR 7442 Engineering Leadership Challenge Project 2	4 SH
MS Thesis	8 SH
Advisor-approved ECE courses	24 SH

PROGRAM TOTAL CREDITS 48.0 SH

MSECEL—Master of Science in Electrical and Computer Engineering Leadership with Graduate Certificate in Engineering Leadership

GENERAL REQUIREMENTS

ENLR 5121 Engineering Leadership 1	2 SH
ENLR 5122 Engineering Leadership 2	2 SH
ENLR 5131 Scientific Foundations of Engineering 1	2 SH
ENLR 5132 Scientific Foundations of Engineering 2	2 SH
ENLR 7440 Engineering Leadership Challenge Project 1	4 SH
ENLR 7442 Engineering Leadership Challenge Project 2	4 SH
Advisor-approved ECE courses	16 SH

PROGRAM TOTAL CREDITS 32.0 SH

PhD in Computer Engineering—Advanced Degree Entrance

GENERAL REQUIREMENTS

Course work	16 to 24 SH
EECE 9990 Dissertation	0 SH

PROGRAM TOTAL CREDITS 16.0 TO 24.0 SH

PhD in Computer Engineering—Bachelor's Degree Entrance

GENERAL REQUIREMENTS

Course work	48 to 56 SH
EECE 9990 Dissertation	0 SH

PROGRAM TOTAL CREDITS 48.0 TO 56.0 SH

PhD in Electrical Engineering—Advanced Degree Entrance

GENERAL REQUIREMENTS

Course work	16 to 24 SH
EECE 9990 Dissertation	0 SH

PROGRAM TOTAL CREDITS 16.0 TO 24.0 SH

PhD in Electrical Engineering—Bachelor's Degree Entrance

GENERAL REQUIREMENTS

Course work	48 to 56 SH
EECE 9990 Dissertation	0 SH

PROGRAM TOTAL CREDITS 48.0 TO 56.0 SH

ENERGY SYSTEMS

www.coe.neu.edu/gse/programs/ES/index.html

GREGORY J. KOWALSKI, PhD

Program Director

205 Snell Engineering

617.373.2971

617.373.2921 (fax)

Gregory J. Kowalski, PhD, *Director of Energy Systems*

Integration Program, gkowal@coe.neu.edu

The Master of Science degree program in energy systems (MSES) integrates the technology side of energy systems development with the financial planning needed to effectively implement them. The goal of the MSES is to create a high-level signature, interdisciplinary graduate program for the engineer or technical business major who is pursuing an industrial or public-planning-based career.

The program curriculum is firmly rooted in energy technology and includes exposure to the interface with business and financial decision processes. Students are exposed to business educators and practicing professionals and have the opportunity to participate in a six-month co-op experience. Practicing professionals with experience at this interface who have successfully implemented energy systems or devices and policies are actively involved in the program as adjunct professors and invited speakers. The curriculum is flexibly designed with a set of six core courses in engineering knowledge and finance and four electives that can be taken from any department within the College of Engineering.

Through this curriculum and interaction with practitioners, the students will be prepared to effectively integrate energy system development over a broad spectrum of technologies with the financial requirements to successfully implement them and to compete in the global energy market.

Graduates of the program will be involved in the decision making or policy planning that will deliver minimally polluting, energy-efficient systems to the global market. They will have the base training necessary to lead efforts within companies to plan and implement new energy-generation investments, realize energy-efficiency improvements specifically at the system level, and participate in energy and environmental markets such as cap-and-trade systems.

The degree requirements are successful completion of a minimum 35.5 semester hours of course work. The curriculum can be completed through either a cooperative education (co-op) or non-co-op track. The six-month co-op rotation in companies or the public sector involved in energy activities is a recommended component of the program. To provide flexibility to satisfy the mission of the program, a program of study will be prepared by the student and program director during the first term of study. This program of study will reflect the student's career goals and

will insure that all technical and financial educational competencies are satisfied. All successful degree candidates will have demonstrated sufficient engineering competency as measured by the successful completion of the courses. The required course distribution is shown in the table below.

Mission Statement

The program's mission is to educate students in current and future energy systems technologies, to integrate energy-related technologies with the economics and financial considerations required to implement them, and to develop leadership and decision-making skills to implement energy systems in either the private or public sectors of the global market. The program will expose students to a combination of academic and corporate experience in energy systems.

Admission Criteria

Applicants to the program are expected to have either an undergraduate degree from an accredited engineering school or have a quantitative business or finance degree. Applicants are expected to have adequate computer skills and college-level calculus. Foundational course work in these fields is available to students to bridge any gap in their technical backgrounds. However, credit for such courses will not count toward the degree. The successful applicant should have an undergraduate grade-point average of 3.000/4.000 or higher from an accredited U.S. school. International applicants, in addition to the minimum 3.000/4.000 GPA requirement, should submit GRE and TOEFL scores with a minimum 151 (650) (Quantitative) and 550 (paper-based), 213 (computer-based), or 80 (Internet-based), respectively. The applicant will also submit:

- An application to the Graduate School of Engineering.
- A one-page description of their interest and expectations of the program, focusing on their career path. This essay should be placed in the application under the heading "PhD Applicants, Area of Interest."

Sample Curriculum

Below is a sample curriculum for either the co-op or non-co-op tracks.

TECHNICAL BACKGROUND TRACK WITH CO-OP

Fall 1	Spring 1	Summer 1
ENSY 5000 (4 SH)	FINA 6200 (3 SH)	Co-op (ENSY 6964)
ACCT 6200 (3 SH)	ACCT 6201 (1.5 SH)	
ME 6200 (4 SH)	Elective (4 SH)	
Fall 2	Spring 2	Fall/Summer
Co-op (ENSY 6964)	EMGT 6225 (4 SH)	Elective (4 SH)
	Elective (4 SH)	Elective (4 SH)

NON-CO-OP TRACK

Fall 1	Spring 1	Summer 1
ENSY 5000 (4 SH)	FINA 6200 (3 SH)	No classes
ACCT 6200 (3 SH)	ACCT 6201 (1.5 SH)	
ME 6200 (4 SH)	Elective (4 SH)	
Fall 2	Spring 2	
EMGT 6225 (4 SH)	Elective (4 SH)	
Elective (4 SH)	Elective (4 SH)	

MS in Energy Systems

GENERAL REQUIREMENTS

ACCT 6200 Financial Reporting and Managerial Decision Making 1	3 SH
ACCT 6201 Financial Reporting and Managerial Decision Making 2	1.5 SH
EMGT 6225 Economic Decision Making	4 SH
ENSY 5000 Fundamentals of Energy System Integration	4 SH
FINA 6200 Value Creation through Financial Decision Making	3 SH
ME 6200 Mathematical Methods for Mechanical Engineers 1	4 SH
Course work from the list "Energy Systems Electives," below	16 SH

PROGRAM TOTAL CREDITS

35.5 SH

ENERGY SYSTEMS ELECTIVES

ARCH 5210 Environmental Systems	4 SH
CHEM 5651 Materials Chemistry of Renewable Energy	3 SH
CHEM 5652 Fundamental Science of Photovoltaics	3 SH
CHME 5204 Heterogeneous Catalysis	4 SH
CHME 5630 Biochemical Engineering	4 SH
CIVE 5270 Environmental Protection and Management	4 SH
CIVE 7354 Wind Engineering	4 SH
EECE 5680 Electric Drives	4 SH
EECE 5682 Power Systems Analysis 1	4 SH
EECE 5684 Power Electronics	4 SH
EECE 5686 Electrical Machines	4 SH
EECE 7201 Solid State Devices	4 SH
EECE 7239 Special Topics in Power Systems	4 SH
EECE 7398 Special Topics	4 SH
EMGT 5220 Engineering Project Management	4 SH
ENSY 7374 Special Topics in Energy Systems	4 SH
ENSY 7978 Independent Study	1 to 4 SH
LPSC 7312 Cities, Sustainability, and Climate Change	3 SH
ME 5645 Environmental Issues in Manufacturing and Product Use	4 SH
ME 7300 Combustion and Air Pollution	4 SH
ME 7305 Fundamentals of Combustion	4 SH
ME 7320 Solar Thermal Engineering	4 SH
OR 6205 Deterministics Operations Research	4 SH

MS in Energy Systems— Online/Hybrid Delivery Option

Course work for this program will be offered online. Students enrolled at a regional campus may enroll in specific hybrid delivery sections of these courses. Hybrid courses have periodic face-to-face regional campus meetings.

GENERAL REQUIREMENTS

ACCT 6272 Financial Statement Preparation and Analysis	2.25 SH
ACCT 6273 Identifying Strategic Implications in Accounting Data	2.25 SH
EMGT 6225 Economic Decision Making	4 SH
ENSY 5000 Fundamentals of Energy System Integration	4 SH
FINA 6200 Value Creation through Financial Decision Making	3 SH
ME 6200 Mathematical Methods for Mechanical Engineers 1	4 SH
Course work from the list “Energy Systems Online Option Electives,” below	16 SH

PROGRAM TOTAL CREDITS 35.5 SH

ENERGY SYSTEMS ONLINE OPTION ELECTIVES

CIVE 5270 Environmental Protection and Management	4 SH
CIVE 7354 Wind Engineering	4 SH
EECE 5682 Power Systems Analysis 1	4 SH
EMGT 5220 Engineering Project Management	4 SH
IE 6200 Engineering Probability and Statistics	4 SH
ME 5645 Environmental Issues in Manufacturing and Product Use	4 SH
ME 7320 Solar Thermal Engineering	4 SH
OR 6205 Deterministics Operations Research	4 SH

MS in Energy Systems with Graduate Certificate in Engineering Leadership

GENERAL REQUIREMENTS

ACCT 6200 Financial Reporting and Managerial Decision Making 1	3 SH
ACCT 6201 Financial Reporting and Managerial Decision Making 2	1.5 SH
EMGT 6225 Economic Decision Making	4 SH
ENLR 5121 Engineering Leadership 1	2 SH
ENLR 5122 Engineering Leadership 2	2 SH
ENLR 5131 Scientific Foundations of Engineering 1	2 SH
ENLR 5132 Scientific Foundations of Engineering 2	2 SH
ENLR 7440 Engineering Leadership Challenge Project 1	4 SH
ENLR 7442 Engineering Leadership Challenge Project 2	4 SH

ENSY 5000 Fundamentals of Energy System Integration	4 SH
FINA 6200 Value Creation through Financial Decision Making	3 SH
Two advisor-approved MSES courses	8 SH
PROGRAM TOTAL CREDITS	39.5 SH

ENGINEERING LEADERSHIPwww.northeastern.edu/gordonleadership

SIMON PITTS

Program Director

415 Stearns Center

617.373.6052

617.373.7680 (fax)

Amy Manley, *Program Outreach Specialist*, a.manley@neu.edu
or gordonleadership@neu.edu

The Gordon Engineering Leadership Program (GEL) is a transformational graduate program designed to build a future corps of engineering leadership professionals. GEL seeks to accelerate leadership development in an engineering context through a concentrated curriculum of course work, mentoring, and an industry-focused challenge project. Graduates of the program, known as Gordon Fellows, stand out from their peers in their ability to invent, innovate, and implement engineering projects from concept to market success.

Most students pursue GEL as part of a Master of Science degree in the engineering discipline of their choice. Upon completion, students earn both the Master of Science degree and a Graduate Certificate in Engineering Leadership. Students who already hold a graduate degree in engineering can complete the program to earn a Graduate Certificate in Engineering Leadership. The core GEL curriculum takes place during one calendar year (September–August), and additional course work required for the Master of Science degree can be pursued before, after, or in parallel with GEL.

Certificate in Engineering Leadership**GENERAL REQUIREMENTS**

ENLR 5121 Engineering Leadership 1	2 SH
ENLR 5122 Engineering Leadership 2	2 SH
ENLR 5131 Scientific Foundations of Engineering 1	2 SH
ENLR 5132 Scientific Foundations of Engineering 2	2 SH
ENLR 7440 Engineering Leadership Challenge Project 1	4 SH
ENLR 7442 Engineering Leadership Challenge Project 2	4 SH

PROGRAM TOTAL CREDITS**16.0 SH****ENGINEERING MANAGEMENT**www.mie.neu.edu/graduate/engmanage.html

THOMAS P. CULLINANE, PhD

Professor and Program Director

304 Snell Engineering

617.373.2740

617.373.2921 (fax)

Thomas P. Cullinane, PhD, *Professor and Program Director*,
t.cullinane@neu.edu

The Master of Science in Engineering Management offers graduate students an opportunity to develop both the technical expertise and the business competence that is in high demand among prospective technology-based employers. Industry leaders are seeking qualified and talented individuals who are not only able to guide research and design teams but also able to direct and supervise development and production processes. The combination of technical proficiency and business skills fostered in the engineering management program is designed to provide a competitive edge for graduates seeking a wide range of positions in technology-based product or service industries, as well as in comparable local, state, and federal programs.

The program was designed by experienced high-level managers and academic leaders as an option for engineers and scientists to broaden their skill sets to include management tools and techniques that are applicable to technology-based industries. Graduates of the engineering management program work as project managers, product managers, or leaders of teams in technical industries. Upon completion of the program, students find that their acquired skills are applicable to a wide range of industries, primarily those focused upon the development of technical products and the management of technical projects.

Graduates may assist companies in bringing a product from an idea through its development phases to its introduction to the marketplace. They may also be involved in forming and managing teams for assessing cost efficiencies, formulating strategies to improve production, or analyzing a company's supply chain. Few of these projects can be successfully completed without the skills of those possessing a background in management decision making and engineering expertise; therefore, the engineering management graduate is often a technical liaison to management. As a result, many of these assignments have actually proven to be a gateway to upper-level management positions.

The current program of study can be taken on a part-time or full-time basis. There are four core courses required of all students, which have been formulated to satisfy the foundation requirements. In addition to these required courses, the curriculum consists of electives that allow students to choose either a broad-based program of study or one centered on a particular concentration. Some students may elect to refresh or enhance their technical skills in engineering-based subjects such as information

systems, computer systems engineering, or graduate courses from the traditional engineering disciplines. Other students may prefer to broaden their knowledge base by selecting course work in management subjects such as engineering organizational psychology, financial management, logistics and warehousing, or lean systems design.

One recent graduate has observed that “Northeastern’s MSEM is like an MBA for engineers, with high-quality, dedicated professors who are proficient in their field yet are able to convey information in a way that’s easy to understand.” This graduate also noted, “My courses in project management have been key to understanding the subtleties that affect Project Managers while technical courses provide a strong background in fundamentals as well as specialty topics. My experience with co-op has been outstanding and has truly helped me further my career.”

MSEM—Master of Science in Engineering Management—Course Work Option

GENERAL REQUIREMENTS

EMGT 5220 Engineering Project Management	4 SH
EMGT 6225 Economic Decision Making	4 SH
IE 6200 Engineering Probability and Statistics	4 SH
OR 6205 Deterministics Operations Research	4 SH
Course work from the list “Course Option Electives,” below	16 SH

PROGRAM TOTAL CREDITS

32.0 SH

COURSE OPTION ELECTIVES

CSYE 6200 Concepts of Object-Oriented Design	4 SH
CSYE 6210 Component Software Development	4 SH
CSYE 6220 Enterprise Software Design	4 SH
CSYE 7230 Software Engineering	4 SH
CSYE 7260 Manufacturing Methods and Techniques	4 SH
CSYE 7270 Building Virtual Environments	4 SH
CSYE 7280 Human-Computer Interaction	4 SH
EMGT 5220 Engineering Project Management	4 SH
EMGT 5300 Engineering/Organizational Psychology	4 SH
EMGT 6225 Economic Decision Making	4 SH
EMGT 6305 Financial Management for Engineers	4 SH
IE 5620 Mass Customization	4 SH
IE 7255 Manufacturing Processes	4 SH
IE 7270 Intelligent Manufacturing	4 SH
IE 7280 Statistical Methods in Engineering	4 SH
IE 7285 Statistical Quality Control	4 SH
IE 7290 Reliability Analysis and Risk Assessment	4 SH
IE 7315 Human Factors Engineering	4 SH
IE 7615 Neural Networks in Engineering	4 SH
INFO 6210 Data Management and Database Design	4 SH
INFO 6215 Business Analysis and Information Engineering	4 SH
INFO 7260 Business Process Engineering	4 SH
INFO 7285 Organizational Change and IT	4 SH
INFO 7290 Data Warehousing and Business Intelligence	4 SH

INFO 7330 Information Systems for Healthcare-Services Delivery	4 SH
INFO 7390 Advances in Data Integration and Architecture	4 SH
OR 7230 Probabilistic Operation Research	4 SH
OR 7235 Inventory Theory	4 SH
OR 7240 Integer and Nonlinear Optimization	4 SH
OR 7245 Network Analysis and Advanced Optimization	4 SH
OR 7250 Multi-Criteria Decision Making	4 SH
OR 7310 Logistics, Warehousing, and Scheduling	4 SH
SCHM 6210 Supply Chain Management	3 SH
SCHM 6212 Executive Roundtable in Supply Chain Management	3 SH
SCHM 6213 Global Supply Chain Management	3 SH
TECE 6200 Innovation and Entrepreneurial Growth	3 SH
TECE 6230 Entrepreneurial Marketing in High-Tech Industries	3 SH
TECE 6300 Managing a Technology-Based Business	3 SH

MSEM—Master of Science in Engineering Management—Project Option

GENERAL REQUIREMENTS

EMGT 5220 Engineering Project Management	4 SH
EMGT 6225 Economic Decision Making	4 SH
EMGT 7945 Master’s Project	4 SH
IE 6200 Engineering Probability and Statistics	4 SH
OR 6205 Deterministics Operations Research	4 SH
Course work from the list “Project Option Electives,” below	12 SH

PROGRAM TOTAL CREDITS

32.0 SH

PROJECT OPTION ELECTIVES

CSYE 6200 Concepts of Object-Oriented Design	4 SH
CSYE 6210 Component Software Development	4 SH
CSYE 6220 Enterprise Software Design	4 SH
CSYE 7230 Software Engineering	4 SH
CSYE 7260 Manufacturing Methods and Techniques	4 SH
CSYE 7270 Building Virtual Environments	4 SH
CSYE 7280 Human-Computer Interaction	4 SH
EMGT 5220 Engineering Project Management	4 SH
EMGT 5300 Engineering/Organizational Psychology	4 SH
EMGT 6225 Economic Decision Making	4 SH
EMGT 6305 Financial Management for Engineers	4 SH
IE 5620 Mass Customization	4 SH
IE 7255 Manufacturing Processes	4 SH
IE 7270 Intelligent Manufacturing	4 SH
IE 7280 Statistical Methods in Engineering	4 SH
IE 7285 Statistical Quality Control	4 SH
IE 7290 Reliability Analysis and Risk Assessment	4 SH
IE 7315 Human Factors Engineering	4 SH
IE 7615 Neural Networks in Engineering	4 SH
INFO 6210 Data Management and Database Design	4 SH

INFO 6215 Business Analysis and Information Engineering	4 SH	IE 7290 Reliability Analysis and Risk Assessment	4 SH
INFO 7260 Business Process Engineering	4 SH	IE 7315 Human Factors Engineering	4 SH
INFO 7285 Organizational Change and IT	4 SH	IE 7615 Neural Networks in Engineering	4 SH
INFO 7290 Data Warehousing and Business Intelligence	4 SH	INFO 6210 Data Management and Database Design	4 SH
INFO 7330 Information Systems for Healthcare-Services Delivery	4 SH	INFO 6215 Business Analysis and Information Engineering	4 SH
INFO 7390 Advances in Data Integration and Architecture	4 SH	INFO 7260 Business Process Engineering	4 SH
OR 7230 Probabilistic Operation Research	4 SH	INFO 7285 Organizational Change and IT	4 SH
OR 7235 Inventory Theory	4 SH	INFO 7290 Data Warehousing and Business Intelligence	4 SH
OR 7240 Integer and Nonlinear Optimization	4 SH	INFO 7330 Information Systems for Healthcare-Services Delivery	4 SH
OR 7245 Network Analysis and Advanced Optimization	4 SH	INFO 7390 Advances in Data Integration and Architecture	4 SH
OR 7250 Multi-Criteria Decision Making	4 SH	OR 7230 Probabilistic Operation Research	4 SH
OR 7310 Logistics, Warehousing, and Scheduling	4 SH	OR 7235 Inventory Theory	4 SH
SCHM 6210 Supply Chain Management	3 SH	OR 7240 Integer and Nonlinear Optimization	4 SH
SCHM 6212 Executive Roundtable in Supply Chain Management	3 SH	OR 7245 Network Analysis and Advanced Optimization	4 SH
SCHM 6213 Global Supply Chain Management	3 SH	OR 7250 Multi-Criteria Decision Making	4 SH
TECE 6200 Innovation and Entrepreneurial Growth	3 SH	OR 7310 Logistics, Warehousing, and Scheduling	4 SH
TECE 6230 Entrepreneurial Marketing in High-Tech Industries	3 SH	SCHM 6210 Supply Chain Management	3 SH
TECE 6300 Managing a Technology-Based Business	3 SH	SCHM 6212 Executive Roundtable in Supply Chain Management	3 SH
		SCHM 6213 Global Supply Chain Management	3 SH
		TECE 6200 Innovation and Entrepreneurial Growth	3 SH
		TECE 6230 Entrepreneurial Marketing in High-Tech Industries	3 SH
		TECE 6300 Managing a Technology-Based Business	3 SH

MSEM—Master of Science in Engineering Management—Thesis Option

GENERAL REQUIREMENTS

EMGT 5220 Engineering Project Management	4 SH
EMGT 6225 Economic Decision Making	4 SH
EMGT 7990 Thesis	8 SH
IE 6200 Engineering Probability and Statistics	4 SH
OR 6205 Deterministics Operations Research	4 SH
Course work from the list “Thesis Option Electives,” below	8 SH

PROGRAM TOTAL CREDITS 32.0 SH

THESIS OPTION ELECTIVES

CSYE 6200 Concepts of Object-Oriented Design	4 SH
CSYE 6210 Component Software Development	4 SH
CSYE 6220 Enterprise Software Design	4 SH
CSYE 7230 Software Engineering	4 SH
CSYE 7260 Manufacturing Methods and Techniques	4 SH
CSYE 7270 Building Virtual Environments	4 SH
CSYE 7280 Human-Computer Interaction	4 SH
EMGT 5220 Engineering Project Management	4 SH
EMGT 5300 Engineering/Organizational Psychology	4 SH
EMGT 6225 Economic Decision Making	4 SH
EMGT 6305 Financial Management for Engineers	4 SH
IE 5620 Mass Customization	4 SH
IE 7255 Manufacturing Processes	4 SH
IE 7270 Intelligent Manufacturing	4 SH
IE 7280 Statistical Methods in Engineering	4 SH
IE 7285 Statistical Quality Control	4 SH

MSEM in Engineering Management—Online/Hybrid Delivery Option

GENERAL REQUIREMENTS

EMGT 5220 Engineering Project Management	4 SH
EMGT 6225 Economic Decision Making	4 SH
IE 6200 Engineering Probability and Statistics	4 SH
OR 6205 Deterministics Operations Research	4 SH
Course work from the list “Engineering Management Online Option Electives,” below	16 SH

PROGRAM TOTAL CREDITS 32.0 SH

ENGINEERING MANAGEMENT ONLINE OPTION ELECTIVES

CIVE 5270 Environmental Protection and Management	4 SH
EMGT 5300 Engineering/Organizational Psychology	4 SH
EMGT 6305 Financial Management for Engineers	4 SH
ENSY 5000 Fundamentals of Energy System Integration	4 SH
IE 5620 Mass Customization	4 SH
IE 7315 Human Factors Engineering	4 SH
ME 5645 Environmental Issues in Manufacturing and Product Use	4 SH
OR 7310 Logistics, Warehousing, and Scheduling	4 SH

MS in Engineering Management with Graduate Certificate in Engineering Leadership

GENERAL REQUIREMENTS

EMGT 5220 Engineering Project Management	4 SH
EMGT 6225 Economic Decision Making	4 SH
ENLR 5121 Engineering Leadership 1	2 SH
ENLR 5122 Engineering Leadership 2	2 SH
ENLR 5131 Scientific Foundations of Engineering 1	2 SH
ENLR 5132 Scientific Foundations of Engineering 2	2 SH
ENLR 7440 Engineering Leadership Challenge Project 1	4 SH
ENLR 7442 Engineering Leadership Challenge Project 2	4 SH
IE 6200 Engineering Probability and Statistics	4 SH
OR 6205 Deterministics Operations Research	4 SH

PROGRAM TOTAL CREDITS

32.0 SH

INDUSTRIAL ENGINEERING

www.mie.neu.edu/graduate/ieeng.html

HANCHEN HUANG, PHD

Professor and Chair

EMANUEL S. MELACHRINOUDIS, PHD

*Associate Professor, Associate Chair,
and Director of Industrial Engineering*

334 Snell Engineering Center

617.373.2740

617.373.2921 (fax)

Joyce Crain, *Staff Assistant*, j.crain@neu.edu

The Department of Mechanical and Industrial Engineering offers MS and PhD degree programs in industrial engineering.

Master of Science Degrees

To be eligible for admission to any of the master's degree programs, a prospective student must hold a Bachelor of Science degree in engineering, science, mathematics, or equivalent field. Students in all master's degree programs must complete a minimum of 32 semester hours of approved course work (exclusive of any preparatory courses) with a minimum GPA of 3.000. Students may pursue any program either on a full- or part-time basis; however, certain restrictions may apply as described below.

Students who receive financial support from the university in the form of a research, teaching, or tuition assistantship must complete an 8-semester-hour thesis. Other students may choose to complete a thesis or pursue their degree on a course-work-only basis. Students who complete the thesis option must make a presentation at a thesis defense before approval by the department.

All mechanical engineering and industrial engineering graduate students must complete MEIE 6800 Technical Writing Seminar and MEIE 6850 Research Seminar in Mechanical and Industrial Engineering during their first year of full-time study. If appropriate, part-time students may petition the graduate committee to waive these requirements.

Degree Requirements	Course		
	With Project	With Thesis	Work Only
Required core courses	16 SH	16 SH	16 SH
Elective courses	12 SH	8 SH	16 SH
Project/thesis	4 SH	8 SH	
Minimum semester hours required	32 SH	32 SH	32 SH

**MSIE—Master of Science in Industrial Engineering—
Course Work Option****GENERAL REQUIREMENTS**

IE 6200 Engineering Probability and Statistics	4 SH
OR 6205 Deterministics Operations Research	4 SH
Course work from the list “Core Requirements,” below	8 SH
Industrial course option electives—course work from the list “Course Option Electives,” below	16 SH

PROGRAM TOTAL CREDITS 32.0 SH**CORE REQUIREMENTS**

IE 7210 Production System	4 SH
IE 7215 Simulation Analysis	4 SH
IE 7315 Human Factors Engineering	4 SH

COURSE OPTION ELECTIVES

CSYE 6200 Concepts of Object-Oriented Design	4 SH
CSYE 6210 Component Software Development	4 SH
CSYE 6220 Enterprise Software Design	4 SH
CSYE 7230 Software Engineering	4 SH
CSYE 7260 Manufacturing Methods and Techniques	4 SH
CSYE 7270 Building Virtual Environments	4 SH
CSYE 7280 Human-Computer Interaction	4 SH
EMGT 5220 Engineering Project Management	4 SH
EMGT 5300 Engineering/Organizational Psychology	4 SH
EMGT 6225 Economic Decision Making	4 SH
EMGT 6305 Financial Management for Engineers	4 SH
IE 5617 Lean Concepts and Applications	4 SH
IE 5620 Mass Customization	4 SH
IE 5630 Biosensor and Human Behavior Measurement	4 SH
IE 7255 Manufacturing Processes	4 SH
IE 7270 Intelligent Manufacturing	4 SH
IE 7275 Data Mining in Engineering	4 SH
IE 7280 Statistical Methods in Engineering	4 SH
IE 7285 Statistical Quality Control	4 SH
IE 7290 Reliability Analysis and Risk Assessment	4 SH
IE 7315 Human Factors Engineering	4 SH
IE 7615 Neural Networks in Engineering	4 SH
OR 7230 Probabilistic Operation Research	4 SH
OR 7235 Inventory Theory	4 SH
OR 7240 Integer and Nonlinear Optimization	4 SH
OR 7245 Network Analysis and Advanced Optimization	4 SH
OR 7250 Multi-Criteria Decision Making	4 SH
OR 7260 Constraint Programming	4 SH
OR 7310 Logistics, Warehousing, and Scheduling	4 SH

**MSIE—Master of Science in Industrial Engineering—
Project Option****GENERAL REQUIREMENTS**

IE 6200 Engineering Probability and Statistics	4 SH
IE 7945 Master’s Project	4 SH
OR 6205 Deterministics Operations Research	4 SH
Course work from the list “Core Requirements,” below	8 SH
Industrial project option electives—course work from the list “Project Option Electives,” below	12 SH

PROGRAM TOTAL CREDITS 32.0 SH**CORE REQUIREMENTS**

IE 7210 Production System	4 SH
IE 7215 Simulation Analysis	4 SH
IE 7315 Human Factors Engineering	4 SH

PROJECT OPTION ELECTIVES

CSYE 6200 Concepts of Object-Oriented Design	4 SH
CSYE 6210 Component Software Development	4 SH
CSYE 6220 Enterprise Software Design	4 SH
CSYE 7230 Software Engineering	4 SH
CSYE 7260 Manufacturing Methods and Techniques	4 SH
CSYE 7270 Building Virtual Environments	4 SH
CSYE 7280 Human-Computer Interaction	4 SH
EMGT 5220 Engineering Project Management	4 SH
EMGT 5300 Engineering/Organizational Psychology	4 SH
EMGT 6225 Economic Decision Making	4 SH
EMGT 6305 Financial Management for Engineers	4 SH
IE 5617 Lean Concepts and Applications	4 SH
IE 5620 Mass Customization	4 SH
IE 5630 Biosensor and Human Behavior Measurement	4 SH
IE 7255 Manufacturing Processes	4 SH
IE 7270 Intelligent Manufacturing	4 SH
IE 7275 Data Mining in Engineering	4 SH
IE 7280 Statistical Methods in Engineering	4 SH
IE 7285 Statistical Quality Control	4 SH
IE 7290 Reliability Analysis and Risk Assessment	4 SH
IE 7315 Human Factors Engineering	4 SH
IE 7615 Neural Networks in Engineering	4 SH
OR 7230 Probabilistic Operation Research	4 SH
OR 7235 Inventory Theory	4 SH
OR 7240 Integer and Nonlinear Optimization	4 SH
OR 7245 Network Analysis and Advanced Optimization	4 SH
OR 7250 Multi-Criteria Decision Making	4 SH
OR 7260 Constraint Programming	4 SH
OR 7310 Logistics, Warehousing, and Scheduling	4 SH

MSIE—Master of Science in Industrial Engineering— Thesis Option

GENERAL REQUIREMENTS

IE 6200 Engineering Probability and Statistics	4 SH
IE 7990 MS Thesis	8 SH
OR 6205 Deterministics Operations Research	4 SH
Course work from the list “Core Requirements,” below	8 SH
Industrial thesis option electives—course work from the list “Thesis Option Electives,” below	8 SH

PROGRAM TOTAL CREDITS

32.0 SH

CORE REQUIREMENTS

IE 7210 Production System	4 SH
IE 7215 Simulation Analysis	4 SH
IE 7315 Human Factors Engineering	4 SH

THESIS OPTION ELECTIVES

CSYE 6200 Concepts of Object-Oriented Design	4 SH
CSYE 6210 Component Software Development	4 SH
CSYE 6220 Enterprise Software Design	4 SH
CSYE 7230 Software Engineering	4 SH
CSYE 7260 Manufacturing Methods and Techniques	4 SH
CSYE 7270 Building Virtual Environments	4 SH
CSYE 7280 Human-Computer Interaction	4 SH
EMGT 5220 Engineering Project Management	4 SH
EMGT 5300 Engineering/Organizational Psychology	4 SH
EMGT 6225 Economic Decision Making	4 SH
EMGT 6305 Financial Management for Engineers	4 SH
IE 5617 Lean Concepts and Applications	4 SH
IE 5620 Mass Customization	4 SH
IE 5630 Biosensor and Human Behavior Measurement	4 SH
IE 7255 Manufacturing Processes	4 SH
IE 7270 Intelligent Manufacturing	4 SH
IE 7275 Data Mining in Engineering	4 SH
IE 7280 Statistical Methods in Engineering	4 SH
IE 7285 Statistical Quality Control	4 SH
IE 7290 Reliability Analysis and Risk Assessment	4 SH
IE 7315 Human Factors Engineering	4 SH
IE 7615 Neural Networks in Engineering	4 SH
OR 7230 Probabilistic Operation Research	4 SH
OR 7235 Inventory Theory	4 SH
OR 7240 Integer and Nonlinear Optimization	4 SH
OR 7245 Network Analysis and Advanced Optimization	4 SH
OR 7250 Multi-Criteria Decision Making	4 SH
OR 7260 Constraint Programming	4 SH
OR 7310 Logistics, Warehousing, and Scheduling	4 SH

MSIE—Master of Science in Industrial Engineering with Graduate Certificate in Engineering Leadership

GENERAL REQUIREMENTS

ENLR 5121 Engineering Leadership 1	2 SH
ENLR 5122 Engineering Leadership 2	2 SH
ENLR 5131 Scientific Foundations of Engineering 1	2 SH
ENLR 5132 Scientific Foundations of Engineering 2	2 SH
IE 6200 Engineering Probability and Statistics	4 SH
ME 7440 Mechanical Engineering Leadership Challenge Project 1	4 SH
ME 7442 Mechanical Engineering Leadership Challenge Project 2	4 SH
OR 6205 Deterministics Operations Research	4 SH
Course work from the list “Core Requirements,” below	8 SH

PROGRAM TOTAL CREDITS

32.0 SH

CORE REQUIREMENTS

IE 7210 Production System	4 SH
IE 7215 Simulation Analysis	4 SH
IE 7315 Human Factors Engineering	4 SH

Doctor of Philosophy

REQUIREMENTS

The PhD is awarded to students who demonstrate high academic achievement and research competence in the fields of mechanical or industrial engineering. To earn a PhD, a student must complete an approved, rigorous program of advanced course work and submit and defend an original dissertation of independent research. The mechanical and industrial engineering (MIE) department expects all successful doctoral candidates to show depth of knowledge and research innovation in their chosen field of specialization.

The MIE department admits applicants to the PhD program either directly after earning a suitable bachelor’s degree or after earning a master’s degree. Upon acceptance into the program, an applicant is designated as a doctoral student. This designation is changed to doctoral candidate upon successful completion of the doctoral qualifying examinations.

DOCTORAL QUALIFYING EXAMINATIONS

To qualify as a doctoral candidate, a doctoral student must successfully complete both a written preliminary exam and an oral area exam. All doctoral students who hold a master’s degree must take the preliminary exam no later than the first time that it is offered after their first academic year of study. Those admitted directly with a bachelor’s degree must take the preliminary exam no later than the first time that it is offered after their first two years of study.

PRELIMINARY EXAMINATION

The MIE department offers the written preliminary exam twice during each academic year, typically in September and January. The objective of this exam is to test the student’s fundamental knowledge of core subjects in a specific engineering discipline and

to test skill in implementing the methods of inquiry in that field. The exam is six hours in length and covers, with equal emphasis, four different subjects from among the nine subject groups listed below. Each student's dissertation advisor must approve the student's four subject selections. For mechanical engineering students, at least three of these selections must be in categories A–E. All written exams shall be closed book; however, students may prepare and use a single double-sided 8.5" x 11" sheet of reference material for each exam. Students may find further guidance in the *Doctoral Qualifying Examination Handbook*, as prepared and distributed by the MIE graduate committee. Students should also consult extensively with their advisors regarding all aspects of the qualifying exams.

The MIE graduate committee will review all students' performance in the preliminary exam. In consultation with the student's dissertation advisor, the committee will recommend one of three possible exam results:

Pass: This grade indicates successful completion of the preliminary exam. In this case, the student is prepared to develop a research plan and literature survey. However, in some cases, the MIE graduate committee may recommend additional course work in any subject(s) where the preliminary exam indicated some weakness.

Conditional: The student is invited to retake the full preliminary examination at the next offering. The result of the second preliminary exam will be either pass or fail.

Fail: The student is not permitted to continue as a doctoral student in any of the programs offered by the MIE department.

The results of the preliminary exam and any recommended course work become part of the student's record.

The subject areas of the preliminary examinations are shown in the following table:

Group	Subjects
A	Engineering mathematics Engineering computation Probability and statistics
B	Thermodynamics Fluid mechanics Heat transfer
C	Dynamics and vibrations Mechanics of deformable bodies Dynamic systems and control Finite element method
D	Materials science Mechanical behavior of materials Thermodynamics of materials Kinetics of phase transformations
E	Design and CAD/CAM
F	Human-machine systems

Group	Subjects
G	Manufacturing systems Production and logistics
H	Operations research Reliability and quality assurance Simulation
I	Software engineering Computer graphics Artificial intelligence in engineering

AREA EXAMINATION

Students must take the area examination no more than 12 months after successfully completing the preliminary exam. The area exam comprises two parts: (1) an oral presentation by the student of a written literature survey and initial plan of research (independently developed results are not required at this stage); and (2) an oral exam of the student covering topics specifically related to the student's field of research.

The objective of the area exam is to assess the student's potential to perform independent research in the chosen field of specialization. The student's dissertation committee will invite any additional faculty deemed appropriate to that field; this area examining committee will then conduct the area exam. Each student's dissertation committee must comprise at least three members; two of those three must be MIE faculty members.

The area examining committee may either recommend admission to doctoral candidacy or may allow the student a single additional opportunity to complete the area exam successfully. Students not admitted to doctoral candidacy after a second attempt at the area exam will no longer be eligible for candidacy in any of the PhD programs offered by the MIE department. The committee's recommendation, the literature survey, and the initial research plan are added to the student's record upon admission to doctoral candidacy.

COURSE REQUIREMENTS

A typical program of study includes at least 48 semester hours of course work beyond the bachelor's degree or 24 semester hours of course work beyond the master's degree.

A minor field of study is also required, comprising at least 8 semester hours of course work in a discipline other than that in which the candidate is concentrating (and which may also be taken outside the MIE department). Doctoral candidates must attain a minimum 3.000 GPA in minor area course work.

Each doctoral student, together with his or her dissertation advisor, should develop an initial program during the first semester of study. The final program is also subject to the approval of the area examining committee, who will add the program of study to the student's record upon admission to doctoral candidacy.

Upon successful completion of the PhD qualifying exams and the majority of required course work, the doctoral candidate must register in two consecutive semesters for ME 9990 or IE 9990 (Dissertation). Upon completion of this sequence, the student must

then register for ME 9996 or IE 9996 (Dissertation Continuation) in every semester until the dissertation is completed. A student may not register for ME 9996 or IE 9996 until they fulfill the two-semester sequence.

FINAL ORAL EXAMINATION

All doctoral candidates must pass a final oral exam. This exam will be scheduled once the dissertation committee agrees that the candidate's research is in a form appropriate for formal presentation and after completion of all other requirements for the PhD, including all course work approved in the final program of study. The objective of the exam is for the candidate to present and defend the results of the dissertation research and to demonstrate depth of knowledge and significant expertise in the area of that research under questioning from the dissertation committee and other attendees.

The exam shall be publicly advertised at least one week in advance and all faculty members may attend and participate. At the conclusion of the presentation and subsequent question period, the dissertation committee will convene to determine the outcome. The committee may recommend that the candidate be awarded the PhD or may require additional research and/or modifications of the dissertation. In some cases, candidates may be asked to present themselves for an additional final oral exam.

RESIDENCY REQUIREMENT

The residency requirement is satisfied by two semesters of full-time graduate registration.

PhD in Industrial Engineering— Advanced Degree Entrance

GENERAL REQUIREMENTS

Approved course work	24 SH
IE 9990 Dissertation	0 SH

PROGRAM TOTAL CREDITS 24.0 SH

PhD in Industrial Engineering— Bachelor's Degree Entrance

GENERAL REQUIREMENTS

Approved course work	48 SH
IE 9990 Dissertation	0 SH

PROGRAM TOTAL CREDITS 48.0 SH

INFORMATION ASSURANCE

www.coe.neu.edu/gse/programs/IA/

202 West Village H

617.373.2462

Bryan Lackaye, *Assistant Dean of Graduate Programs,*
College of Computer Science, phd-ia@lists.ccs.neu.edu

The College of Computer and Information Science offers a Doctor of Philosophy in Information Assurance in conjunction with the College of Engineering. The PhD in Information Assurance program is designed for both students with a strong background in a technical field and those with nontechnical backgrounds and a strong desire to pursue interdisciplinary work in areas related to information assurance. Applicants are expected to have a minimum 3.000 undergraduate GPA.

Students who do not have the necessary technical background may be required to take courses such as Fundamentals of Information Assurance, Network and Systems, and Fundamentals of Computer Engineering to prepare for the program.

The PhD in Information Assurance degree requires completion of at least 48 semester credit hours beyond a bachelor's degree. Students who enter with an undergraduate degree will typically need four to five years to complete the program and have the option of obtaining an MS degree from one of the departments participating in the program. To do so, they must meet all of the department's degree requirements.

Students who enter the program with a master's degree will be required to complete 16 semester credit hours beyond the master's degree. They also must complete the required core courses.

For detailed program requirements, please see the Information Assurance entry in the College of Computer and Information Science, page 58.

INFORMATION SYSTEMSwww.msis.northeastern.edu

KAL BUGRARA, PhD

Program Director

130 Snell Engineering

617.373.4448

616.373.2501 (fax)

Kal Bugrara, PhD, *Program Director*, kmb@coe.neu.edu

We offer cutting-edge expertise in a variety of courses that combine technological advances and business practices. We stress creative and inventive approaches to problem solving, which necessitates empowering students so that they can take charge of their own software projects to become originally productive. Our information systems program is as much an art as a science. It bypasses mechanical learning and highlights the value and excitement of engineering thinking that gets things done efficiently as well as imaginatively. We balance theory and practice, on the premise that they are always intertwined and interdependent.

We seek to provide a basic foundation for our students and then seek to push them to new heights to advance their information technology skills in a way that keeps up and, better yet, exceeds the necessarily fast pace of this progressive field. It is not for us just a question of not being left behind; we strive to be at the forefront of software innovation in an effort to transform contemporary society even more radically than technology has already done—to take gigantic strides in business, medicine, education, and security. In addition to the general requirements, the program offers multiple tracks (20 semester hours):

- Track 1: Business Process Engineering
- Track 2: Software Project Planning and Management
- Track 3: Web Engineering and Development
- Track 4: Information Systems Auditing and Compliance
- Track 5: Data Architecture and Engineering
- Track 6: Application-Level Security Analysis and Engineering
- Track 7: Enterprise Architecture and Governance
- Track 8: Engineering Clinical Information Systems

MSIS—Master of Science in Information Systems**GENERAL REQUIREMENTS**

INFO 5100 Application Engineering and Development	4 SH
Course work from the list “Info Systems Electives,” below	28 SH

PROGRAM TOTAL CREDITS**32.0 SH****INFO SYSTEMS ELECTIVES**

INFO 5000 C Programming and Development	4 SH
INFO 6205 Program Structure and Algorithms	4 SH
INFO 6210 Data Management and Database Design	4 SH
INFO 6215 Business Analysis and Information Engineering	4 SH
INFO 6220 Operating Systems	4 SH
INFO 6225 Networks, Telecommunications, and Distributed Systems	4 SH
INFO 6240 C++ Object-Oriented Design	4 SH
INFO 6245 Planning and Managing Information Systems Development	4 SH
INFO 6250 Web Development Tools and Methods	4 SH
INFO 6255 Software Quality Control and Management	4 SH
INFO 6260 Business Process Engineering and Management	4 SH
INFO 7225 Design and Engineering of Financial Information Systems	4 SH
INFO 7245 Agile Software Development	4 SH
INFO 7265 Enterprise Systems Architecture and Engineering	4 SH
INFO 7270 PERL Programming	4 SH
INFO 7275 Advanced Database Management Systems	4 SH
INFO 7280 Model-Driven Architecture	4 SH
INFO 7285 Organizational Change and IT	4 SH
INFO 7290 Data Warehousing and Business Intelligence	4 SH
INFO 7300 Engineering Secure Software Systems	4 SH
INFO 7305 System Architecture and Technology Management	4 SH
INFO 7310 Introduction to Distributed Security	4 SH
INFO 7315 Web Services/Service-Oriented Architecture	4 SH
INFO 7320 Global Technology Outsourcing	3 SH
INFO 7325 Introduction to Information Technology Auditing	4 SH
INFO 7330 Information Systems for Healthcare-Services Delivery	4 SH
INFO 7365 Enterprise Architecture Planning and Management	4 SH
INFO 7374 Special Topics in Information Systems	1 to 4 SH
INFO 7390 Advances in Data Integration and Architecture	4 SH
INFO 7420 Drug Development Processes and Information Systems Compliance	4 SH

INTERDISCIPLINARY ENGINEERING PHD PROGRAM

www.coe.neu.edu/gse/programs/interdisciplinary/

SARA WADIA-FASCETTI, PhD
*Associate Dean for Research and Graduate Studies,
 Graduate School of Engineering*

130 Snell Engineering Center
 617.373.2711
 grad-eng@coe.neu.edu

The Graduate School of Engineering offers an interdisciplinary Doctor of Philosophy degree involving substantial work in two or more academic departments or disciplines. Those interested in this program of study must submit a detailed proposal of the areas of inquiry and research with their application for admission. Interdisciplinary study requires favorable recommendation by a sponsoring doctoral-degree-granting department and approval by authorized representatives of the graduate committees of the departments appropriate to the disciplines covered under the applicant's proposal. The sponsoring department serves as the student's registration department.

Formation of Interdisciplinary Committee

Students admitted for interdisciplinary study must obtain the consent of a faculty advisor who will direct his or her doctoral dissertation. This advisor, who may or may not be a member of the registration department, will chair the student's interdisciplinary committee. The chair of the registration department, or his or her designee, will then appoint a second member to the committee. These two members will invite one or more additional members or request that the director of the Graduate School of Engineering do so. The committee must represent at least two academic departments or programs, and a majority of the committee members must represent doctoral-degree-granting departments. The chair of the registration department, or his or her designee, will notify the director of the Graduate School of Engineering of the membership of the committee as soon as arrangements are finalized.

Duties of Interdisciplinary Committee

A member of the interdisciplinary committee who is also a member of the registration department will serve as the registration officer to approve course registration for the student. The registration officer will file a copy of the approved course registration with the other committee members and with the graduate committee of the registration department. The interdisciplinary committee is responsible for overseeing the completion of all requirements. The committee must also certify to the registration department and to the Graduate School of Engineering the completion of all requirements for the award of the doctoral degree.

The interdisciplinary committee must assure that the student's program represents standards comparable to those of the registration department and that the program is not so broad that it has inadequate depth in any area. The director of the Graduate School of Engineering may review a student's interdisciplinary program at any time to verify that the student meets program objectives.

MECHANICAL ENGINEERING

www.mie.neu.edu/graduate/mecheng.html

HANCHEN HUANG, PHD

Professor and Chair

EMANUEL S. MELACHRINOUDIS, PHD

*Associate Professor, Associate Chair,
and Director of Industrial Engineering*

334 Snell Engineering Center

617.373.2740

617.373.2921 (fax)

Joyce Crain, *Staff Assistant*, j.crain@neu.edu

The Department of Mechanical and Industrial Engineering offers MS and PhD degree programs in mechanical engineering.

Master of Science Degrees

To be eligible for admission to any of the master's degree programs, a prospective student must hold a Bachelor of Science degree in engineering, science, mathematics, or an equivalent field. Students in all master's degree programs must complete a minimum of 32 semester hours of approved course work (exclusive of any preparatory courses) with a minimum GPA of 3.000. Students may pursue any program either on a full- or part-time basis; however, certain restrictions may apply as described below.

Students who receive financial support from the university in the form of a research, teaching, or tuition assistantship must complete an 8-semester-hour thesis. Other students may choose to complete a thesis or pursue their degree on a course-work-only basis. Students who complete the thesis option must make a presentation at a thesis defense before approval by the department.

All mechanical engineering and industrial engineering graduate students must complete MEIE 6800 Technical Writing Seminar and MEIE 6850 Research Seminar in Mechanical and Industrial Engineering during their first year of full-time study. If appropriate, part-time students may petition the graduate committee to waive these requirements.

Mechanical engineering students must select all required course work from the list below. A typical program consists of six or more mechanical engineering or materials engineering courses (courses with the ME or MATL subject code). Each student's academic advisor must approve all courses prior to registration. Students may not use any courses taken without the approval of the academic advisor toward the 32-semester-hour minimum requirement. However, students may petition the mechanical and industrial engineering graduate committee to substitute no more than one (4-semester-hour) graduate-level course from outside the approved list.

Degree Requirements	Course	
	With Thesis	Work Only
Courses (with approval of advisor)	24 SH	32 SH
Thesis	8 SH	0 SH
Minimum semester hours required	32 SH	32 SH

MSME—Master of Science in Mechanical Engineering with Concentration in Mechanics—Course Work Option

GENERAL REQUIREMENTS

ME 6200 Mathematical Methods for Mechanical Engineers 1		4 SH
or ME 6201 Mathematical Methods for Mechanical Engineers 2		
Choose from any ME XXXX and/or MATL XXXX course		8 SH
Electives from ME XXXX, MATL XXXX, or other graduate engineering or science courses (by petition)		8 SH
Course work from the list "Mechanics Concentration," below		12 SH

PROGRAM TOTAL CREDITS 32.0 SH

MECHANICS CONCENTRATION

ME 5650 Advanced Mechanics of Materials	4 SH
ME 5655 Dynamics and Mechanical Vibration	4 SH
ME 5657 Finite Element Method	4 SH
ME 5659 Control and Mechatronics	4 SH
ME 7210 Elasticity and Plasticity	4 SH

MSME—Master of Science in Mechanical Engineering with Concentration in Mechanics—Thesis Option

GENERAL REQUIREMENTS

ME 6200 Mathematical Methods for Mechanical Engineers 1		4 SH
or ME 6201 Mathematical Methods for Mechanical Engineers 2		
Electives from ME XXXX, MATL XXXX, or other graduate engineering or science courses (by petition)		8 SH
ME 7990 MS Thesis		8 SH
Course work from the list "Mechanics Concentration," below		12 SH

PROGRAM TOTAL CREDITS 32.0 SH

MECHANICS CONCENTRATION

ME 5650 Advanced Mechanics of Materials	4 SH
ME 5655 Dynamics and Mechanical Vibration	4 SH
ME 5657 Finite Element Method	4 SH
ME 5659 Control and Mechatronics	4 SH
ME 7210 Elasticity and Plasticity	4 SH

MSME—Master of Science in Mechanical Engineering with Concentration in Thermofluids— Course Work Option

GENERAL REQUIREMENTS

ME 6200 Mathematical Methods for Mechanical Engineers 1	4 SH
or ME 6201 Mathematical Methods for Mechanical Engineers 2	
ME 7270 General Thermodynamics	4 SH
ME 7275 Essentials of Fluid Dynamics	4 SH
ME 7285 Heat Conduction and Thermal Radiation or ME 7290 Convective Heat Transfer	4 SH
Choose electives from ME XXXX, MATL XXXX, or other graduate engineering or science courses (by petition)	4 SH
Course work from the list “Thermofluids Concentration,” below	12 SH

PROGRAM TOTAL CREDITS 32.0 SH

THERMOFLUIDS CONCENTRATION

ME 5695 Aerodynamics	4 SH
ME 7280 Statistical Thermodynamics	4 SH
ME 7300 Combustion and Air Pollution	4 SH
ME 7305 Fundamentals of Combustion	4 SH
ME 7310 Computational Fluid Dynamics with Heat Transfer	4 SH
ME 7320 Solar Thermal Engineering	4 SH
ME 7330 Turbulent Flow	4 SH
ME 7340 Turbomachinery Design	4 SH

MSME—Master of Science in Mechanical Engineering with Concentration in Thermofluids—Thesis Option

GENERAL REQUIREMENTS

ME 6200 Mathematical Methods for Mechanical Engineers 1	4 SH
or ME 6201 Mathematical Methods for Mechanical Engineers 2	
ME 7270 General Thermodynamics	4 SH
ME 7275 Essentials of Fluid Dynamics	4 SH
ME 7285 Heat Conduction and Thermal Radiation or ME 7290 Convective Heat Transfer	4 SH
Choose electives from ME XXXX, MATL XXXX, or other graduate engineering or science courses (by petition)	4 SH
ME 7990 MS Thesis	8 SH
Course work from the list “Thermofluids Thesis Concentration,” below	4 SH

PROGRAM TOTAL CREDITS 32.0 SH

THERMOFLUIDS THESIS CONCENTRATION

ME 5695 Aerodynamics	4 SH
ME 7280 Statistical Thermodynamics	4 SH
ME 7300 Combustion and Air Pollution	4 SH
ME 7305 Fundamentals of Combustion	4 SH
ME 7310 Computational Fluid Dynamics with Heat Transfer	4 SH
ME 7320 Solar Thermal Engineering	4 SH
ME 7330 Turbulent Flow	4 SH
ME 7340 Turbomachinery Design	4 SH

MSME—Master of Science in Mechanical Engineering with Concentration in Material Science— Course Work Option

GENERAL REQUIREMENTS

Any MATL XXXX courses (including ME 5600)	16 SH
Choose electives from MATL XXXX, ME XXXX, or other graduate engineering or science courses (by petition)	16 SH

PROGRAM TOTAL CREDITS 32.0 SH

MSME—Master of Science in Mechanical Engineering with Concentration in Material Science— Thesis Option

GENERAL REQUIREMENTS

Any MATL XXXX courses (including ME 5600)	16 SH
Choose electives from ME XXXX, MATL XXXX, or other graduate engineering or science courses (by petition)	8 SH
ME 7990 MS Thesis	8 SH

PROGRAM TOTAL CREDITS 32.0 SH

MSME—Master of Science in Mechanical Engineering with Graduate Certificate in Engineering Leadership

GENERAL REQUIREMENTS

ENLR 5121 Engineering Leadership 1	2 SH
ENLR 5122 Engineering Leadership 2	2 SH
ENLR 5131 Scientific Foundations of Engineering 1	2 SH
ENLR 5132 Scientific Foundations of Engineering 2	2 SH
ME 7440 Mechanical Engineering Leadership Challenge Project 1	4 SH
ME 7442 Mechanical Engineering Leadership Challenge Project 2	4 SH
Advisor-approved ME courses	16 SH

PROGRAM TOTAL CREDITS 32.0 SH

Doctor of Philosophy

REQUIREMENTS

The PhD is awarded to students who demonstrate high academic achievement and research competence in the fields of mechanical or industrial engineering. To earn a PhD, a student must complete an approved, rigorous program of advanced course work and submit and defend an original dissertation of independent research. The mechanical and industrial engineering (MIE) department expects all successful doctoral candidates to show depth of knowledge and research innovation in their chosen field of specialization.

The MIE department admits applicants to the PhD program either directly after earning a suitable bachelor's degree or after earning a master's degree. Upon acceptance into the program, an applicant is designated as a doctoral student. This designation is changed to doctoral candidate upon successful completion of the doctoral qualifying examinations.

DOCTORAL QUALIFYING EXAMINATIONS

To qualify as a doctoral candidate, a doctoral student must successfully complete both a written preliminary exam and an oral area exam. All doctoral students who hold a master's degree must take the preliminary exam no later than the first time that it is offered after their first academic year of study. Those admitted directly with a bachelor's degree must take the preliminary exam no later than the first time that it is offered after their first two years of study.

PRELIMINARY EXAMINATION

The MIE department offers the written preliminary exam twice during each academic year, typically in September and January. The objective of this exam is to test the student's fundamental knowledge of core subjects in a specific engineering discipline and to test skill in implementing the methods of inquiry in that field. The exam is six hours in length and covers, with equal emphasis, four different subjects from among the 25 subjects organized in the following nine groups (see table below). Each student's dissertation advisor must approve the student's four subject selections. For mechanical engineering students, at least three of these selections must be in categories A–E. All written exams shall be closed book; however, students may prepare and use a single double-sided 8.5" x 11" sheet of reference material for each exam. Students may find further guidance in the *Doctoral Qualifying Examination Handbook*, as prepared and distributed by the MIE graduate committee. Students should also consult extensively with their advisors regarding all aspects of the qualifying exams.

The MIE graduate committee will review all students' performance in the preliminary exam. In consultation with the student's dissertation advisor, the committee will recommend one of the following three possible exam results:

Pass: This grade indicates successful completion of the preliminary exam. In this case, the student is prepared to develop a research plan and literature survey. However, in some cases, the MIE graduate committee may recommend additional course work

in any subject(s) where the preliminary exam indicated some weakness.

Conditional: The student is invited to retake the full preliminary examination at the next offering. The result of the second preliminary exam will be either pass or fail.

Fail: The student is not permitted to continue as a doctoral student in any of the programs offered by the MIE department.

The results of the preliminary exam and any recommended course work become part of the student's record.

PRELIMINARY EXAMINATION SUBJECTS

The subject areas of the preliminary examinations are shown in the following table:

Group	Subjects
A	Engineering mathematics (A1) Engineering computation (A2) Probability and statistics (A3)
B	Thermodynamics (B1) Fluid mechanics (B2) Heat transfer (B3)
C	Dynamics and vibrations (C1) Mechanics of deformable bodies (C2) Dynamic systems and control (C3) Finite element method (C4)
D	Materials science (D1) Mechanical behavior of materials (D2) Thermodynamics of materials (D3) Kinetics of phase transformations (D4) Fundamentals of polymer science and engineering (D5)
E	Design and CAD/CAM (E1)
F	Human-machine systems (F1)
G	Manufacturing systems (G1) Production and logistics (G2)
H	Operations research (H1) Reliability and quality assurance (H2) Simulation (H3)
I	Software engineering (I1) Computer graphics (I2) Artificial intelligence in engineering (I3)

AREA EXAMINATION

Students must take the area examination no more than 12 months after successfully completing the preliminary exam. The area exam comprises two parts: (1) an oral presentation by the student of a written literature survey and initial plan of research (independently developed results are not required at this stage); and (2) an oral exam of the student covering topics specifically related to the student's field of research.

The objective of the area exam is to assess the student's potential to perform independent research in the chosen field of

specialization. The student's dissertation committee will invite any additional faculty deemed appropriate to that field; this area examining committee will then conduct the area exam. Each student's dissertation committee must comprise at least three members; two of those three must be MIE faculty members.

The area examining committee may either recommend admission to doctoral candidacy or may allow the student a single additional opportunity to complete the area exam successfully. Students not admitted to doctoral candidacy after a second attempt at the area exam will no longer be eligible for candidacy in any of the PhD programs offered by the MIE department. The committee's recommendation, the literature survey, and the initial research plan are added to the student's record upon admission to doctoral candidacy.

COURSE REQUIREMENTS

A typical program of study includes at least 48 semester hours of course work beyond the bachelor's degree or 24 semester hours of course work beyond the master's degree.

A minor field of study is also required, comprising at least 8 semester hours of course work in a discipline other than that in which the candidate is concentrating (and which may also be taken outside the MIE department). Doctoral candidates must attain a minimum 3.000 GPA in minor area course work.

Each doctoral student, together with his or her dissertation advisor, should develop an initial program during the first semester of study. The final program is also subject to the approval of the area examining committee, who will add the program of study to the student's record upon admission to doctoral candidacy.

Upon successful completion of the PhD qualifying exams and the majority of required course work, the doctoral candidate must register in two consecutive semesters for ME 9990 or IE 9990 (Dissertation). Upon completion of this sequence, the student must then register for ME 9996 or IE 9996 (Dissertation Continuation) in every semester until the dissertation is completed. A student may not register for continuation until they fulfill the two-semester sequence.

FINAL ORAL EXAMINATION

All doctoral candidates must pass a final oral exam. This exam will be scheduled once the dissertation committee agrees that the candidate's research is in a form appropriate for formal presentation and after completion of all other requirements for the PhD, including all course work approved in the final program of study. The objective of the exam is for the candidate to present and defend the results of the dissertation research and to demonstrate depth of knowledge and significant expertise in the area of that research under questioning from the dissertation committee and other attendees.

The exam shall be publicly advertised at least one week in advance and all faculty members may attend and participate. At the conclusion of the presentation and subsequent question period, the dissertation committee will convene to determine the outcome. The committee may recommend that the candidate be awarded the

PhD or may require additional research and/or modifications of the dissertation. In some cases, candidates may be asked to present themselves for an additional final oral exam.

RESIDENCY REQUIREMENT

The residency requirement is satisfied by two semesters of full-time graduate registration.

PhD in Mechanical Engineering— Advanced Degree Entrance

GENERAL REQUIREMENTS

Approved course work	24 SH
ME 9990 Dissertation	0 SH

PROGRAM TOTAL CREDITS 24.0 SH

PhD in Mechanical Engineering— Bachelor's Degree Entrance

GENERAL REQUIREMENTS

Approved course work	48 SH
ME 9990 Dissertation	0 SH

PROGRAM TOTAL CREDITS 48.0 SH

OPERATIONS RESEARCHwww.mie.neu.edu/graduate/operres.html

EMANUEL S. MELACHRINOUDIS, PHD

Associate Professor, Associate Chair, and Program Director

334 Snell Engineering Center

617.373.2740

617.373.2921 (fax)

Joyce Crain, *Staff Assistant*, j.crain@neu.edu

Operations research (OR) deals with the application of scientific methods to decision making. Students have an opportunity to learn how to develop and solve mathematical and computer models of systems using optimization and statistical methods. OR graduates work in a wide variety of fields, such as transportation, supply chain operations, communications and computer operations, manufacturing, finance, and healthcare. The OR program is offered jointly by the Department of Mechanical and Industrial Engineering and the Department of Mathematics, thus achieving a unique balance of theory and application.

Master of Science Degrees

To be eligible for admission to any of the master's degree programs, a prospective student must hold a Bachelor of Science degree in engineering, science, mathematics, or an equivalent field. Students in all master's degree programs must complete a minimum of 32 semester hours of approved course work (exclusive of any preparatory courses) with a minimum GPA of 3.000. Students may pursue any program either on a full- or part-time basis; however, certain restrictions may apply as described below.

Students who receive financial support from the university in the form of a research, teaching, or tuition assistantship must complete an 8-semester-hour thesis. Other students may choose to complete a thesis or pursue their degree on a course-work-only basis. Students who complete the thesis option must make a presentation at a thesis defense before approval by the department.

All mechanical engineering and industrial engineering graduate students must complete MEIE 6800 Technical Writing Seminar and MEIE 6850 Research Seminar in Mechanical and Industrial Engineering during their first year of full-time study. If appropriate, part-time students may petition the graduate committee to waive these requirements.

**MSOR—Master of Science in Operations Research—
Course Work Option****GENERAL REQUIREMENTS**

IE 6200 Engineering Probability and Statistics or MATH 7241 Probability 1	4 SH
MATH 7234 Optimization and Complexity	4 SH

OR 6205 Deterministics Operations Research	4 SH
OR 7230 Probabilistic Operations Research or MATH 7341 Probability 2	4 SH
Course work from the list "Course Option Electives," below	16 SH

PROGRAM TOTAL CREDITS 32.0 SH**COURSE OPTION ELECTIVES**

CS 5800 Algorithms	4 SH
CS 7805 Theory of Computation	4 SH
CSYE 6200 Concepts of Object-Oriented Design	4 SH
CSYE 6210 Component Software Development	4 SH
EECE 7360 Combinatorial Optimization	4 SH
EMGT 5220 Engineering Project Management	4 SH
EMGT 6225 Economic Decision Making	4 SH
IE 7210 Production System	4 SH
IE 7215 Simulation Analysis	4 SH
IE 7275 Data Mining in Engineering	4 SH
IE 7280 Statistical Methods in Engineering	4 SH
IE 7285 Statistical Quality Control	4 SH
IE 7290 Reliability Analysis and Risk Assessment	4 SH
IE 7315 Human Factors Engineering	4 SH
IE 7615 Neural Networks in Engineering	4 SH
INFO 6205 Program Structure and Algorithms	4 SH
INFO 6210 Data Management and Database Design	4 SH
MATH 7232 Combinatorial Analysis	4 SH
MATH 7233 Graph Theory	4 SH
MATH 7342 Mathematical Statistics	4 SH
MATH 7346 Time Series	4 SH
MATH 7347 Statistical Decision Theory	4 SH
MATH 7349 Stochastic Calculus and Introduction to No-Arbitrage Finance	4 SH
OR 7235 Inventory Theory	4 SH
OR 7240 Integer and Nonlinear Optimization	4 SH
OR 7245 Network Analysis and Advanced Optimization	4 SH
OR 7250 Multi-Criteria Decision Making	4 SH
OR 7260 Constraint Programming	4 SH
OR 7310 Logistics, Warehousing, and Scheduling	4 SH

**MSOR—Master of Science in Operations Research—
Project Option****GENERAL REQUIREMENTS**

IE 6200 Engineering Probability and Statistics or MATH 7241 Probability 1	4 SH
MATH 7234 Optimization and Complexity	4 SH
OR 6205 Deterministics Operations Research	4 SH
OR 7230 Probabilistic Operations Research or MATH 7341 Probability 2	4 SH
OR 7945 Master's Project	4 SH
Course work from the list "Project Option Electives," below	12 SH

PROGRAM TOTAL CREDITS 32.0 SH

PROJECT OPTION ELECTIVES

CS 5800 Algorithms	4 SH
CS 7805 Theory of Computation	4 SH
CSYE 6200 Concepts of Object-Oriented Design	4 SH
CSYE 6210 Component Software Development	4 SH
EECE 7360 Combinatorial Optimization	4 SH
EMGT 5220 Engineering Project Management	4 SH
EMGT 6225 Economic Decision Making	4 SH
IE 7210 Production System	4 SH
IE 7215 Simulation Analysis	4 SH
IE 7275 Data Mining in Engineering	4 SH
IE 7280 Statistical Methods in Engineering	4 SH
IE 7285 Statistical Quality Control	4 SH
IE 7290 Reliability Analysis and Risk Assessment	4 SH
IE 7315 Human Factors Engineering	4 SH
IE 7615 Neural Networks in Engineering	4 SH
INFO 6205 Program Structure and Algorithms	4 SH
INFO 6210 Data Management and Database Design	4 SH
MATH 7232 Combinatorial Analysis	4 SH
MATH 7233 Graph Theory	4 SH
MATH 7342 Mathematical Statistics	4 SH
MATH 7346 Time Series	4 SH
MATH 7347 Statistical Decision Theory	4 SH
MATH 7349 Stochastic Calculus and Introduction to No-Arbitrage Finance	4 SH
OR 7235 Inventory Theory	4 SH
OR 7240 Integer and Nonlinear Optimization	4 SH
OR 7245 Network Analysis and Advanced Optimization	4 SH
OR 7250 Multi-Criteria Decision Making	4 SH
OR 7260 Constraint Programming	4 SH
OR 7310 Logistics, Warehousing, and Scheduling	4 SH

**MSOR—Master of Science in Operations Research—
Thesis Option****GENERAL REQUIREMENTS**

IE 6200 Engineering Probability and Statistics or MATH 7241 Probability 1	4 SH
MATH 7234 Optimization and Complexity	4 SH
OR 6205 Deterministics Operations Research	4 SH
OR 7230 Probabilistic Operations Research or MATH 7341 Probability 2	4 SH
OR 7990 MS Thesis	8 SH
Course work from the list “Thesis Option Electives,” below	8 SH

PROGRAM TOTAL CREDITS 32.0 SH**THESIS OPTION ELECTIVES**

CS 5800 Algorithms	4 SH
CS 7805 Theory of Computation	4 SH
CSYE 6200 Concepts of Object-Oriented Design	4 SH
CSYE 6210 Component Software Development	4 SH
EECE 7360 Combinatorial Optimization	4 SH
EMGT 5220 Engineering Project Management	4 SH

EMGT 6225 Economic Decision Making	4 SH
IE 7210 Production System	4 SH
IE 7215 Simulation Analysis	4 SH
IE 7275 Data Mining in Engineering	4 SH
IE 7280 Statistical Methods in Engineering	4 SH
IE 7285 Statistical Quality Control	4 SH
IE 7290 Reliability Analysis and Risk Assessment	4 SH
IE 7315 Human Factors Engineering	4 SH
IE 7615 Neural Networks in Engineering	4 SH
INFO 6205 Program Structure and Algorithms	4 SH
INFO 6210 Data Management and Database Design	4 SH
MATH 7232 Combinatorial Analysis	4 SH
MATH 7233 Graph Theory	4 SH
MATH 7342 Mathematical Statistics	4 SH
MATH 7346 Time Series	4 SH
MATH 7347 Statistical Decision Theory	4 SH
MATH 7349 Stochastic Calculus and Introduction to No-Arbitrage Finance	4 SH
OR 7235 Inventory Theory	4 SH
OR 7240 Integer and Nonlinear Optimization	4 SH
OR 7245 Network Analysis and Advanced Optimization	4 SH
OR 7250 Multi-Criteria Decision Making	4 SH
OR 7260 Constraint Programming	4 SH
OR 7310 Logistics, Warehousing, and Scheduling	4 SH

**MSOR—Master of Science in Operations Research
with Graduate Certificate in Engineering Leadership****GENERAL REQUIREMENTS**

ENLR 5121 Engineering Leadership 1	2 SH
ENLR 5122 Engineering Leadership 2	2 SH
ENLR 5131 Scientific Foundations of Engineering 1	2 SH
ENLR 5132 Scientific Foundations of Engineering 2	2 SH
IE 6200 Engineering Probability and Statistics or MATH 7241 Probability 1	4 SH
MATH 7234 Optimization and Complexity	4 SH
OR 6205 Deterministics Operations Research	4 SH
OR 7230 Probabilistic Operations Research or MATH 7341 Probability 2	4 SH
OR 7440 Operations Research Engineering Leadership Challenge Project 1	4 SH
OR 7442 Operations Research Engineering Leadership Challenge Project 2	4 SH

PROGRAM TOTAL CREDITS 32.0 SH

SUSTAINABLE BUILDING SYSTEMS

www.coe.neu.edu/gse/programs/SBS

SARA WADIA-FASCETTI, PhD
Associate Dean for Research and Graduate Studies,
Graduate School of Engineering

130 Snell Engineering Center
617.373.2711
mssusbuid@coe.neu.edu

The sustainable building systems program focuses on the design and operation of buildings to provide a comfortable, healthy, and productive indoor environment with minimal energy and environmental impact. Students develop leadership and decision-making skills to implement sustainable building practices in either the private or public sectors in the global market.

The graduates of the Master of Science in Sustainable Building Systems program should display a high level of engineering knowledge in a broad range of architectural engineering, civil engineering, and construction management while embracing the concepts of engineering sustainability as related to energy and materials usage and the effects on the environment. Graduates will have the base training necessary to lead efforts within companies to plan and implement sustainable practices for the design and operation of buildings, realize energy and materials efficiency improvements, and minimize environmental impact. Upon graduation, students will be prepared to take the LEED (Leadership in Energy and Environmental Design) Green Associate examination, providing them with an internationally recognized certificate in this field.

SAMPLE CURRICULUM

Below is a typical course sequence for graduation in two semesters.

Fall	Spring
ARCH 5210 (4 SH)	ARCH 5220 or elective (4 SH)
CIVE 7220 (4 SH)	CIVE 5270 or elective (4 SH)
CIVE 7230 or elective (4 SH)	SBSY 5200 (4 SH)
SBSY 5100 (4 SH)	SBSY 5300 or elective (4 SH)

The program is flexible to accommodate full-time students—who wish to proceed over a period of three to four semesters—and part-time students—who can complete the program requirements by taking one to two courses per semester, finishing the program in approximately four years.

MSSBS—Master of Science in Sustainable Building Systems

GENERAL REQUIREMENTS

ARCH 5210 Environmental Systems	4 SH
CIVE 7220 Construction Management	4 SH
SBSY 5100 Sustainable Design and Technologies in Construction	4 SH
SBSY 5200 Sustainable Engineering Systems for Buildings	4 SH
Course work from the list “Approved Open Electives,” below	8 SH
Course work from the list “Approved Restricted Electives,” below	8 SH

PROGRAM TOTAL CREDITS 32.0 SH

APPROVED OPEN ELECTIVES

ACCT 6208 Financial Reporting and Managerial Decision Making	4 SH
CIVE 5270 Environmental Protection and Management	4 SH
CIVE 7350 Behavior of Concrete Structures	4 SH
CIVE 7351 Behavior of Steel Structures	4 SH
FINA 6200 Value Creation through Financial Decision Making	3 SH
FINA 6216 Valuation and Value Creation	3 SH
FINA 6217 Real Estate Finance and Investment	3 SH
ME 5645 Environmental Issues in Manufacturing and Product Use	4 SH

APPROVED RESTRICTED ELECTIVES

ARCH 5220 Integrated Building Systems	4 SH
CIVE 7221 Construction Project Control and Organization	2 SH
CIVE 7230 Legal Aspects of Civil Engineering	4 SH
CIVE 7231 Alternative Project Delivery Systems in Construction	2 SH
EMGT 6305 Financial Management for Engineers	4 SH
SBSY 5300 Information Systems for Integrated Project Delivery	4 SH

TELECOMMUNICATIONS SYSTEMS MANAGEMENT

www.coe.neu.edu/gse/pm/TSM/

PETER O'REILLY, PhD

Program Director

130 Snell Engineering Center
617.373.2711
617.373.2501 (fax)
tsm@coe.neu.edu

The Master of Science in Telecommunications Systems Management degree is designed for professionals currently in the telecommunications or networking field who either wish to enhance their technical skills and credentials or who wish to make a transition to the business side of telecommunications or networking. We also welcome applications from prospective students with limited industry experience. This program, which may be pursued on a full- or part-time basis, is one of only a very few master's programs in telecommunications and networking in the United States that is truly multidisciplinary, giving students the flexibility to tailor the curriculum to their specific interests, backgrounds, and career goals.

MSTSM—Master of Science in Telecommunications Systems Management

DEGREE REQUIREMENTS

A minimum of 30 semester hours must be earned toward completion of the MSTSM degree. A minimum grade-point average of 3.000 is required over all courses applied toward the degree.

To qualify for any degree from the Graduate School of Engineering, a student must attain a cumulative grade-point average (GPA) of 3.000 or higher with no more than 8 semester hours below the grade of B- in all courses applied toward that degree, exclusive of any prerequisite courses. However, prerequisite courses are calculated into GPA. The committee on graduate study in engineering allows students to take 8 semester hours of credit beyond stated minimum degree requirements for the purpose of repeating failed required courses or substituting for elective courses in order to attain the required 3.000 GPA for the completion of degree requirements. Within the above limitations for extra or repeated courses, a student must repeat any required course in which he or she earns a grade of C+ or less and earn a grade of B- or better.

Degree Requirements	Full-Time Study	Part-Time Study
Required core courses	16 SH	16 SH
Approved business and technical elective courses	14 SH	14 SH
Minimum semester hours required	30 SH	30 SH

The program requires that a mix of core required courses and elective courses be taken. Although there are some dependencies among the core courses, the program may be started in either the fall or spring semester.

There are four core courses and a wide range of technical and business electives available. The core courses each carry 4 semester hours of credit. Students must receive a grade of at least a B- in each of the core courses, otherwise they will need to repeat the course. A maximum of two of the core courses may be waived—and only if a student has taken similar course material at another university with a satisfactory grade. Students should apply for such waivers during their first semester at Northeastern. If a technical core course is waived, it must be replaced with a technical elective. Similarly, if the business core course is waived, it must be replaced with a business elective.

At least one of the electives must be a business elective and at least one must be a technical elective. The technical electives include courses on network and communications technology and on the development of software systems and applications. The list of business electives is focused on engineering management and marketing. Electives come from an approved list of courses supplied by the colleges of engineering, business administration, and computer and information science. All students must take at least one technical elective and one business elective. These electives must be courses of at least 3 semester hours. Students may take elective course work outside this list with the prior approval of their program advisor.

It is expected that students beginning this program will have an adequate background in the following areas: C, C++, or Java programming languages; probability and statistics; and differential and integral calculus.

Special topics courses, as well as other courses from outside the program, may be used as electives with prior approval of the program director. Participants may elect TSMG 6945 Master's Project (4 semester hours) in place of one of the electives with approval of the program director.

All transfer credits must be approved by petition before course enrollment.

TSMG 5978 Independent Study, usually for 1 or 2 semester hours, is sometimes available for students. Independent study must be carried out under the supervision of a professor and must have prior approval of the TSMG program director. Proposals for independent study need to be submitted at least one month before the start of the semester.

TSMG 5976 Directed Study, also for 1 or 2 semester hours, is sometimes available for students. On directed study projects, a student follows a prescribed curriculum, usually with some form of an exam at the end of the semester.

GENERAL REQUIREMENTS

TSMG 5310 Fundamentals of Communication Systems	4 SH	TSMN 6350 IP Telephony	4 SH
TSMG 5320 Telecommunications Architecture and Systems	4 SH	TSMN 6600 Special Topics—Networking	1 to 4 SH
TSMG 5330 Data Networking	4 SH	TSMS 6360 Operation Support Systems in Telecommunications	4 SH
TSMG 5340 Telecommunications Public Policy and Business Management	4 SH	TSMS 6600 Special Topics Systems Development	1 to 4 SH
Course work from the list “Approved Business and Technical Electives,” below	14 SH		

PROGRAM TOTAL CREDITS 30.0 SH**APPROVED BUSINESS AND TECHNICAL ELECTIVES**

ACCT 6200 Financial Reporting and Managerial Decision Making 1	3 SH		
CS 5520 Mobile Application Development	4 SH		
CS 5700 Fundamentals of Computer Networking	4 SH		
CS 6710 Wireless Network	4 SH		
CS 6740 Network Security	4 SH		
EECE 5576 Wireless Communication Systems	4 SH		
EECE 7364 Mobile and Wireless Networking	4 SH		
EMGT 5220 Engineering Project Management	4 SH		
EMGT 6225 Economic Decision Making	4 SH		
EMGT 6305 Financial Management for Engineers	4 SH		
ENTR 6200 Enterprise Growth and Innovation	4 SH		
ENTR 6212 New Venture Creation	3 SH		
HRMG 6200 Managing People and Organizations	3 SH		
HRMG 6210 Managing Professionals and High Performance Teams	3 SH		
IA 5150 Network Security Practices <i>Coreq. IA 5151</i>	4 SH		
INFO 6210 Data Management and Database Design	4 SH		
INFO 6215 Business Analysis and Information Engineering	4 SH		
INFO 6245 Planning and Managing Information Systems Development	4 SH		
INFO 7285 Organizational Change and IT	4 SH		
MGMT 6214 Negotiations	3 SH		
MGSC 6206 Management of Service and Manufacturing Operations	3 SH		
MKTG 6200 Creating and Sustaining Customer Markets	3 SH		
MKTG 6208 Marketing and Customer Value	3 SH		
MKTG 6214 New Product Development	3 SH		
TECE 6200 Innovation and Entrepreneurial Growth	3 SH		
TECE 6250 Technology-Based Product Development Processes	3 SH		
TSMB 6370 Perspectives in Telecommunications Policy	4 SH		
TSMB 6380 Consulting Project in Telecommunications	4 SH		
TSMB 6600 Special Topics—Business Management	1 to 4 SH		
TSMG 6600 Special Topics—Core	1 to 4 SH		
TSMN 6100 Telecommunications Convergence	4 SH		
TSMN 6200 Advanced Data Networking	4 SH		

Bouvé College of Health Sciences

www.northeastern.edu/bouve/grad

TERRY FULMER, PhD, RN, FAAN, Dean

Tom Olson, PhD, Associate Dean for Graduate Education

Margaret K. Schnabel, Director of Graduate Admissions and Student Services

Dean's Office

215 Behrakis Health Sciences Center
617.373.3323
617.373.3030 (fax)

Graduate Admissions and Student Services Office

123 Behrakis Health Sciences Center
617.373.2708
617.373.4701 (fax)

The Bouvé College of Health Sciences (BCHS) strongly supports the mission of Northeastern University as a practice-oriented, student-centered, urban research institution. The college is committed to the goals of the institution, which include excellence in education, research, scholarship, access to educational opportunity, and a strong professional orientation. Each of the programs within the college supports these aims both individually and collectively.

Graduate programs in the Schools of Nursing, Pharmaceutical Sciences, and the Health Professions (counseling and applied education psychology, audiology, exercise sciences, physical therapy, physician assistant, public health, speech-language pathology) and the interdisciplinary programs of biotechnology and health informatics incorporate experience in the related field of study. Students have an opportunity to interact with faculty contributing to research advances, as well as with Boston's world-class healthcare and educational institutions, and study in a comprehensive health-sciences college, where interdisciplinary approaches to complex issues reflect professional practice.

The result: At Northeastern, you have an opportunity to acquire the knowledge and capability needed for a lifetime of social contribution and professional achievement.

Health Certification

All new students must complete the University Health Report form following acceptance to the university. These forms may be obtained at the University Health and Counseling Services (UHCS) located at 135 Forsyth Building or downloaded from www.northeastern.edu/uwcs/forms/index.html. Graduate students may additionally be expected to provide UHCS with proof of a

physical exam or statement of good health prior to registration; this may vary among programs.

As a condition of matriculation at Northeastern University, all students are required to submit the completed University Health Report form to UHCS. Graduate students must return the form **no later than one month** prior to entering the university. The health center will block the registration of those who do not file correct forms. All documentation must be signed by a medical doctor, nurse practitioner, or physician assistant.

The Commonwealth of Massachusetts requires all university students to provide documentation of immunity to the following:

- Hepatitis B (series of three immunizations or one positive titre)
- Measles (two immunizations or positive antibody titre)
- Mumps (one immunization or positive antibody titre)
- Rubella (one immunization or positive antibody titre)
- Meningitis (optional; students may decline immunization)
- Tetanus/Diphtheria (immunization within last 10 years)

Graduate students in the Bouvé College of Health Sciences are additionally required to provide documentation of immunity to the following:

- Varicella/chicken pox
- Tuberculin skin test (PPD): within six months of registration

Please refer to page two of the University Health Report for further clarification. The University Health Report is to be completed once prior to students beginning their graduate studies; however, some programs in the Bouvé College of Health Sciences may require that students provide proof of physical examination annually. Similarly, some programs may require proof of additional immunities. Please consult your program handbook or your program advisor for more information. Medical documentation and health certification are maintained by UHCS. Additional clinical clearance may be required by some programs prior to your presence in any clinical setting.

Practicum/Internship Policies

Students taking practicum courses or doing internships in their field of study may be required to submit certification of health status to each of their clinical placement coordinators. Each program has its own regulations for practicum health clearance. Students should consult their program handbooks or clinical placement coordinator for these requirements. Students who do not present the appropriate health certification will be blocked from registering for, or attending, practicum until satisfactory evidence is provided. An annual update of the student's health certification is also required in some internships and practica. Students taking practicum courses may also be required to submit

to and successfully clear criminal history/background checks (CORI; see below). International nursing students must have a current U.S. nursing license and social security number.

Background Checks

An increasing number of clinical sites require background checks for employees as well as students who come to their facilities. Northeastern University students will need to have background checks done *only* if their assigned clinical agency requires it. The most common background check required is the Massachusetts Criminal Offender Record Information (CORI), although some clinical sites require other types of checks, such as drug testing.

Bouvé College contracts with a national company, CertifiedBackground.com, to perform these checks. The company provides this service for universities nationwide. Log onto their website to learn more about them: certifiedbackground.com.

CertifiedBackground.com charges fees to conduct background checks. The fee varies depending on the type of background check needed. All fees will be paid by the student directly to CertifiedBackground.com.

All background check information is confidential. Results are sent to the designated clearance officer for Bouvé College, who is the only person who has access to the results. A student will be contacted by the clearance officer *only* if there is a question about the results. Neither the student nor the clearance officer is required to reveal the actual results of a background check to an on-campus clinical coordinator/clinical placement office, a clinical site, or anyone else at the university.

If an assigned clinical site requires students to have a background check, the on-campus clinical coordinator/clinical placement officer will inform the student of the requirements and provide the student with instructions and a deadline for completing the check. It is crucial that the student complete the check by the deadline given to assure adequate processing time prior to the start of a clinical experience. Failure to complete the check in a timely manner could jeopardize the student's progression in the program.

Liability Insurance

All students on practicum/internship must register each semester while on practicum/internship to be covered by liability insurance. As long as they are registered, all Northeastern University matriculated students in fields of study requiring malpractice insurance are covered under a professional liability insurance for which they pay a yearly fee. This insurance covers injury to third parties by students doing work or professional studies outside Northeastern University premises that are clearly part of their duties. It does not cover willful misconduct. Students or the clinical placement coordinator can request that the institutional audit, compliance, and risk services office send evidence-confirming coverage to their field site. Students should consult their practicum placement officer, program coordinator, and specialization policies for information about further requirements for liability insurance. If you are not sure if your program is covered under this policy, coverage can be verified through the

Office of Institutional Audit, Compliance and Risk Services at extension x5997 or www.northeastern.edu/risk_services/index.php.

Grading

Although credit can be transferred, grades transferred from another institution are not calculated in the grade-point average (GPA) on the Northeastern University transcript. Therefore, courses repeated due to failure should be completed at Northeastern.

Transfer of Credit

A maximum of 9 semester/12 quarter hours of credit obtained at another institution may be accepted toward the degree, provided the credits consist of work taken at the graduate level for graduate credit, carry grades of 3.000 or better, have been earned at an accredited institution, and have not been used toward any other degree. These courses must have been taken within five years prior to the transfer and cannot be taken in the last semester prior to graduation.

The exact requirements for fulfillment of a degree in the BCHS graduate school vary by program. Students must consult their individual academic program catalogues and policies, as well as program directors, if applicable, for specific credit and non-credit requirements necessary to achieve a specific degree.

If the course had been taken prior to matriculation at Bouvé, the student must submit to his or her academic advisor a petition requesting transfer along with the official transcript indicating successful completion of the course to be transferred. Upon obtaining the advisor's approval, the student submits the documentation to the graduate school office on the appropriate petition form. A student may petition to transfer credit only after matriculation in Bouvé.

Courses that have not been taken but will be taken for transfer from another institution must receive preapproval from the student's academic advisor. Students should submit the petition with the course description attached to their advisor for approval and then submit the completed petition to the Bouvé graduate school office.

Graduate courses at the Northeastern University College of Professional Studies (CPS) can be considered for transfer only with prior approval of the academic advisor. Courses taken in the CPS cannot be considered to fulfill full-time requirements for international students. For consideration of financial aid for CPS courses, please check with your financial aid officer.

Students may not take courses required for the completion of their program in the last semester of their program.

Course Waiver

A student must obtain approval from their academic advisor to waive a course that was taken for credit toward a prior degree. To obtain approval by the academic advisor, the student must provide

an official transcript and a syllabus of the content of the course to the program director, in order to verify equivalency with the course to be waived. The student must submit the signed appropriate petition form to the Bouvé graduate office. If approved to waive the course, the student must take another course in its place for equivalent credit.

Academic Progression

All students should register by the first week of the semester for course work or continuation credit each semester of the academic year (fall, spring, and, where indicated, summer) once they are matriculated as full- or part-time students. All physician assistant students must register all three semesters. If a student does not register for two consecutive semesters, the student's file will be placed in the "inactive" archives and kept there for no longer than five years. Therefore, if a student plans on being absent more than one semester, he or she must notify the Bouvé graduate student office and file a petition for a leave of absence. (Please see page 18.)

For information about withdrawal and refund policies, please refer to www.northeastern.edu/financialaid/studentaccounts/refunds.html.

All degree requirements must be completed within a maximum of seven years of matriculation, although individual academic programs may require completion in a shorter time frame. Each student is responsible for reviewing the requirements for his or her particular program. A student's failure or inability to register does not extend the amount of time allowed to complete the program. Course credits earned in programs of graduate study are valid for a maximum of seven years unless an extension is granted by the Bouvé associate dean of graduate studies. After establishment of candidacy for the PhD degree, a maximum of five years will be allowed for completion of the degree requirements, unless an extension is granted (see "Extension Procedures," below). In order to progress in clinical courses that are sequenced, students must receive a passing grade in all prior courses in the sequence. In the event that a student fails a clinical course that is not part of a sequence, progression is at the discretion of the student's academic advisor and/or the program director. When a student fails a clinical course that is part of a sequence of courses, the course instructor must notify the Bouvé College graduate office. Course material related to the student's failure (examination reports, clinical reports) must be made available to the student for review.

Student's Academic Standing

Academic standing in BCHS is determined by the student's grade-point average (GPA) and performance in academic and clinical courses that are required by his or her program. All BCHS students are expected to maintain a cumulative GPA of 3.000 each semester to remain in good academic standing and to progress toward graduation. Students who do not maintain a cumulative GPA of 3.000 each semester will be placed on probation. Additionally, some programs require students to earn a grade of B (3.000) or better in each specified course. (Please see "Deficiency

Information," below). Students must also earn a grade of B (3.000) or better in graduate courses taken at another institution that are subject to transfer credit.

DEFICIENCY INFORMATION BY PROGRAM

- Audiology: 3.000 GPA and B lowest grade approved
- Biotechnology: 3.000 GPA and C- lowest grade approved
- Exercise sciences: 3.000 GPA and B lowest grade approved
- Health informatics: 3.000 GPA and B- lowest grade approved
- Nursing: 3.000 GPA and B lowest grade approved (Direct Entry has exceptions for undergraduate courses taken during the program)
- Physical therapy: 3.000 GPA and C lowest grade approved
- Physician assistant: 3.000 GPA and C lowest grade approved
- Public health: 3.000 GPA and B- lowest grade approved
- Pharmaceutical: 3.000 GPA and B lowest grade approved
- Psychology: 3.000 GPA and B lowest grade approved
- Speech: 3.000 GPA and B lowest grade approved

Academic Probation Policy

Academic probation is a period of time when a student must address and remediate academic deficiencies. An action plan to clear the deficiency must be developed by the student, the student's academic advisor, and the specific program graduate committee (if applicable). A student placed on probation will receive written notification by the Office of Graduate Student Services. The student's program advisor will also receive notification of probationary status. It is the student's responsibility to write an action plan with his or her advisor. The plan should document how the deficiency will be remediated. This action plan must be signed by the advisor and the student and placed in the student's file in the graduate office within one month from the date of the written notification of probation. The student's failure to file an action plan may be cause for dismissal from the program. The action plan must specify the date by which the deficiency will be cleared. Students will be placed on probation for the following deficiencies:

- A cumulative GPA below 3.000. If the student remains on academic probation for two semesters, he or she may be terminated from the graduate program.
- In some programs, a grade of B- or below in a specified course.
- Unsatisfactory final grade in a clinical course, practicum, internship, or research course, etc.

A BCHS graduate student may repeat a course only once to achieve a passing grade and may only repeat two courses during his or her entire program of study. A student may be on probation for only one semester, or until the course is offered again, unless the advisor approves an action plan that specifies a longer, but definite, period. A student may only be placed on probation twice during enrollment in BCHS and must correct all deficiencies, as specified, in each respective action plan during the applicable probationary period. Failure to remediate the deficiency within the agreed-upon time may result in dismissal from the program. During the period of probation, the student must earn a GPA

of 3.000 or better each semester, or he or she is subject to dismissal from BCHS. Note that individual graduate programs may have additional requirements that must be included in the probation action plan.

Once the student has regained a GPA of 3.000, earned a grade of B or better in a repeated course, and/or demonstrated satisfactory performance in a clinical course, he or she must petition to be removed from probation.

COUNSELING AND APPLIED EDUCATIONAL PSYCHOLOGY

www.northeastern.edu/bouve/caep

OSCAR GONÇALVES, PHD
Professor and Chair

404 International Village
617.373.2485
617.373.8892 (fax)
caep@neu.edu

Graduate programs in the Department of Counseling and Applied Educational Psychology reflect Northeastern University's tradition of practice-oriented education with an ecological and multicultural focus. Faculty and students come from diverse ethnic and cultural backgrounds, providing an enriching learning experience. Our doctoral programs provide excellent educational opportunities for those interested in professional psychology with specialized training for future careers in academic or practice positions as licensed psychologists.

The Bouvé College of Health Sciences emphasizes experiential and field-based learning, interdisciplinary and global knowledge, and integration of science and practice. The Department of Counseling and Applied Educational Psychology seeks to produce students who are well prepared to become counseling and psychology professionals in a variety of educational, government, community, organizational, and private settings. As a Bouvé student, you have an opportunity to acquire knowledge and competency needed for a lifetime of personal fulfillment and professional achievement.

Certificate in Applied Behavior Analysis

The Certificate in Applied Behavior Analysis program seeks to provide students with the knowledge base necessary for eligibility to take the Behavior Analysis Certification Board (BACB) exam. The curriculum, which is based on the BACB Fourth Edition Task List, includes six courses, all of which are offered online. Four standard programs of study are available; students may take one or two courses each term and may elect not to enroll at all during the summer, regardless of course load chosen. Special programs of study may also be arranged.

A representative program in which students take two courses during the academic year and the summer off follows. "Behavior Assessment" and "Research and Design Methods" are taken first as they are prerequisites for enrolling in the remaining four courses.

YEAR 1, FALL SEMESTER

CAEP 6327 Behavior Assessment	3 SH
CAEP 6328 Research and Design Methods	3 SH

YEAR 1, SPRING SEMESTER

CAEP 6331 Advanced Learning Seminar 1	3 SH
CAEP 6334 Applied Programming Seminar 1	3 SH

YEAR 2, FALL SEMESTER

CAEP 6329 Service Administration	3 SH
CAEP 6336 Systematic Inquiry 1	3 SH

PROGRAM TOTAL CREDITS 18.0 SH

Certificate of Advanced Graduate Studies (CAGS) in Applied Behavior Analysis

The Certificate of Advanced Graduate Studies (CAGS) program seeks to prepare graduates to assume supervisory behavior analyst roles in service agencies and in private and public school settings and to serve as independent consultants. Additionally, it seeks to give graduates expertise in a specific clinical area within applied behavior analysis. The six-course sequence that seeks to prepare students to take the BACB exam is followed by four additional courses in behavior analysis. These courses, which are related, explore the particular clinical issue in-depth.

Four standard programs of study are offered; students may take one or two courses each academic term and choose from a number of summer enrollment options. These options include taking one or two courses or not enrolling at all.

A representative program in which the student takes two courses during the academic year and one course in the summer follows. "Behavior Assessment" and "Research and Design Methods" must be taken first as they are prerequisites for enrolling in the remaining four courses. Specialization courses are indicated only generally; specific courses are determined by the area chosen.

The capstone for the program is the Professional Portfolio (see curriculum listing for MS in Applied Behavior Analysis, following, for description). This portfolio, which is compiled electronically, documents the student's acquisition of critical behavioral procedures.

YEAR 1, FALL SEMESTER

CAEP 6327 Behavior Assessment	3 SH
CAEP 6328 Research and Design Methods	3 SH

YEAR 1, SPRING SEMESTER

CAEP 6331 Advanced Learning Seminar 1	3 SH
CAEP 6334 Applied Programming Seminar 1	3 SH

YEAR 1, SUMMER FULL SEMESTER

CAEP 6336 Systematic Inquiry 1	3 SH
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YEAR 2, FALL SEMESTER

CAEP 6329 Service Administration	3 SH
Foundations in specialization area	3 SH

YEAR 2, SPRING SEMESTER

Behavior Intervention 1: Specialization Area	3 SH
Behavior Intervention 2: Specialization Area	3 SH

YEAR 2, SUMMER FULL SEMESTER

CAEP 6337 Systematic Inquiry 2	3 SH
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PROGRAM TOTAL CREDITS 30.0 SH

Certificate in Early Intervention

Northeastern University's Certificate Program in Early Intervention is an interdisciplinary, preservice training program that is designed to fulfill requirements for certification as an early intervention specialist, at the advanced provisional level, as set forth by the Department of Public Health (DPH), Commonwealth of Massachusetts. The interdisciplinary nature of the program is facilitated by the interaction of students from school psychology, physical therapy, speech and language pathology, human services, psychology, and other disciplines who participate in the program.

The goals for the early intervention certificate program are:

- To increase the number of early intervention personnel
- To prepare personnel who have attained all competencies relative to early intervention, specified by the Massachusetts DPH, and that are consistent with best practice and research
- To prepare personnel in an interdisciplinary manner, drawing from Northeastern University's multidisciplinary resources
- To prepare personnel to function effectively across teams (IFSP teams, community teams, interagency teams) and to understand the roles of their interdisciplinary teammates
- To prepare personnel to provide services to infants and toddlers with disabilities, and their families, from linguistically and culturally diverse backgrounds in urban environments

Courses meet on campus one day each month, and additional course content is delivered through online distance education. The program can be taken alone or integrated with master's or bachelor's degree programs. Personnel who are working in the field may use their work site for field training. Course sequence for the certificate only program is as follows. Degree-bearing programs incorporate the courses in alternative arrangements (e.g., MS/Certificate of Advanced Graduate Studies in School Psychology).

YEAR 1, FALL SEMESTER

CAEP 5150 Early Intervention: Family Systems	3 SH
CAEP 5151 Early Intervention: Infant and Toddler Development, Risk, and Disability	3 SH
CAEP 8425 Early Intervention Practicum 1	2 SH

YEAR 1, SPRING SEMESTER

CAEP 5152 Early Intervention: Planning and Evaluating Services	3 SH
CAEP 8426 Early Intervention Practicum 2	2 SH
SLPA 6335 Early Intervention: Assessment and Intervention	3 SH

PROGRAM TOTAL CREDITS 16.0 SH

MS in Applied Behavior Analysis

The Master of Science in Applied Behavior Analysis program seeks to prepare graduates to assume supervisory behavior analyst roles in service agencies and in private and public school settings and to serve as independent consultants. The six-course sequence that seeks to prepare students to take the BACB exam is followed by four additional courses in behavior analysis. These courses

explore the principles and procedures of applied behavior analysis in more depth and address its philosophical underpinnings.

Four standard programs of study are offered; students may take one or two courses each academic term and choose from a number of summer enrollment options. These options include taking one or two courses or not enrolling at all.

A representative program in which the student takes two courses during the academic year and one course in the summer follows. "Behavior Assessment" and "Research and Design Methods" must be taken first as they are prerequisites for enrolling in the remaining four courses. Similarly, "Systematic Inquiry 1" must be taken before "Systematic Inquiry 2."

The capstone for the program is the Professional Portfolio (see below). This portfolio, which is compiled electronically, documents the student's acquisition of critical behavioral procedures.

YEAR 1, FALL SEMESTER

CAEP 6327 Behavior Assessment	3 SH
CAEP 6328 Research and Design Methods	3 SH

YEAR 1, SPRING SEMESTER

CAEP 6331 Advanced Learning Seminar 1	3 SH
CAEP 6334 Applied Programming Seminar 1	3 SH

YEAR 1, SUMMER FULL SEMESTER

CAEP 6336 Systematic Inquiry 1	3 SH
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YEAR 2, FALL SEMESTER

CAEP 6329 Service Administration	3 SH
CAEP 6337 Systematic Inquiry 2	3 SH

YEAR 2, SPRING SEMESTER

CAEP 6324 Programmed Learning	3 SH
CAEP 6335 Applied Programming Seminar 2	3 SH

YEAR 2, SUMMER FULL SEMESTER

CAEP 6332 Advanced Learning Seminar 2	3 SH
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PROGRAM TOTAL CREDITS 30.0 SH

PROFESSIONAL PORTFOLIO

The Professional Portfolio is the capstone for both the Master of Science in Applied Behavior Analysis and CAGS programs. This portfolio documents the student's behavioral competency in critical clinical skills. These skills, each of which is associated with a specific project, include:

- Intake assessment
- Preference assessment
- Reinforcer assessment
- Functional analysis
- Antecedent intervention
- Consequence intervention
- Task analysis
- Discrimination training
- Literature review

Course assignments are designed to assist the student in designing and executing the projects associated with the skills and in preparing the documentation required for their inclusion in the Professional Portfolio.

A faculty member reviews and signs each project in the Professional Portfolio. The signature indicates that student has achieved the faculty-established standards for the project. Graduates are encouraged to use their Professional Portfolios when applying for employment.

Although a thesis is not required for graduation from either the Master of Science or CAGS program, students interested in research may combine two or three of the Professional Portfolio items into a research project. For example, the student may complete a literature search on stereotypical behavior, then conduct a functional analysis and intervention with a participant who exhibits that behavior. The research project is then prepared in journal format for inclusion in the Professional Portfolio.

Projects may be submitted for inclusion in the Professional Portfolio at anytime during the graduate program. When the student has completed all Professional Portfolio requirements, the program director should be notified so that a final review may take place. A complete Professional Portfolio is required for graduation.

MS in College Student Development and Counseling

YEAR 1, FALL SEMESTER

CAEP 6200 Introduction to Counseling: Theory and Process in an Ecological Context	3 SH
CAEP 6202 Research, Evaluation, and Data Analysis	3 SH
CAEP 6235 Vocational, Education, and Career Development	3 SH
CAEP 6300 Introduction to College Student Development	3 SH

YEAR 1, SPRING SEMESTER

CAEP 6203 Understanding Culture and Diversity	3 SH
CAEP 6262 Evaluation and Outcomes Assessment of Community, School, and Health-Related Programs	3 SH
CAEP 6301 Planning and Administering Student Affairs	3 SH
CAEP 6303 Financial Aspects of Higher Education	3 SH

YEAR 2, FALL SEMESTER

CAEP 6230 Health Issues in Counseling or Elective	3 SH
CAEP 6302 Law and Ethics in Higher Education	3 SH
CAEP 8402 College Student Development Practicum 1	3 SH

YEAR 2, SPRING SEMESTER

CAEP 6215 Groups: Dynamics and Leadership	3 SH
CAEP 6305 Special Topics in Higher Education	3 SH
CAEP 8403 College Student Development Practicum 2	3 SH

PROGRAM TOTAL CREDITS 42.0 SH

MS in Counseling Psychology—Full-Time Track**YEAR 1, FALL SEMESTER**

CAEP 6200 Introduction to Counseling: Theory and Process in an Ecological Context	3 SH
CAEP 6201 Introduction to Assessment	3 SH
CAEP 6235 Vocational, Education, and Career Development	3 SH
CAEP 6250 Individual Interventions	3 SH
CAEP 6399 Clinical Skills in Counseling Psychology	3 SH

YEAR 1, SPRING SEMESTER

CAEP 6203 Understanding Culture and Diversity	3 SH
CAEP 6242 Psychopathology: Diagnosis and Treatment Planning	3 SH
CAEP 6287 Group Counseling	3 SH
CAEP 8401 Practicum in Counseling Psychology	3 SH

YEAR 1, SUMMER 1 SEMESTER

CAEP 6320 (pending approval)	0 SH
CAEP 6375 Substance Use and Treatment	3 SH

YEAR 2, FALL SEMESTER

CAEP 6220 Development Across the Life Span	3 SH
CAEP 6282 Ethics and Professional Development	3 SH
CAEP 6380 Seminar in Feminist Psychology	3 SH
CAEP 8510 Internship in Counseling Psychology 1	3 SH
Graduate elective	3 SH

YEAR 2, SPRING SEMESTER

CAEP 6202 or PHTH Qualitative Health Research	3 SH
CAEP 6260 Community Counseling Psychology	3 SH
CAEP 8511 Internship in Counseling Psychology 2	3 SH
Graduate elective	3 SH

PROGRAM TOTAL CREDITS 57.0 SH**MS in Counseling Psychology—Part-Time Track****YEAR 1, FALL SEMESTER**

CAEP 6200 Introduction to Counseling: Theory and Process in an Ecological Context	3 SH
CAEP 6250 Individual Interventions	3 SH

YEAR 1, SPRING SEMESTER

CAEP 6203 Understanding Culture and Diversity	3 SH
CAEP 6235 Vocational, Education, and Career Development	3 SH
CAEP 6287 Group Counseling	3 SH

YEAR 1, SUMMER 1 SEMESTER

CAEP 6375 Substance Use and Treatment	3 SH
Graduate elective	3 SH

YEAR 2, FALL SEMESTER

CAEP 6201 Introduction to Assessment	3 SH
CAEP 6282 Ethics and Professional Development	3 SH
CAEP 6399 Clinical Skills in Counseling Psychology	3 SH

YEAR 2, SPRING SEMESTER

CAEP 6242 Psychopathology: Diagnosis and Treatment Planning	3 SH
CAEP 8401 Practicum in Counseling Psychology	3 SH
Graduate elective	3 SH

YEAR 2, SUMMER 1 SEMESTER

CAEP 6202 Research, Evaluation, and Data Analysis	3 SH
Graduate elective	3 SH

YEAR 3, FALL SEMESTER

CAEP 6220 Development Across the Life Span	3 SH
CAEP 6380 Seminar in Feminist Psychology	3 SH
CAEP 8510 Internship in Counseling Psychology 1	3 SH

YEAR 3, SPRING SEMESTER

CAEP 6260 Community Counseling Psychology	3 SH
CAEP 8511 Internship in Counseling Psychology 2	3 SH

PROGRAM TOTAL CREDITS 60.0 SH**MS in School Counseling****YEAR 1, FALL SEMESTER**

CAEP 6200 Introduction to Counseling: Theory and Process in an Ecological Context	3 SH
CAEP 6201 Introduction to Assessment	3 SH
CAEP 6218 Infant, Child, and Adolescent Development	3 SH
CAEP 6287 Group Counseling	3 SH

YEAR 1, SPRING SEMESTER

CAEP 6235 Vocational, Education, and Career Development	3 SH
CAEP 6275 Counseling Strategies for Children and Adolescents	3 SH
CAEP 6340 Issues in School Counseling	3 SH
CAEP 6345 Learning Problems: Educational, Biological, and Ecological Perspectives	3 SH

YEAR 2, FALL SEMESTER

CAEP 6203 Understanding Culture and Diversity	3 SH
CAEP 8410 School Counseling Practicum 1	3 SH

YEAR 2, SPRING SEMESTER

CAEP 6202 Research, Evaluation, and Data Analysis	3 SH
CAEP 8411 School Counseling Practicum 2	3 SH

PROGRAM TOTAL CREDITS 36.0 SH**MS/Certificate of Advanced Graduate Studies in School Psychology—With Early Intervention****YEAR 1, FALL SEMESTER**

CAEP 5150 Early Intervention: Family Systems	3 SH
CAEP 6201 Introduction to Assessment	3 SH
CAEP 6206 Learning Principles	3 SH
CAEP 6218 Infant, Child, and Adolescent Development	3 SH
CAEP 8425 Early Intervention Practicum 1	2 SH

YEAR 1, SPRING SEMESTER

CAEP 6203 Understanding Culture and Diversity	3 SH
CAEP 6247 Child and Adolescent Psychopathology	3 SH
CAEP 6335 Applied Programming Seminar 2	3 SH
CAEP 6347 Behavior Management	3 SH
CAEP 6350 Introduction to Cognitive Assessment	3 SH
CAEP 8426 Early Intervention Practicum 2	2 SH

YEAR 1, SUMMER 1 SEMESTER

CAEP 6202 Research, Evaluation, and Data Analysis	3 SH
CAEP 6226 Neuropsychological and Ecological Perspectives on Cognitive Assessment	3 SH
CAEP 6400 Prepracticum in School Psychology	1 SH

YEAR 1, SUMMER 2 SEMESTER

CAEP 6399 Clinical Skills in Counseling Psychology	3 SH
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YEAR 2, FALL SEMESTER

CAEP 6352 Personality Assessment	3 SH
CAEP 6353 Curriculum-Based Assessment and Instruction	3 SH
CAEP 6365 Seminar in School Psychology	3 SH
CAEP 8415 Practicum in School Psychology 1	2 SH

YEAR 2, SPRING SEMESTER

CAEP 6345 Learning Problems: Educational, Biological, and Ecological Perspectives	3 SH
CAEP 6355 School-Based Counseling	3 SH
CAEP 6360 Consultation and Program Evaluation	3 SH
CAEP 8416 Practicum in School Psychology 2	2 SH

YEAR 3, FALL SEMESTER

CAEP 8501 Internship in School Psychology 1	3 SH
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YEAR 3, SPRING SEMESTER

CAEP 8502 Internship in School Psychology 2	3 SH
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PROGRAM TOTAL CREDITS **69.0 SH**

MS/Certificate of Advanced Graduate Studies in School Psychology—Without Early Intervention**YEAR 1, FALL SEMESTER**

CAEP 6201 Introduction to Assessment	3 SH
CAEP 6206 Learning Principles	3 SH
CAEP 6218 Infant, Child, and Adolescent Development	3 SH
CAEP 6365 Seminar in School Psychology	3 SH

YEAR 1, SPRING SEMESTER

CAEP 6203 Understanding Culture and Diversity	3 SH
CAEP 6247 Child and Adolescent Psychopathology	3 SH
CAEP 6347 Behavior Management	3 SH
CAEP 6350 Introduction to Cognitive Assessment	3 SH

YEAR 1, SUMMER 1 SEMESTER

CAEP 6226 Neuropsychological and Ecological Perspectives on Cognitive Assessment	3 SH
CAEP 6240 Family, School, and Community Systems	3 SH
CAEP 6400 Prepracticum in School Psychology	1 SH

YEAR 1, SUMMER 2 SEMESTER

CAEP 6399 Clinical Skills in Counseling Psychology	3 SH
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YEAR 2, FALL SEMESTER

CAEP 6202 Research, Evaluation, and Data Analysis	3 SH
CAEP 6352 Personality Assessment	3 SH
CAEP 6353 Curriculum-Based Assessment and Instruction	3 SH
CAEP 8415 Practicum in School Psychology 1	2 SH

YEAR 2, SPRING SEMESTER

CAEP 6345 Learning Problems: Educational, Biological, and Ecological Perspectives	3 SH
CAEP 6355 School-Based Counseling	3 SH
CAEP 6360 Consultation and Program Evaluation	3 SH
CAEP 8416 Practicum in School Psychology 2	2 SH

YEAR 3, FALL SEMESTER

CAEP 8501 Internship in School Psychology 1	3 SH
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YEAR 3, SPRING SEMESTER

CAEP 8502 Internship in School Psychology 2	3 SH
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PROGRAM TOTAL CREDITS **62.0 SH**

PhD in Counseling Psychology**GENERAL REQUIREMENTS**

Basic core list	15 SH
Clinical core list	29 SH
Elective core list	3 SH
Professional core list	6 SH
Research core list	9 SH

PROGRAM TOTAL CREDITS **62.0 SH**

BASIC CORE LIST

CAEP 6390 History and Systems of Psychology	3 SH
CAEP 6394 Advanced Multicultural Psychology	3 SH
CAEP 7750 Biological Bases of Behavior	3 SH
CAEP 7755 Cognitive and Affective Bases of Behavior	3 SH
CAEP 7756 Social Psychology in an Organizational and Ecological Context	3 SH

CLINICAL CORE LIST

CAEP 6350 Introduction to Cognitive Assessment	3 SH
CAEP 6352 Personality Assessment	3 SH
CAEP 7720 Advanced Clinical Interventions	3 SH
CAEP 7723 Rorschach	3 SH
CAEP 7741 Advanced Fieldwork 1	2 SH
CAEP 7742 Advanced Fieldwork 2	2 SH
CAEP 7743 Advanced Fieldwork 3	2 SH
CAEP 7744 Advanced Fieldwork 4	2 SH
CAEP 7758 Doctoral Seminar in Contemporary Theories of Psychotherapy	3 SH
CAEP 7778 Doctoral Seminar: Leadership, Consultation, and Supervision	3 SH
CAEP 7798 Doctoral Internship 1	2 SH
CAEP 7799 Doctoral Internship 2	2 SH

ELECTIVE CORE LIST

CAEP 7751 Advanced Clinical Neuropsychology 3 SH

PROFESSIONAL CORE LIST

CAEP 7701 Doctoral Seminar in Counseling Psychology 0 to 1 SH

CAEP 7732 Legal and Ethical Issues in Community and Educational Settings 3 SH

RESEARCH CORE LIST

CAEP 7711 Measurement: Advanced Psychometric Principles 3 SH

CAEP 7712 Intermediate Statistical Data Analysis Techniques 3 SH

CAEP 7716 Advanced Research and Data Analyses 2 3 SH

CAEP 9990 Dissertation 0 SH

CAEP 9996 Dissertation Continuation 0 SH

PhD in School Psychology**YEAR 1, FALL SEMESTER**

CAEP 6206 Learning Principles 3 SH

CAEP 6218 Infant, Child, and Adolescent Development 3 SH

CAEP 6365 Seminar in School Psychology 3 SH

CAEP 7711 Measurement: Advanced Psychometric Principles 3 SH

CAEP 7771 Research Team Experience 1 1 SH

YEAR 1, SPRING SEMESTER

CAEP 6347 Behavior Management 3 SH

CAEP 6350 Introduction to Cognitive Assessment 3 SH

CAEP 7712 Intermediate Statistical Data Analysis Techniques 3 SH

CAEP 7772 Research Team Experience 2 1 SH

YEAR 1, SUMMER 1 SEMESTER

CAEP 6240 Family, School, and Community Systems 3 SH

CAEP 6400 Prepracticum in School Psychology 1 SH

YEAR 1, SUMMER 2 SEMESTER

CAEP 6399 Clinical Skills in Counseling Psychology 3 SH

YEAR 2, FALL SEMESTER

CAEP 6352 Personality Assessment 3 SH

CAEP 6353 Curriculum-Based Assessment and Instruction 3 SH

CAEP 7715 Advanced Research and Data Analyses 1 3 SH

CAEP 7773 Research Team Experience 3 1 SH

CAEP 8415 Practicum in School Psychology 1 2 SH

YEAR 2, SPRING SEMESTER

CAEP 6345 Learning Problems: Educational, Biological, and Ecological Perspectives 3 SH

CAEP 6355 School-Based Counseling 3 SH

CAEP 7716 Advanced Research and Data Analyses 2 3 SH

CAEP 7774 Research Team Experience 4 1 SH

CAEP 8416 Practicum in School Psychology 2 2 SH

YEAR 3, FALL SEMESTER

CAEP 6390 or CAEP 6394 3 SH

CAEP 7741 Advanced Fieldwork 1 2 SH

CAEP 7750 or CAEP 7756 3 SH

CAEP 7755 Cognitive and Affective Bases of Behavior 3 SH

CAEP 7775 Research Team Experience 5 1 SH

YEAR 3, SPRING SEMESTER

CAEP 6247 Child and Adolescent Psychopathology 3 SH

CAEP 6360 Consultation and Program Evaluation 3 SH

CAEP 6722 or CAEP 7752 3 SH

CAEP 7742 Advanced Fieldwork 2 2 SH

CAEP 7776 Research Team Experience 6 1 SH

YEAR 4, FALL SEMESTER

CAEP 6390 or CAEP 6394 3 SH

CAEP 7743 Advanced Fieldwork 3 2 SH

CAEP 7750 or CAEP 7756 3 SH

CAEP 7778 Doctoral Seminar: Leadership, Consultation, and Supervision 3 SH

CAEP 9990 Dissertation 0 SH

YEAR 4, SPRING SEMESTER

CAEP 6722 or CAEP 7752 3 SH

CAEP 7732 Legal and Ethical Issues in Community and Educational Settings 3 SH

CAEP 7744 Advanced Fieldwork 4 2 SH

CAEP 7778 Doctoral Seminar: Leadership, Consultation, and Supervision 3 SH

YEAR 5, FALL SEMESTER

CAEP 7798 Doctoral Internship 1 2 SH

YEAR 5, SPRING SEMESTER

CAEP 7799 Doctoral Internship 2 2 SH

PROGRAM TOTAL CREDITS**104.0 SH**

HEALTH SCIENCESwww.northeastern.edu/bouve/hs

CARMEN SCEPPA, MD, PhD

*Associate Professor and Interim Chair,**Department of Health Sciences*

316 Robinson Hall

617.373.3666

617.373.2968 (fax)

Carmen Sceppa, *Associate Professor and Interim Chair,*

c.sceppa@neu.edu

Welcome to the Department of Health Sciences at the Bouvé College of Health Sciences at Northeastern University. Our department provides a unique, transdisciplinary setting that incorporates academics, research, and practice and seeks to prepare students for a wide range of career paths. We offer an engaging undergraduate academic program in health sciences as well as graduate degree programs, including the Master of Public Health, focusing in urban health, and Master of Science in Exercise Science with Concentration in Physical Activity and Public Health.

Our diverse faculty has expertise in the fields of population health, health disparities, nutritional epidemiology, social epidemiology, exercise science, medical sociology, public policy, personal health technologies, neurodevelopmental disorders, and mental health. Students have the opportunity to work side by side with faculty in conducting cutting-edge research in these fields. We also have research staff highly skilled in providing unique, specialized dietary assessment services.

In line with Northeastern's commitment to interdisciplinary research and urban engagement, we teach and work closely with many other schools, centers, and departments in the university, including the Institute on Urban Health Research (IUHR), the Center for Community Health Education Research and Service (CCHERS), and our National Institutes of Health- (NIH) funded Center for Population Health and Health Disparities (CPHHD), as well as community agencies and neighborhood health centers in the local Boston area.

MS in Exercise Science with Concentration in Physical Activity and Public Health

CREDIT REQUIREMENT

36 semester hours required

YEAR 1, FALL SEMESTER

EXSC 5200 Cardiopulmonary Physiology	3 SH
PHTH 5202 Epidemiology	3 SH
PHTH 5540 Health Education and Program Planning	3 SH

YEAR 1, SPRING SEMESTER

EXSC 5210 Physical Activity and Exercise: Prescription, Measurement, and Testing	3 SH
EXSC 5220 Advanced Exercise Physiology	3 SH
Public health and/or nutrition elective	3 SH

YEAR 2, FALL SEMESTER

EXSC 6233 Exercise in Musculoskeletal Disease	3 SH
PHTH 5210 Biostatistics in Public Health	3 SH
PHTH 5212 Public Health Administration and Policy	3 SH

YEAR 2, SPRING SEMESTER

EXSC TBA Research Practicum	3 SH
Two public health and/or nutrition electives	6 SH

PROGRAM TOTAL CREDITS**36.0 SH****MPH in Urban Health****CREDIT REQUIREMENT**

42 semester hours required

YEAR 1, FALL SEMESTER

PHTH 5202 Epidemiology	3 SH
PHTH 5210 Biostatistics in Public Health	3 SH
PHTH 5212 Public Health Administration and Policy	3 SH
PHTH 6204 Society, Behavior, and Health	3 SH

YEAR 1, SPRING SEMESTER

PHTH 5120 Race, Ethnicity, and Health in the U.S.	3 SH
PHTH 5214 Environmental Health	3 SH
PHTH 6200 Principles and History of Urban Health	3 SH
PHTH 6208 Urban Community Health Assessment	3 SH
PHTH 6901 Capstone 1	1 SH

YEAR 2, FALL SEMESTER

1 MPH or other approved elective	3 SH
PHTH 5540 or POLS 7318	3 SH
PHTH 6966 Public Health Practicum	3 SH

YEAR 2, SPRING SEMESTER

2 MPH or other approved electives	6 SH
PHTH 6902 Capstone 2	2 SH

PROGRAM TOTAL CREDITS**42.0 SH**

SCHOOL OF NURSING

www.northeastern.edu/bouve/nursing

CAROLE A. KENNER, PhD, RNC-NIC, FAAN

Professor and Dean

SUSAN J. ROBERTS, DNSC, RN, ANP, FNP

*Professor and Interim Assistant Dean
of Graduate Programs*

211 Robinson Hall

617.373.3521

617.373.2985 (fax)

Susan McDonald, *Administrative Coordinator, Academic
Programs*, s.mcdonald@neu.edu

This is an exciting time in healthcare and nursing in particular. According to a recent Gallup Poll, the public ranks nursing as the “most ethical” profession. In the newly enacted healthcare legislation passed by Congress, nurses are considered the critical backbone and life force of the delivery system. What does that mean for those considering nursing as a profession? It means that as a nurse you will carry an awesome responsibility—to improve the health outcomes of patients and their families. It also means that you must be among the best prepared of health professionals. Excellent preparation is just what we seek to offer.

If you are coming to the School of Nursing to earn a master’s, PhD, or DNP, your learning will be guided by our senior faculty, nursing leaders who are expert advance practice nurses in their respective specialty areas. Our affiliation with over 100 institutions means that you and the faculty can select the best place for your clinical rotations. *U.S. News & World Report* ranked our nurse anesthesia graduate program in the top 10 in the United States.

You want to change career pathways? We have the Certificate of Advanced Graduate Studies (CAGS) that facilitates attainment of a specialty track if you already have an advanced nursing degree. You want research? We have excellent nurse researchers who are working to improve patient care and advance nursing knowledge. Come join nursing at its finest. Northeastern University is a school on the move.

Admission Requirement

Prospective students must have a current registered nurse (RN) license to apply to the graduate nursing programs.

BSN/MS Nursing Program

If you are a diploma or associate degree registered nurse, this program offers a pathway to earning a joint degree that combines the baccalaureate and master degrees in two years on a full-time basis or up to five years on a part-time basis. We offer BSN/MS in the following areas:

- Nursing administration
- Acute adult gerontology nurse practitioner
- Neonatal nurse practitioner
- Pediatric nurse practitioner, acute and primary care
- Adult gerontology primary care nurse practitioner
- Family nurse practitioner
- Psychiatric mental health

The curriculum encompasses graduate courses in one of the areas of specialization, the core and foundation courses, and specific courses that address topics such as pathophysiology, cultural diversity, nursing informatics, and public health nursing.

MS in Nursing—Direct Entry

GENERAL REQUIREMENTS

HLTH 5450 Healthcare Research	4 SH
NRSNG 2210 Influences on Health and Illness: A Nursing Perspective	3 SH
NRSNG 2220 Nursing Interventions, Assessment, and Community Care <i>Coreq. NRSNG 2221</i>	3 SH
NRSNG 2221 Lab for NRSNG 2220 <i>Coreq. NRSNG 2220</i>	2 SH
NRSNG 3302 Nursing with Women and Families <i>Coreq. NRSNG 3303</i>	3 SH
NRSNG 3303 Clinical for NRSNG 3302 <i>Coreq. NRSNG 3302</i>	2 SH
NRSNG 3320 Nursing Care of Adults 1 <i>Coreq. NRSNG 3321</i>	4 SH
NRSNG 3321 Clinical for NRSNG 3320 <i>Coreq. NRSNG 3320</i>	2 SH
NRSNG 3323 Intermediate Interventions and Assessment <i>Coreq. NRSNG 3324</i>	1 SH
NRSNG 3324 Lab for NRSNG 3323 <i>Coreq. NRSNG 3323</i>	1 SH
NRSNG 3400 Nursing and the Promotion of Mental Health <i>Coreq. NRSNG 3401</i>	3 SH
NRSNG 3401 Clinical for NRSNG 3400 <i>Coreq. NRSNG 3400</i>	2 SH
NRSNG 3420 Nursing Care of Adults 2 <i>Coreq. NRSNG 3421</i>	4 SH
NRSNG 3421 Clinical for NRSNG 3420 <i>Coreq. NRSNG 3420</i>	2 SH
NRSNG 4502 Nursing Care of the Child <i>Coreq. NRSNG 4503</i>	4 SH
NRSNG 4503 Clinical for NRSNG 4502 <i>Coreq. NRSNG 4502</i>	2 SH
NRSNG 4604 Public Health Community Nursing <i>Coreq. NRSNG 4605</i>	3 SH
NRSNG 4605 Clinical for NRSNG 4604 <i>Coreq. NRSNG 4604</i>	2 SH
NRSNG 4610 Managing and Leading in Healthcare	3 SH
NRSNG 4995 Comprehensive Nursing Practicum	6 SH

NRSNG 5117 Advanced Pharmacology	2 SH
NRSNG 5126 Pathophysiology for Advanced Practice	3 SH
NRSNG 6306 Health Informatics 1	3 SH

PROGRAM TOTAL CREDITS 64.0 SH

MS in Nursing Administration

GENERAL REQUIREMENTS

NRSNG 5118 Healthcare System and Professional Role Development	3 SH
NRSNG 5121 Epidemiology and Population Health	3 SH
NRSNG 6300 Healthcare Finance and Marketing	3 SH
NRSNG 6301 Human Resources and Operations	3 SH
NRSNG 6302 Health Policy and Law	3 SH
NRSNG 6305 Case Management	3 SH
NRSNG 6306 Health Informatics 1	3 SH
NRSNG 6307 Health Informatics 2	3 SH
NRSNG 6311 Program Development and Evaluation	3 SH
NRSNG 6500 Nursing Administration Practicum 1	4 SH
NRSNG 6501 Nursing Administration Practicum 2	4 SH
NRSNG 7105 Translating Research Evidence into Practice	3 SH
NRSNG 7110 Evidence-Based Practice Research Application	2 SH

PROGRAM TOTAL CREDITS 40.0 SH

MS in Nursing Administration (BSN/MS)

GENERAL REQUIREMENTS

NRSNG 5100 Professional Development and Scientific Basis	4 SH
NRSNG 5101 Computer and Nursing Informatics	3 SH
NRSNG 5102 Public Health Nursing	4 SH
NRSNG 5103 Cultural Diversity in Nursing Practice	3 SH
NRSNG 5118 Healthcare System and Professional Role Development	3 SH
NRSNG 5121 Epidemiology and Population Health	3 SH
NRSNG 6300 Healthcare Finance and Marketing	3 SH
NRSNG 6301 Human Resources and Operations	3 SH
NRSNG 6302 Health Policy and Law	3 SH
NRSNG 6305 Case Management	3 SH
NRSNG 6306 Health Informatics 1	3 SH
NRSNG 6307 Health Informatics 2	3 SH
NRSNG 6311 Program Development and Evaluation	3 SH
NRSNG 6500 Nursing Administration Practicum 1	4 SH
NRSNG 6501 Nursing Administration Practicum 2	4 SH
NRSNG 7105 Translating Research Evidence into Practice	3 SH
NRSNG 7110 Evidence-Based Practice Research Application	2 SH
Qualified electives	13 SH

PROGRAM TOTAL CREDITS 67.0 SH

Certificate of Advanced Graduate Studies (CAGS) in Nursing Administration

GENERAL REQUIREMENTS

NRSNG 5121 Epidemiology and Population Health	3 SH
NRSNG 6300 Healthcare Finance and Marketing	3 SH
NRSNG 6301 Human Resources and Operations	3 SH
NRSNG 6302 Health Policy and Law	3 SH
NRSNG 6305 Case Management	3 SH
NRSNG 6306 Health Informatics 1	3 SH
NRSNG 6307 Health Informatics 2	3 SH
NRSNG 6500 Nursing Administration Practicum 1	4 SH
NRSNG 6501 Nursing Administration Practicum 2	4 SH
Graduate elective course	2 SH

PROGRAM TOTAL CREDITS 31.0 SH

MS in Nursing—Neonatal Nurse Practitioner

GENERAL REQUIREMENTS

NRSNG 5118 Healthcare System and Professional Role Development	3 SH
NRSNG 5121 Epidemiology and Population Health	3 SH
NRSNG 6116 Advanced Health Assessment of the Neonate and Infant	3 SH
NRSNG 6230 Nursing Management: Critically Ill Neonatal 1	3 SH
NRSNG 6231 Nursing Management: Critically Ill Neonatal 2	3 SH
NRSNG 6232 Neonatal Pharmacology	2 SH
NRSNG 6430 Neonatal Clinical Practicum 1	4 SH
NRSNG 6431 Neonatal Clinical Practicum 2	4 SH
NRSNG 6432 Neonatal Clinical Practicum 3	2 SH
NRSNG 7105 Translating Research Evidence into Practice	3 SH
NRSNG 7110 Evidence-Based Practice Research Application	2 SH

PROGRAM TOTAL CREDITS 32.0 SH

MS in Nursing—Neonatal Nurse Practitioner (BSN/MS)

GENERAL REQUIREMENTS

NRSNG 5100 Professional Development and Scientific Basis	4 SH
NRSNG 5101 Computer and Nursing Informatics	3 SH
NRSNG 5102 Public Health Nursing	4 SH
NRSNG 5103 Cultural Diversity in Nursing Practice	3 SH
NRSNG 5118 Healthcare System and Professional Role Development	3 SH
NRSNG 5121 Epidemiology and Population Health	3 SH
NRSNG 6116 Advanced Health Assessment of the Neonate and Infant	3 SH
NRSNG 6230 Nursing Management: Critically Ill Neonatal 1	3 SH

NRSg 6231 Nursing Management: Critically Ill Neonatal 2	3 SH
NRSg 6232 Neonatal Pharmacology	2 SH
NRSg 6430 Neonatal Clinical Practicum 1	4 SH
NRSg 6431 Neonatal Clinical Practicum 2	4 SH
NRSg 6432 Neonatal Clinical Practicum 3	2 SH
NRSg 7105 Translating Research Evidence into Practice	3 SH
NRSg 7110 Evidence-Based Practice Research Application	2 SH
Qualifying electives	18 SH

PROGRAM TOTAL CREDITS 64.0 SH

**Certificate of Advanced Graduate Studies (CAGS)—
Neonatal Nurse Practitioner**

GENERAL REQUIREMENTS

NRSg 5117 Advanced Pharmacology	2 SH
NRSg 5126 Pathophysiology for Advanced Practice	3 SH
NRSg 6116 Advanced Health Assessment of the Neonate and Infant	3 SH
NRSg 6230 Nursing Management: Critically Ill Neonatal 1	3 SH
NRSg 6231 Nursing Management: Critically Ill Neonatal 2	3 SH
NRSg 6232 Neonatal Pharmacology	2 SH
NRSg 6430 Neonatal Clinical Practicum 1	4 SH
NRSg 6431 Neonatal Clinical Practicum 2	4 SH
NRSg 6432 Neonatal Clinical Practicum 3	2 SH

PROGRAM TOTAL CREDITS 26.0 SH

**MS in Nursing—Pediatric Nurse Practitioner,
Primary Care**

GENERAL REQUIREMENTS

NRSg 5117 Advanced Pharmacology	2 SH
NRSg 5118 Healthcare System and Professional Role Development	3 SH
NRSg 5121 Epidemiology and Population Health	3 SH
NRSg 5126 Pathophysiology for Advanced Practice	3 SH
NRSg 6115 Health Assessment	3 SH
NRSg 6262 Pediatric Pharmacology	2 SH
NRSg 6264 Care of Well Child/Adolescent Health Promotion	4 SH
NRSg 6265 Care of Child/Adolescent Health Problems	4 SH
NRSg 6275 Urban Families at Risk: A Primary Care Approach	4 SH
NRSg 6460 Care of Well Child/Adolescent Health Promotion Practicum	4 SH
NRSg 6461 Child/Adolescent Health Problems Practicum	4 SH
NRSg 7105 Translating Research Evidence into Practice	3 SH
NRSg 7110 Evidence-Based Practice Research Application	2 SH

PROGRAM TOTAL CREDITS 41.0 SH

**MS in Nursing—Pediatric Nurse Practitioner,
Primary Care (BSN/MS)**

GENERAL REQUIREMENTS

NRSg 5100 Professional Development and Scientific Basis	4 SH
NRSg 5101 Computer and Nursing Informatics	3 SH
NRSg 5102 Public Health Nursing	4 SH
NRSg 5103 Cultural Diversity in Nursing Practice	3 SH
NRSg 5117 Advanced Pharmacology	2 SH
NRSg 5118 Healthcare System and Professional Role Development	3 SH
NRSg 5121 Epidemiology and Population Health	3 SH
NRSg 5126 Pathophysiology for Advanced Practice	3 SH
NRSg 6115 Health Assessment	3 SH
NRSg 6262 Pediatric Pharmacology	2 SH
NRSg 6264 Care of Well Child/Adolescent Health Promotion	4 SH
NRSg 6265 Care of Child/Adolescent Health Problems	4 SH
NRSg 6275 Urban Families at Risk: A Primary Care Approach	4 SH
NRSg 6460 Care of Well Child/Adolescent Health Promotion Practicum	4 SH
NRSg 6461 Child/Adolescent Health Problems Practicum	4 SH
NRSg 7105 Translating Research Evidence into Practice	3 SH
NRSg 7110 Evidence-Based Practice Research Application	2 SH
Graduate electives	12 SH

PROGRAM TOTAL CREDITS 67.0 SH

**Certificate of Advanced Graduate Studies (CAGS)—
Pediatric Nurse Practitioner, Primary Care**

GENERAL REQUIREMENTS

NRSg 5117 Advanced Pharmacology	2 SH
NRSg 5126 Pathophysiology for Advanced Practice	3 SH
NRSg 6115 Health Assessment	3 SH
NRSg 6262 Pediatric Pharmacology	2 SH
NRSg 6264 Care of Well Child/Adolescent Health Promotion	4 SH
NRSg 6265 Care of Child/Adolescent Health Problems	4 SH
NRSg 6275 Urban Families at Risk: A Primary Care Approach	4 SH
NRSg 6460 Care of Well Child/Adolescent Health Promotion Practicum	4 SH
NRSg 6461 Child/Adolescent Health Problems Practicum	4 SH
Graduate elective	2 SH

PROGRAM TOTAL CREDITS 32.0 SH

MS in Nursing—Pediatric Nurse Practitioner, Acute and Primary Care**GENERAL REQUIREMENTS**

CAEP 5151 Early Intervention: Infant and Toddler Development, Risk, and Disability	3 SH
NRSNG 5117 Advanced Pharmacology	2 SH
NRSNG 5118 Healthcare System and Professional Role Development	3 SH
NRSNG 5121 Epidemiology and Population Health	3 SH
NRSNG 5126 Pathophysiology for Advanced Practice	3 SH
NRSNG 6115 Health Assessment	3 SH
NRSNG 6262 Pediatric Pharmacology	2 SH
NRSNG 6264 Care of Well Child/Adolescent Health Promotion	4 SH
NRSNG 6265 Care of Child/Adolescent Health Problems	4 SH
NRSNG 6267 Care of the Critically Ill Child	4 SH
NRSNG 6275 Urban Families at Risk: A Primary Care Approach	4 SH
NRSNG 6460 Care of Well Child/Adolescent Health Promotion Practicum	4 SH
NRSNG 6461 Child/Adolescent Health Problems Practicum	4 SH
NRSNG 6463 Care of the Critically Ill Child Practicum	4 SH
NRSNG 7105 Translating Research Evidence into Practice	3 SH
NRSNG 7110 Evidence-Based Practice Research Application	2 SH

PROGRAM TOTAL CREDITS **52.0 SH**

MS in Nursing—Pediatric Nurse Practitioner, Acute and Primary Care (BSN/MS)**GENERAL REQUIREMENTS**

CAEP 5151 Early Intervention: Infant and Toddler Development, Risk, and Disability	3 SH
NRSNG 5100 Professional Development and Scientific Basis	4 SH
NRSNG 5101 Computer and Nursing Informatics	3 SH
NRSNG 5102 Public Health Nursing	4 SH
NRSNG 5103 Cultural Diversity in Nursing Practice	3 SH
NRSNG 5117 Advanced Pharmacology	2 SH
NRSNG 5118 Healthcare System and Professional Role Development	3 SH
NRSNG 5121 Epidemiology and Population Health	3 SH
NRSNG 5126 Pathophysiology for Advanced Practice	3 SH
NRSNG 6115 Health Assessment	3 SH
NRSNG 6262 Pediatric Pharmacology	2 SH
NRSNG 6264 Care of Well Child/Adolescent Health Promotion	4 SH
NRSNG 6265 Care of Child/Adolescent Health Problems	4 SH
NRSNG 6267 Care of the Critically Ill Child	4 SH
NRSNG 6275 Urban Families at Risk: A Primary Care Approach	4 SH

NRSNG 6460 Care of Well Child/Adolescent Health Promotion Practicum	4 SH
NRSNG 6461 Child/Adolescent Health Problems Practicum	4 SH
NRSNG 6463 Care of the Critically Ill Child Practicum	4 SH
NRSNG 7105 Translating Research Evidence into Practice	3 SH
NRSNG 7110 Evidence-Based Practice Research Application	2 SH
Graduate electives	12 SH

PROGRAM TOTAL CREDITS **78.0 SH**

Certificate of Advanced Graduate Studies (CAGS)—Pediatric Nurse Practitioner, Acute and Primary Care**GENERAL REQUIREMENTS**

CAEP 5151 Early Intervention: Infant and Toddler Development, Risk, and Disability	3 SH
NRSNG 5117 Advanced Pharmacology	2 SH
NRSNG 5126 Pathophysiology for Advanced Practice	3 SH
NRSNG 6115 Health Assessment	3 SH
NRSNG 6262 Pediatric Pharmacology	2 SH
NRSNG 6264 Care of Well Child/Adolescent Health Promotion	4 SH
NRSNG 6265 Care of Child/Adolescent Health Problems	4 SH
NRSNG 6267 Care of the Critically Ill Child	4 SH
NRSNG 6275 Urban Families at Risk: A Primary Care Approach	4 SH
NRSNG 6460 Care of Well Child/Adolescent Health Promotion Practicum	4 SH
NRSNG 6461 Child/Adolescent Health Problems Practicum	4 SH
NRSNG 6463 Care of the Critically Ill Child Practicum	4 SH

PROGRAM TOTAL CREDITS **41.0 SH**

Certificate of Advanced Graduate Studies (CAGS)—Pediatric Nurse Practitioner, Acute Care**GENERAL REQUIREMENTS**

CAEP 5151 Early Intervention: Infant and Toddler Development, Risk, and Disability	3 SH
NRSNG 6262 Pediatric Pharmacology	2 SH
NRSNG 6265 Care of Child/Adolescent Health Problems	4 SH
NRSNG 6267 Care of the Critically Ill Child	4 SH
NRSNG 6461 Child/Adolescent Health Problems Practicum	4 SH
NRSNG 6463 Care of the Critically Ill Child Practicum	4 SH
Graduate elective	2 SH

PROGRAM TOTAL CREDITS **23.0 SH**

MS in Nursing—Family Nurse Practitioner**CLINICAL HOUR REQUIREMENT**

780 clinical hours required

GENERAL REQUIREMENTS

NRSNG 5117 Advanced Pharmacology	2 SH
NRSNG 5118 Healthcare System and Professional Role Development	3 SH
NRSNG 5121 Epidemiology and Population Health	3 SH
NRSNG 5126 Pathophysiology for Advanced Practice	3 SH
NRSNG 6115 Health Assessment	3 SH
NRSNG 6222 Pharmacology of Adults and Older Adults	2 SH
NRSNG 6249 Health Promotion of Adult/Older Adult <i>Coreq.</i> NRSNG 6449	3 SH
NRSNG 6253 Primary Care of Adult/Older Adult Health Problems	4 SH
NRSNG 6255 Family Nurse Practitioner Practicum 1	3 SH
NRSNG 6256 Family Nurse Practitioner Practicum 2	3 SH
NRSNG 6257 Family Nurse Practitioner Practicum 3	3 SH
NRSNG 6262 Pediatric Pharmacology	2 SH
NRSNG 6264 Care of Well Child/Adolescent Health Promotion	4 SH
NRSNG 6265 Care of Child/Adolescent Health Problems	4 SH
NRSNG 6266 Family Theory and Primary Care in the Childbearing Years	4 SH
NRSNG 6449 Health Promotion of Adult/Older Adult Practicum <i>Coreq.</i> NRSNG 6249	1 SH
NRSNG 6450 Adult/Older Adult Practicum 1	4 SH
NRSNG 7105 Translating Research Evidence into Practice	3 SH
NRSNG 7110 Evidence-Based Practice Research Application	2 SH

PROGRAM TOTAL CREDITS 56.0 SH**MS in Nursing—Family Nurse Practitioner (BSN/MS)****GENERAL REQUIREMENTS**

NRSNG 5100 Professional Development and Scientific Basis	4 SH
NRSNG 5101 Computer and Nursing Informatics	3 SH
NRSNG 5102 Public Health Nursing	4 SH
NRSNG 5103 Cultural Diversity in Nursing Practice	3 SH
NRSNG 5117 Advanced Pharmacology	2 SH
NRSNG 5118 Healthcare System and Professional Role Development	3 SH
NRSNG 5121 Epidemiology and Population Health	3 SH
NRSNG 5126 Pathophysiology for Advanced Practice	3 SH
NRSNG 6115 Health Assessment	3 SH
NRSNG 6222 Pharmacology of Adults and Older Adults	2 SH

NRSNG 6249 Health Promotion of Adult/Older Adult <i>Coreq.</i> NRSNG 6449	3 SH
NRSNG 6253 Primary Care of Adult/Older Adult Health Problems	4 SH
NRSNG 6255 Family Nurse Practitioner Practicum 1	3 SH
NRSNG 6256 Family Nurse Practitioner Practicum 2	3 SH
NRSNG 6257 Family Nurse Practitioner Practicum 3	3 SH
NRSNG 6262 Pediatric Pharmacology	2 SH
NRSNG 6264 Care of Well Child/Adolescent Health Promotion	4 SH
NRSNG 6265 Care of Child/Adolescent Health Problems	4 SH
NRSNG 6266 Family Theory and Primary Care in the Childbearing Years	4 SH
NRSNG 6449 Health Promotion of Adult/Older Adult Practicum <i>Coreq.</i> NRSNG 6249	1 SH
NRSNG 6450 Adult/Older Adult Practicum 1	4 SH
NRSNG 7105 Translating Research Evidence into Practice	3 SH
NRSNG 7110 Evidence-Based Practice Research Application	2 SH
Qualified electives	17 SH

PROGRAM TOTAL CREDITS 87.0 SH**Certificate of Advanced Graduate Studies (CAGS)—Primary Care, Family Nurse Practitioner Specialization****GENERAL REQUIREMENTS**

NRSNG 5117 Advanced Pharmacology	2 SH
NRSNG 5126 Pathophysiology for Advanced Practice	3 SH
NRSNG 6115 Health Assessment	3 SH
NRSNG 6222 Pharmacology of Adults and Older Adults	2 SH
NRSNG 6249 Health Promotion of Adult/Older Adult <i>Coreq.</i> NRSNG 6449	3 SH
NRSNG 6253 Primary Care of Adult/Older Adult Health Problems	4 SH
NRSNG 6255 Family Nurse Practitioner Practicum 1	3 SH
NRSNG 6256 Family Nurse Practitioner Practicum 2	3 SH
NRSNG 6257 Family Nurse Practitioner Practicum 3	3 SH
NRSNG 6262 Pediatric Pharmacology	2 SH
NRSNG 6264 Care of Well Child/Adolescent Health Promotion	4 SH
NRSNG 6265 Care of Child/Adolescent Health Problems	4 SH
NRSNG 6266 Family Theory and Primary Care in the Childbearing Years	4 SH
NRSNG 6449 Health Promotion of Adult/Older Adult Practicum <i>Coreq.</i> NRSNG 6249	1 SH
NRSNG 6450 Adult/Older Adult Practicum 1	4 SH

PROGRAM TOTAL CREDITS 45.0 SH

Certificate of Advanced Graduate Studies (CAGS)— Primary Care, Adult Nurse Practitioner Specialization

GENERAL REQUIREMENTS

NRSNG 5117 Advanced Pharmacology	2 SH
NRSNG 5126 Pathophysiology for Advanced Practice	3 SH
NRSNG 6115 Health Assessment	3 SH
NRSNG 6222 Pharmacology of Adults and Older Adults	2 SH
NRSNG 6249 Health Promotion of Adult/Older Adult <i>Coreq.</i> NRSNG 6449	3 SH
NRSNG 6253 Primary Care of Adult/Older Adult Health Problems	4 SH
NRSNG 6254 Primary Care of Adult/Older Adult Complex Patients	4 SH
NRSNG 6449 Health Promotion of Adult/Older Adult Practicum <i>Coreq.</i> NRSNG 6249	1 SH
NRSNG 6450 Adult/Older Adult Practicum 1	4 SH
NRSNG 6451 Adult/Older Adult Practicum 2	4 SH
Graduate elective course	2 SH

PROGRAM TOTAL CREDITS 32.0 SH

MS in Nursing—Nurse Practitioner, Adult-Gerontology

GENERAL REQUIREMENTS

NRSNG 5115 Health Assessment	3 SH
NRSNG 5117 Advanced Pharmacology	2 SH
NRSNG 5118 Healthcare System and Professional Role Development	3 SH
NRSNG 5121 Epidemiology and Population Health	3 SH
NRSNG 5126 Pathophysiology for Advanced Practice	3 SH
NRSNG 6222 Pharmacology of Adults and Older Adults	2 SH
NRSNG 6249 Health Promotion of Adult/Older Adult <i>Coreq.</i> NRSNG 6449	3 SH
NRSNG 6253 Primary Care of Adult/Older Adult Health Problems	4 SH
NRSNG 6254 Primary Care of Adult/Older Adult Complex Patients	4 SH
NRSNG 6449 Health Promotion of Adult/Older Adult Practicum <i>Coreq.</i> NRSNG 6249	1 SH
NRSNG 6450 Adult/Older Adult Practicum 1	4 SH
NRSNG 6451 Adult/Older Adult Practicum 2	4 SH
Elective	2 SH

PROGRAM TOTAL CREDITS 38.0 SH

MS in Nursing—Nurse Practitioner, Adult-Gerontology Primary Care (BSN/MS)

GENERAL REQUIREMENTS

NRSNG 5100 Professional Development and Scientific Basis	4 SH
NRSNG 5101 Computer and Nursing Informatics	3 SH

NRSNG 5102 Public Health Nursing	4 SH
NRSNG 5103 Cultural Diversity in Nursing Practice	3 SH
NRSNG 5117 Advanced Pharmacology	2 SH
NRSNG 5118 Healthcare System and Professional Role Development	3 SH
NRSNG 5121 Epidemiology and Population Health	3 SH
NRSNG 5126 Pathophysiology for Advanced Practice	3 SH
NRSNG 6115 Health Assessment	3 SH
NRSNG 6220 Nursing Management: Acute Episodic Illness <i>Coreq.</i> NRSNG 6420	3 SH
NRSNG 6221 Nursing Management: Critical and Chronic Illness <i>Coreq.</i> NRSNG 6421	3 SH
NRSNG 6222 or NRSNG 6325	2 SH
NRSNG 6241 Acute-Care Concepts in Nursing Practice <i>Coreq.</i> NRSNG 6422	3 SH
NRSNG 6420 Adult-Gerontology Acute-Care Nursing Practicum 1 <i>Coreq.</i> NRSNG 6220	2 SH
NRSNG 6421 Adult-Gerontology Acute-Care Nursing Practicum 2 <i>Coreq.</i> NRSNG 6221	4 SH
NRSNG 6422 Adult-Gerontology Acute-Care Nursing Practicum 3 <i>Coreq.</i> NRSNG 6241	4 SH
NRSNG 7105 Translating Research Evidence into Practice	3 SH
NRSNG 7110 Evidence-Based Practice Research Application	2 SH
Qualified electives	13 SH

PROGRAM TOTAL CREDITS 67.0 SH

MS in Nursing—Nurse Practitioner, Adult-Gerontology Acute Care

GENERAL REQUIREMENTS

NRSNG 5117 Advanced Pharmacology	2 SH
NRSNG 5118 Healthcare System and Professional Role Development	3 SH
NRSNG 5121 Epidemiology and Population Health	3 SH
NRSNG 5126 Pathophysiology for Advanced Practice	3 SH
NRSNG 6115 Health Assessment	3 SH
NRSNG 6220 Nursing Management: Acute Episodic Illness <i>Coreq.</i> NRSNG 6420	3 SH
NRSNG 6221 Nursing Management: Critical and Chronic Illness <i>Coreq.</i> NRSNG 6421	3 SH
NRSNG 6222 or NRSNG 6325	2 SH
NRSNG 6241 Acute-Care Concepts in Nursing Practice <i>Coreq.</i> NRSNG 6422	3 SH

NRSNG 6420 Adult-Gerontology Acute-Care Nursing Practicum 1 <i>Coreq.</i> NRSNG 6220	2 SH
NRSNG 6421 Adult-Gerontology Acute-Care Nursing Practicum 2 <i>Coreq.</i> NRSNG 6221	4 SH
NRSNG 6422 Adult-Gerontology Acute-Care Nursing Practicum 3 <i>Coreq.</i> NRSNG 6241	4 SH
NRSNG 7105 Translating Research Evidence into Practice	3 SH
NRSNG 7110 Evidence-Based Practice Research Application	2 SH
Graduate elective	3 SH

PROGRAM TOTAL CREDITS 43.0 SH

MS in Nursing—Nurse Practitioner, Adult-Gerontology Acute Care (BSN/MS)

GENERAL REQUIREMENTS

NRSNG 5100 Professional Development and Scientific Basis	4 SH
NRSNG 5101 Computer and Nursing Informatics	3 SH
NRSNG 5102 Public Health Nursing	4 SH
NRSNG 5103 Cultural Diversity in Nursing Practice	3 SH
NRSNG 5117 Advanced Pharmacology	2 SH
NRSNG 5118 Healthcare System and Professional Role Development	3 SH
NRSNG 5121 Epidemiology and Population Health	3 SH
NRSNG 5126 Pathophysiology for Advanced Practice	3 SH
NRSNG 6115 Health Assessment	3 SH
NRSNG 6220 Nursing Management: Acute Episodic Illness <i>Coreq.</i> NRSNG 6420	3 SH
NRSNG 6221 Nursing Management: Critical and Chronic Illness <i>Coreq.</i> NRSNG 6421	3 SH
NRSNG 6222 or NRSNG 6325	2 SH
NRSNG 6241 Acute-Care Concepts in Nursing Practice <i>Coreq.</i> NRSNG 6422	3 SH
NRSNG 6420 Adult-Gerontology Acute-Care Nursing Practicum 1 <i>Coreq.</i> NRSNG 6220	2 SH
NRSNG 6421 Adult-Gerontology Acute-Care Nursing Practicum 2 <i>Coreq.</i> NRSNG 6221	4 SH
NRSNG 6422 Adult-Gerontology Acute-Care Nursing Practicum 3 <i>Coreq.</i> NRSNG 6241	4 SH
NRSNG 7105 Translating Research Evidence into Practice	3 SH
NRSNG 7110 Evidence-Based Practice Research Application	2 SH
Qualified electives	13 SH

PROGRAM TOTAL CREDITS 67.0 SH

Certificate of Advanced Graduate Studies (CAGS)—Adult-Gerontology Acute-Care Nurse Practitioner Specialization

GENERAL REQUIREMENTS

NRSNG 6220 Nursing Management: Acute Episodic Illness <i>Coreq.</i> NRSNG 6420	3 SH
NRSNG 6221 Nursing Management: Critical and Chronic Illness <i>Coreq.</i> NRSNG 6421	3 SH
NRSNG 6241 Acute-Care Concepts in Nursing Practice <i>Coreq.</i> NRSNG 6422	3 SH
NRSNG 6420 Adult-Gerontology Acute-Care Nursing Practicum 1 <i>Coreq.</i> NRSNG 6220	2 SH
NRSNG 6421 Adult-Gerontology Acute-Care Nursing Practicum 2 <i>Coreq.</i> NRSNG 6221	4 SH
NRSNG 6422 Adult-Gerontology Acute-Care Nursing Practicum 3 <i>Coreq.</i> NRSNG 6241	4 SH
Electives	5 SH

PROGRAM TOTAL CREDITS 24.0 SH

MS in Nursing—Family Psychiatric NP

GENERAL REQUIREMENTS

NRSNG 5117 Advanced Pharmacology	2 SH
NRSNG 5118 Healthcare System and Professional Role Development	3 SH
NRSNG 5121 Epidemiology and Population Health	3 SH
NRSNG 5126 Pathophysiology for Advanced Practice	3 SH
NRSNG 6115 Health Assessment	3 SH
NRSNG 6281 Dimensions of Clinical Practice	3 SH
NRSNG 6282 Clinical Psychopharmacology	3 SH
NRSNG 6283 Psychobiological Bases of Mental Disorders	3 SH
NRSNG 6286 Contemporary Psychotherapies—Theory and Practice	3 SH
NRSNG 6480 Psychiatric Practicum across the Life Span 1	5 SH
NRSNG 6481 Psychiatric Practicum across the Life Span 2	5 SH
NRSNG 7105 Translating Research Evidence into Practice	3 SH
NRSNG 7110 Evidence-Based Practice Research Application	2 SH
Elective	2 SH

PROGRAM TOTAL CREDITS 43.0 SH

MS in Nursing—Family Psychiatric NP (BSN/MS)**GENERAL REQUIREMENTS**

NRSG 5100 Professional Development and Scientific Basis	4 SH
NRSG 5101 Computer and Nursing Informatics	3 SH
NRSG 5102 Public Health Nursing	4 SH
NRSG 5103 Cultural Diversity in Nursing Practice	3 SH
NRSG 5117 Advanced Pharmacology	2 SH
NRSG 5118 Healthcare System and Professional Role Development	3 SH
NRSG 5121 Epidemiology and Population Health	3 SH
NRSG 5126 Pathophysiology for Advanced Practice	3 SH
NRSG 6115 Health Assessment	3 SH
NRSG 6281 Dimensions of Clinical Practice	3 SH
NRSG 6282 Clinical Psychopharmacology	3 SH
NRSG 6283 Psychobiological Bases of Mental Disorders	3 SH
NRSG 6286 Contemporary Psychotherapies—Theory and Practice	3 SH
NRSG 6480 Psychiatric Practicum across the Life Span 1	5 SH
NRSG 6481 Psychiatric Practicum across the Life Span 2	5 SH
NRSG 7105 Translating Research Evidence into Practice	3 SH
NRSG 7110 Evidence-Based Practice Research Application	2 SH
Graduate electives	12 SH

PROGRAM TOTAL CREDITS 67.0 SH**Certificate of Advanced Graduate Studies (CAGS) — Family Psychiatric NP****GENERAL REQUIREMENTS**

NRSG 6281 Dimensions of Clinical Practice	3 SH
NRSG 6282 Clinical Psychopharmacology	3 SH
NRSG 6283 Psychobiological Bases of Mental Disorders	3 SH
NRSG 6286 Contemporary Psychotherapies—Theory and Practice	3 SH
NRSG 6480 Psychiatric Practicum across the Life Span 1	5 SH
NRSG 6481 Psychiatric Practicum across the Life Span 2	5 SH
Graduate electives	2 SH

PROGRAM TOTAL CREDITS 24.0 SH**MS in Nursing with Concentration in Nurse Anesthesia****GENERAL REQUIREMENTS**

NRSG 5117 Advanced Pharmacology	2 SH
NRSG 5118 Healthcare System and Professional Role Development	3 SH
NRSG 5121 Epidemiology and Population Health	3 SH
NRSG 5126 Pathophysiology for Advanced Practice	3 SH
NRSG 6115 Health Assessment	3 SH
NRSG 6320 Role/Practice Issues in Nurse Anesthesia	3 SH
NRSG 6321 Conceptual Basis of Nurse Anesthesia Practice 1 <i>Coreq.</i> NRSG 6530	3 SH
NRSG 6322 Conceptual Basis of Nurse Anesthesia Practice 2 <i>Coreq.</i> NRSG 6534	3 SH
NRSG 6324 Chemistry and Physics in Anesthesia	3 SH
NRSG 6325 Pharmacotherapeutics in Anesthesia and Critical Care Nursing	2 SH
NRSG 6333 Conceptual Basis of Nurse Anesthesia Practice 3 <i>Coreq.</i> NRSG 6535	3 SH
NRSG 6336 Advanced Concepts in Nurse Anesthesia Practice <i>Coreq.</i> NRSG 6540	3 SH
NRSG 6530 Nurse Anesthesia Practicum 1 <i>Coreq.</i> NRSG 6321	2 SH
NRSG 6534 Nurse Anesthesia Practicum 2 <i>Coreq.</i> NRSG 6322	4 SH
NRSG 6535 Nurse Anesthesia Practicum 3 <i>Coreq.</i> NRSG 6333	4 SH
NRSG 6540 Advanced Clinical Experiences in Nurse Anesthesia 1 <i>Coreq.</i> NRSG 6336	1 SH
NRSG 6541 Advanced Clinical Experiences in Nurse Anesthesia 2	1 SH
NRSG 6542 Advanced Clinical Experiences in Nurse Anesthesia 3	1 SH
NRSG 7105 Translating Research Evidence into Practice	3 SH
NRSG 7110 Evidence-Based Practice Research Application	2 SH
Clinical elective	2 SH

PROGRAM TOTAL CREDITS 54.0 SH

MS in Nursing with Concentration in Nurse Anesthesia (CRNA)

YEAR 1, FALL SEMESTER

NRSG 5170 Statistics in Nursing	2 SH
NRSG 5174 Clinical Anatomy and Physiology 2 for Nurse Anesthesia	5 SH
NRSG 5176 Theoretical and Research Applications in Nurse Anesthesia	3 SH
NRSG 6374 Fundamentals of Nurse Anesthesia 1	6 SH

YEAR 1, SUMMER FULL SEMESTER

NRSG 5172 Clinical Anatomy and Physiology 1 for Nurse Anesthesia	6 SH
NRSG 5178 Information Systems in Advanced Nursing Practice	2 SH
NRSG 5184 Biochemistry for Nurse Anesthesia	4 SH
NRSG 6369 Pharmacology for Nurse Anesthesia 1	5 SH

YEAR 2, FALL SEMESTER

NRSG 6570 Nurse Anesthesia Role Practicum 1	12 SH
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YEAR 2, SPRING SEMESTER

NRSG 5180 Evaluation and Application of Research in Advanced Nursing Practice	4 SH
NRSG 5182 Physical Examination and Differential Diagnosis	4 SH
NRSG 6372 Professional Aspects of Nurse Anesthesia Practice	3 SH
NRSG 6377 Fundamentals of Nurse Anesthesia 2	6 SH

YEAR 2, SUMMER FULL SEMESTER

NRSG 6371 Pharmacology for Nurse Anesthesia 2	4 SH
NRSG 6378 Fundamentals of Nurse Anesthesia 3	6 SH

YEAR 3, FALL SEMESTER

NRSG 6572 Nurse Anesthesia Clinical Practicum 1	10 SH
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YEAR 3, SPRING SEMESTER

NRSG 6576 Nurse Anesthesia Clinical Practicum 2	10 SH
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YEAR 3, SUMMER FULL SEMESTER

NRSG 6574 Nurse Anesthesia Role Practicum 2	12 SH
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PROGRAM TOTAL CREDITS 104.0 SH

MS in Nursing with Concentration in Nurse Anesthesia (CRNA) Completion Program

GENERAL REQUIREMENTS

NRSG 5118 Healthcare System and Professional Role Development	3 SH
NRSG 5121 Epidemiology and Population Health	3 SH
NRSG 5126 Pathophysiology for Advanced Practice	3 SH
NRSG 6115 Health Assessment	3 SH
NRSG 6320 Role/Practice Issues in Nurse Anesthesia	3 SH
NRSG 6324 Chemistry and Physics in Anesthesia	3 SH
NRSG 6325 Pharmacotherapeutics in Anesthesia and Critical Care Nursing	2 SH

NRSG 7105 Translating Research Evidence into Practice	3 SH
NRSG 7110 Evidence-Based Practice Research Application	2 SH

PROGRAM TOTAL CREDITS 25.0 SH

Certificate of Advanced Graduate Studies (CAGS) in Nurse Anesthesia

GENERAL REQUIREMENTS

NRSG 5117 Advanced Pharmacology	2 SH
NRSG 5126 Pathophysiology for Advanced Practice	3 SH
NRSG 6115 Health Assessment	3 SH
NRSG 6320 Role/Practice Issues in Nurse Anesthesia	3 SH
NRSG 6321 Conceptual Basis of Nurse Anesthesia Practice 1 <i>Coreq.</i> NRSG 6530	3 SH
NRSG 6322 Conceptual Basis of Nurse Anesthesia Practice 2 <i>Coreq.</i> NRSG 6534	3 SH
NRSG 6324 Chemistry and Physics in Anesthesia	3 SH
NRSG 6325 Pharmacotherapeutics in Anesthesia and Critical Care Nursing	2 SH
NRSG 6333 Conceptual Basis of Nurse Anesthesia Practice 3 <i>Coreq.</i> NRSG 6535	3 SH
NRSG 6336 Advanced Concepts in Nurse Anesthesia Practice <i>Coreq.</i> NRSG 6540	3 SH
NRSG 6530 Nurse Anesthesia Practicum 1 <i>Coreq.</i> NRSG 6321	2 SH
NRSG 6534 Nurse Anesthesia Practicum 2 <i>Coreq.</i> NRSG 6322	4 SH
NRSG 6535 Nurse Anesthesia Practicum 3 <i>Coreq.</i> NRSG 6333	4 SH
NRSG 6540 Advanced Clinical Experiences in Nurse Anesthesia 1 <i>Coreq.</i> NRSG 6336	1 SH
NRSG 6541 Advanced Clinical Experiences in Nurse Anesthesia 2	1 SH
NRSG 6542 Advanced Clinical Experiences in Nurse Anesthesia 3	1 SH

PROGRAM TOTAL CREDITS 41.0 SH

MS/MBA in Nursing

GENERAL REQUIREMENTS

ACCT 6200 Financial Reporting and Managerial Decision Making 1	3 SH
ACCT 6201 Financial Reporting and Managerial Decision Making 2	1.5 SH
ENTR 6200 Enterprise Growth and Innovation	3 SH
FINA 6200 Value Creation through Financial Decision Making	3 SH

INTB 6200 Managing the Global Enterprise	3 SH	NRSG 6302 Health Policy and Law	3 SH
MECN 6200 Global Competition and Market Dominance	3 SH	NRSG 6306 Health Informatics 1	3 SH
MGSC 6200 Information Analysis	3 SH	NRSG 6369 Pharmacology for Nurse Anesthesia 1	5 SH
MGSC 6206 Management of Service and Manufacturing Operations	3 SH	NRSG 6371 Pharmacology for Nurse Anesthesia 2	4 SH
MKTG 6200 Creating and Sustaining Customer Markets	3 SH	NRSG 6372 Professional Aspects of Nurse Anesthesia Practice	3 SH
NRSG 5118 Healthcare System and Professional Role Development	3 SH	NRSG 6374 Fundamentals of Nurse Anesthesia 1	6 SH
NRSG 5121 Epidemiology and Population Health	3 SH	NRSG 6377 Fundamentals of Nurse Anesthesia 2	6 SH
NRSG 5124 Research Applications	1 SH	NRSG 6378 Fundamentals of Nurse Anesthesia 3	6 SH
NRSG 6301 Human Resources and Operations	3 SH	NRSG 6570 Nurse Anesthesia Role Practicum 1	12 SH
NRSG 6302 Health Policy and Law	3 SH	NRSG 6572 Nurse Anesthesia Clinical Practicum 1	10 SH
NRSG 6303 Nursing and Business	2 SH	NRSG 6574 Nurse Anesthesia Role Practicum 2	12 SH
NRSG 6304 Healthcare Informatics	4 SH	NRSG 6576 Nurse Anesthesia Clinical Practicum 2	10 SH
NRSG 6305 Case Management	3 SH	NRSG 7100 Leadership in Advanced Practice Nursing	3 SH
NRSG 6500 Nursing Administration Practicum 1	4 SH	NRSG 7105 Translating Research Evidence into Practice	3 SH
NRSG 6501 Nursing Administration Practicum 2	4 SH	NRSG 7915 Capstone 1	3 SH
NRSG 6502 Healthcare Informatics Practicum	2 SH	NRSG 7917 Capstone 2	6 SH
NRSG 7105 Translating Research Evidence into Practice	3 SH	PROGRAM TOTAL CREDITS	122.0 SH
STRT 6200 Strategic Decision-Making in a Changing Environment	3 SH		
Graduate business specialization electives	5 SH		
PROGRAM TOTAL CREDITS	68.5 SH		

DNP—Doctor of Nursing Practice, Post-Master's

GENERAL REQUIREMENTS

NRSG 5121 Epidemiology and Population Health	3 SH	NRSG 7709 Qualitative Research Methods	3 SH
NRSG 6300 Healthcare Finance and Marketing	3 SH	NRSG 7712 Quantitative Research Methods	3 SH
NRSG 6302 Health Policy and Law	3 SH	NRSG 7715 Measurement in Clinical Research	3 SH
NRSG 6306 Health Informatics 1	3 SH	NRSG 7750 Healthcare of Urban Populations	3 SH
NRSG 7100 Leadership in Advanced Practice Nursing	3 SH	NRSG 7770 Research Colloquium	1 SH
NRSG 7105 Translating Research Evidence into Practice	3 SH	NRSG 7781 Lab for NRSG 7780	1 SH
NRSG 7915 Capstone 1	3 SH	NRSG 7782 Multiple Regression Analysis in Health Sciences	3 SH
NRSG 7917 Capstone 2	6 SH	NRSG 9845 Dissertation Seminar 1	3 SH
Graduate elective	3 SH	NRSG 9846 Dissertation Seminar 2	3 SH
PROGRAM TOTAL CREDITS	30.0 SH	NRSG 9990 Dissertation	2 SH
		Two graduate electives	6 SH
		Research practicum electives	6 SH
		PROGRAM TOTAL CREDITS	46.0 SH

DNP with Concentration in Nurse Anesthesia (CRNA)

GENERAL REQUIREMENTS

NRSG 5121 Epidemiology and Population Health	3 SH	GENERAL REQUIREMENTS	
NRSG 5170 Statistics in Nursing	2 SH	LPSC 7305 Research and Statistical Methods	3 SH
NRSG 5172 Clinical Anatomy and Physiology 1 for Nurse Anesthesia	6 SH	NRSG 5117 Advanced Pharmacology	2 SH
NRSG 5174 Clinical Anatomy and Physiology 2 for Nurse Anesthesia	5 SH	NRSG 5121 Epidemiology and Population Health	3 SH
NRSG 5182 Physical Examination and Differential Diagnosis	4 SH	NRSG 5126 Pathophysiology for Advanced Practice	3 SH
NRSG 5184 Biochemistry for Nurse Anesthesia	4 SH	NRSG 7700 The Science of Nursing	3 SH
NRSG 6300 Healthcare Finance and Marketing	3 SH	NRSG 7706 Design and Methods for Clinical Nursing Research	3 SH
		NRSG 7709 Qualitative Research Methods	3 SH
		NRSG 7712 Quantitative Research Methods	3 SH

		NRSG 6302 Health Policy and Law	3 SH
		NRSG 6306 Health Informatics 1	3 SH
		NRSG 6369 Pharmacology for Nurse Anesthesia 1	5 SH
		NRSG 6371 Pharmacology for Nurse Anesthesia 2	4 SH
		NRSG 6372 Professional Aspects of Nurse Anesthesia Practice	3 SH
		NRSG 6374 Fundamentals of Nurse Anesthesia 1	6 SH
		NRSG 6377 Fundamentals of Nurse Anesthesia 2	6 SH
		NRSG 6378 Fundamentals of Nurse Anesthesia 3	6 SH
		NRSG 6570 Nurse Anesthesia Role Practicum 1	12 SH
		NRSG 6572 Nurse Anesthesia Clinical Practicum 1	10 SH
		NRSG 6574 Nurse Anesthesia Role Practicum 2	12 SH
		NRSG 6576 Nurse Anesthesia Clinical Practicum 2	10 SH
		NRSG 7100 Leadership in Advanced Practice Nursing	3 SH
		NRSG 7105 Translating Research Evidence into Practice	3 SH
		NRSG 7915 Capstone 1	3 SH
		NRSG 7917 Capstone 2	6 SH
		PROGRAM TOTAL CREDITS	122.0 SH

PhD in Nursing—Advanced Degree Entrance

GENERAL REQUIREMENTS

LPSC 7305 Research and Statistical Methods	3 SH
NRSG 7700 The Science of Nursing	3 SH
NRSG 7706 Design and Methods for Clinical Nursing Research	3 SH
NRSG 7709 Qualitative Research Methods	3 SH
NRSG 7712 Quantitative Research Methods	3 SH
NRSG 7715 Measurement in Clinical Research	3 SH
NRSG 7750 Healthcare of Urban Populations	3 SH
NRSG 7770 Research Colloquium	1 SH
NRSG 7781 Lab for NRSG 7780	1 SH
NRSG 7782 Multiple Regression Analysis in Health Sciences	3 SH
NRSG 9845 Dissertation Seminar 1	3 SH
NRSG 9846 Dissertation Seminar 2	3 SH
NRSG 9990 Dissertation	2 SH
Two graduate electives	6 SH
Research practicum electives	6 SH
PROGRAM TOTAL CREDITS	46.0 SH

PhD in Nursing—Bachelor's Degree Entrance

GENERAL REQUIREMENTS

LPSC 7305 Research and Statistical Methods	3 SH
NRSG 5117 Advanced Pharmacology	2 SH
NRSG 5121 Epidemiology and Population Health	3 SH
NRSG 5126 Pathophysiology for Advanced Practice	3 SH
NRSG 7700 The Science of Nursing	3 SH
NRSG 7706 Design and Methods for Clinical Nursing Research	3 SH
NRSG 7709 Qualitative Research Methods	3 SH
NRSG 7712 Quantitative Research Methods	3 SH

NRSG 7715 Measurement in Clinical Research	3 SH
NRSG 7750 Healthcare of Urban Populations	3 SH
NRSG 7770 Research Colloquium (taken 4 times)	4 SH
NRSG 7781 Lab for NRSG 7780	1 SH
NRSG 7782 Multiple Regression Analysis in Health Sciences	3 SH
NRSG 9845 Dissertation Seminar 1	3 SH
NRSG 9846 Dissertation Seminar 2	3 SH
NRSG 9990 Dissertation	2 SH
Five graduate electives	15 SH
Three clinical cognate courses	9 SH
PROGRAM TOTAL CREDITS	69.0 SH

SCHOOL OF PHARMACY (PHARMACEUTICAL SCIENCES)

www.northeastern.edu/bouve/pharmacy

JOHN R. REYNOLDS, PHARM.D

Professor and Dean

MANSOOR M. AMIJI, PH.D, RPH

Bouvé Distinguished Professor and Chair,

Department of Pharmaceutical Sciences

SAMUEL J. GATLEY, PH.D

Professor and Director, Graduate Programs,

Department of Pharmaceutical Sciences

HEATHER CLARK, PH.D

Associate Professor and Program Director,

Biomedical Nanotechnology

140 The Fenway

617.373.3406

617.373.7655 (fax)

pharmsci@neu.edu

Pharmaceutical science is a problem-solving discipline concerned with the discovery, design, and use of drugs. Pharmaceutical scientists find new targets for drug development; research how drugs work at a molecular level; and determine how drugs' properties, dosages, and delivery systems affect their performance. Northeastern has a well-deserved reputation among students, researchers, and other universities. Our department has five interlinked Centers of Research Excellence that pursue specific areas of pharmaceutical and chemical research: the Center for Drug Discovery, the New England Inflammation and Tissue Protection Institute, the Center for Pharmaceutical Biotechnology and Nanomedicine, the Center for Translational Imaging, and the Environmental Cancer Research Program. Northeastern offers many of its classes in the evening to accommodate the needs of the working community. Many students in the pharmaceutical science MS program complete their degree on a part-time basis. For those interested in discovery, problem solving, and cutting-edge research in one of the world's foremost scientific and medical environments, Northeastern University's School of Pharmacy in the Bouvé College of Health Sciences is the place to study pharmaceutical science.

Pharmaceutical science is inherently interdisciplinary, and this is reflected in the availability of several options at both the MS and PhD levels. The main options are pharmaceuticals and drug delivery, pharmacology, and medicinal chemistry. The curriculum for each of these options allows a degree of flexibility in terms of specific courses taken, and the examples below are not absolute but reflect students' most common choices made with the advice of faculty members. Even more flexibility is possible with the MS in Pharmaceutical Sciences (interdisciplinary concentration).

MS in Pharmaceutical Sciences

Note: Curriculum substitutions are made as recommended by the department.

YEAR 1, FALL SEMESTER

BIOL 6300 Biochemistry	4 SH
PHSC 5100 Concepts in Pharmaceutical Science	2 SH
PHSC 6216 Human Physiology and Pathophysiology	2 SH

YEAR 1, SPRING SEMESTER

BIOL 6301 Molecular Cell Biology	4 SH
PHSC 7010 Pharmaceutical Sciences Laboratory	4 SH

YEAR 2, FALL SEMESTER

NNMD 7270 Introduction to Nanomedicine Science and Technology	3 SH
PHSC 6210 Drug Design, Evaluation, and Development	2 SH
PHSC 6214 Experimental Design and Biometrics	2 SH
PMST 6254 Advanced Drug Delivery System	3 SH

YEAR 2, SPRING SEMESTER

BIOL 6381 Ethics in Biological Research	2 SH
PMST 6250 Advanced Physical Pharmacy	2 SH
PMST 6252 Pharmacokinetics and Drug Metabolism	3 SH

PROGRAM TOTAL CREDITS 33.0 SH

MS in Pharmacology

Note: Curriculum substitutions are made as recommended by the department.

YEAR 1, FALL SEMESTER

BIOL 6300 Biochemistry	4 SH
PHSC 5100 Concepts in Pharmaceutical Science	2 SH
PHSC 6216 Human Physiology and Pathophysiology	2 SH

YEAR 1, SPRING SEMESTER

BIOL 6301 Molecular Cell Biology	4 SH
PHSC 7010 Pharmaceutical Sciences Laboratory	4 SH
PMCL 6260 Pharmacology 1	2 SH

YEAR 2, FALL SEMESTER

BIOL 6381 Ethics in Biological Research	2 SH
PHSC 6210 Drug Design, Evaluation, and Development	2 SH
PHSC 6214 Experimental Design and Biometrics	2 SH
PHSC 6990 Thesis	2 SH

YEAR 2, SPRING SEMESTER

NRSG 6800 Introduction to Industry Research Guidelines	3 SH
PMCL 6261 Pharmacology 2	2 SH
PMCL 6262 Receptor Pharmacology	2 SH

PROGRAM TOTAL CREDITS 33.0 SH

MS in Medicinal Chemistry

Note: Curriculum substitutions are made as recommended by the department.

YEAR 1, FALL SEMESTER

BIOL 6300 Biochemistry	4 SH
PHSC 5100 Concepts in Pharmaceutical Science	2 SH
PHSC 6210 Drug Design, Evaluation, and Development	2 SH

YEAR 1, SPRING SEMESTER

BIOL 6381 Ethics in Biological Research	2 SH
CHEM 5626 Organic Synthesis 1	3 SH
CHEM 5676 Bioorganic Chemistry	3 SH

YEAR 1, SUMMER FULL SEMESTER

PHSC 6212 Research Skills and Ethics	1 SH
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YEAR 2, FALL SEMESTER

CHEM 5612 Principles of Mass Spectrometry	3 SH
CHEM 5626 Organic Synthesis 1	3 SH
PHSC 6222 The Chemistry and Biology of Drugs of Abuse	2 SH
PHSC 6990 Thesis	2 SH

YEAR 2, SPRING SEMESTER

CHEM 5628 Spectroscopy of Organic Compounds	3 SH
CHEM 5672 Organic Synthesis 2	3 SH
PHSC 6996 Thesis Continuation	0 SH

PROGRAM TOTAL CREDITS 33.0 SH

MS in Biomedical Nanotechnology

This MS program in biomedical nanotechnology incorporates aspects of the pharmaceutical sciences curriculum with courses in nanotechnology, entrepreneurship, and law. The combination of these fields results in a unique curriculum that offers students an opportunity to obtain skills not only in the relevant science but also in leadership, business, and intellectual property law. Furthermore, the program directly addresses a core mission of the university: the provision of practice-oriented educational programs in major scientific disciplines.

Prerequisites: calculus, organic chemistry, biochemistry, and physiology.

YEAR 1, FALL SEMESTER

NNMD 7270 Introduction to Nanomedicine Science and Technology	3 SH
PHSC 5100 Concepts in Pharmaceutical Science	2 SH
PHSC 5300 Pharmaceutical Biochemistry	2 SH
PHSC 6300 Pharmaceutical Science Seminar	1 SH

YEAR 1, SPRING SEMESTER

NNMD 7370 Nanosystems Design for Biology and Medicine	2 SH
PHSC 7010 Pharmaceutical Sciences Laboratory	4 SH
Graduate elective course	2 SH

YEAR 1, SUMMER FULL SEMESTER

PHSC 6212 Research Skills and Ethics	1 SH
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YEAR 2, FALL SEMESTER

ENTR 6200 Enterprise Growth and Innovation	3 SH
LAW 7369 Intellectual Property Law	2 SH
PMST 6254 Advanced Drug Delivery System	3 SH

YEAR 2, SPRING SEMESTER

EECE 5698 Special Topics in Electrical and Computer Engineering	4 SH
ENTR 6212 New Venture Creation	3 SH
TBD Special Topics Course in Nanotechnology and Law (pending approval)	1 SH

YEAR 2, SUMMER FULL SEMESTER

PHSC 6401 Pharmaceutical Science Internship	1 SH
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PROGRAM TOTAL CREDITS 34.0 SH

MS in Biomedical Science**GENERAL REQUIREMENTS**

Required core	5 to 7 SH
Interdisciplinary core	16 to 20 SH
General elective core	6 to 12 SH

CREDIT REQUIREMENT 33.0 SH

PhD in Biomedical Science**GENERAL REQUIREMENTS**

Required core	5 to 7 SH
Required specialization	16 to 20 SH
General elective core	6 to 12 SH
PhD core courses	12 SH

CREDIT REQUIREMENT 45.0 SH

PhD in Pharmacology**GENERAL REQUIREMENTS**

Required core	5 to 7 SH
Required specialization core	10 to 18 SH
General electives	8 to 14 SH
PhD core courses	12 SH

CREDIT REQUIREMENT 45.0 SH

PhD in Medicinal Chemistry

Required core	5 to 7 SH
Required specialization core	9 SH
Approved general electives	19 to 21 SH
PhD core courses	12 SH

CREDIT REQUIREMENT 45.0 SH

PhD in Pharmaceutical Sciences**GENERAL REQUIREMENTS**

Required core	5 to 7 SH
Required specialization	16 to 20 SH
General elective core	6 to 12 SH
PhD core courses	12 SH

CREDIT REQUIREMENT 45.0 SH

PHYSICAL THERAPY

www.northeastern.edu/bouve/pt

MAURA DALY IVERSEN, SD, DPT, PT

Professor and Chair

SONYA L. LARRIEUX, PT, MA, C/NDT

Director PB-DPT Graduate Program

301 Robinson Hall

617.373.3160

617.373.3161 (fax)

Maura Daly Iversen, *Professor and Chair*, m.iversen@neu.edu

Northeastern University physical therapy (PT) graduates are innovative, global leaders who excel in clinical practice, research, and community service. As one of the longest-accredited physical therapy programs in the United States, and the only program with cooperative education, we seek to graduate our students with exceptional clinical decision-making skills and experience in the field of physical therapy.

We offer three entry points in the Doctor of Physical Therapy:

- The postbaccalaureate direct-entry DPT is for applicants who hold a baccalaureate or master's degree in a field other than physical therapy.
- The transitional Doctor of Physical Therapy (DPT) is for applicants who hold a baccalaureate or master's degree in physical therapy and a U.S. license in physical therapy.
- The entry-level DPT is for applicants applying as freshmen students.

Our Doctor of Physical Therapy program builds on the university's core values of interdisciplinary education, urban engagement, international knowledge, and cutting-edge research. Our exceptional faculty are dedicated to promoting excellence in practice, education, scholarship, and community service. Faculty are active in the American Physical Therapy Association and engaged in active clinical research and practice. A hallmark of our program is the integration of experiential learning and didactic education whether through use of standardized patients, communication and interaction with community consultants, participation in service-learning projects, or engagement in research with our faculty.

Unique Program Features

INTERPROFESSIONAL OPPORTUNITIES

Bouvé van provides community access to healthcare offered in conjunction with the nursing, pharmacy, speech-language pathology, and public health programs.

GLOBAL

Beyond the traditional semester abroad, we offer multiple global academic and service-oriented experiences such as Global

Dialogues (30 days in-country), PT academic exchange programs, and global service PT programs to Mexico and Ecuador.

CONCENTRATIONS

- Early intervention—working with children with disabilities or at risk for developmental delays. This program is offered in conjunction with the Department of Counseling Psychology.
- Sports conditioning and management of the athlete.
- Psychology, business, foreign language.

RESEARCH OPPORTUNITIES

- Biotion Lab
- Cadaver Lab
- Cancer Survivorship Center
- Ergonomics Lab
- Neurocognitive Rehabilitation Research Lab
- Neurorehabilitation Laboratory
- Neuroscience Wet Lab
- Rehabilitation and Epidemiology Trainee Program
- Robotics Lab
- Teaching and Learning Innovation

CLINICAL EDUCATION

- Throughout the United States, including Division I athletic programs
- Thirty-six weeks of internship plus six months of paid clinical experience through our unique cooperative education program

DPT—Doctor of Physical Therapy

YEAR 1, SPRING SEMESTER

HLTH 5450 Healthcare Research	4 SH
HLTH 5451 Recitation for HLTH 5450	0 SH
PT 5101 Foundations of Physical Therapy	3 SH
<i>Coreq.</i> PT 5102	
PT 5102 Lab for PT 5101	1 SH
<i>Coreq.</i> PT 5101	
PT 5131 Gross Anatomy	4 SH
<i>Coreq.</i> PT 5132	
PT 5132 Lab for PT 5131	1 SH
<i>Coreq.</i> PT 5131	
PT 5160 Psychosocial Aspects of Healthcare	3 SH
<i>Coreq.</i> PT 5161	
PT 5161 Psychosocial Aspects of Healthcare Seminar	1 SH
<i>Coreq.</i> PT 5160	

YEAR 1, SUMMER FULL SEMESTER

PT 5133 Kinesiology	3 SH
<i>Coreq.</i> PT 5134	
PT 5134 Lab for PT 5133	1 SH
<i>Coreq.</i> PT 5133	
PT 5138 Neuroscience	4 SH
<i>Coreq.</i> PT 5139	
PT 5139 Lab for PT 5138	1 SH
<i>Coreq.</i> PT 5138	
PT 5140 Pathology	4 SH
<i>Coreq.</i> PT 5141	

PT 5141 Recitation for PT 5140 <i>Coreq.</i> PT 5140	0 SH	PT 6222 Lab for PT 6221 <i>Coreq.</i> PT 6221	1 SH
PT 5145 Introduction to the Healthcare System	2 SH	PT 6223 Musculoskeletal Management 2 <i>Coreq.</i> PT 6224	4 SH
YEAR 2, FALL SEMESTER		PT 6224 Lab for PT 6223 <i>Coreq.</i> PT 6223	1 SH
PHSC 4340 Pharmacology for the Health Professions	4 SH	YEAR 3, SUMMER 1 SEMESTER	
PT 5111 Professional Development for Bouvé Graduate Co-op	1 SH	PT 6441 Clinical Education 1	6 SH
PT 5150 Motor Control, Development, and Learning <i>Coreq.</i> PT 5151	4 SH	YEAR 3, SUMMER 2 SEMESTER	
PT 5151 Lab for PT 5150 <i>Coreq.</i> PT 5150	1 SH	PT 6215 Assistive Technology <i>Coreq.</i> PT 6216	3 SH
PT 5503 Cardiovascular and Pulmonary Management <i>Coreq.</i> PT 5504	4 SH	PT 6216 Lab for PT 6215 <i>Coreq.</i> PT 6215	1 SH
PT 5504 Lab for PT 5503 <i>Coreq.</i> PT 5503	1 SH	PT 6250 Clinical Integration 2: Evidence and Practice	2 SH
YEAR 2, SPRING SEMESTER		Elective course PT 6231 through 6237	2 SH
PT 6964 Co-op Work Experience	0 SH	YEAR 4, FALL SEMESTER	
YEAR 2, SUMMER 1 SEMESTER		PT 6251 Diagnostic Imaging	3 SH
PT 6964 Co-op Work Experience	0 SH	PT 6442 Clinical Education 2	6 SH
YEAR 2, SUMMER 2 SEMESTER		YEAR 4, SPRING SEMESTER	
PT 5515 Integumentary Systems and Advanced Modalities <i>Coreq.</i> PT 5516	2 SH	PT 6448 Clinical Education 3	9 SH
PT 5516 Lab for PT 5515 <i>Coreq.</i> PT 5515	1 SH	PROGRAM TOTAL CREDITS	122.0 SH
PT 5540 Clinical Integration 1: Evidence and Practice	2 SH		
PT 6243 Health Assessment and Wellness <i>Coreq.</i> PT 6244	3 SH		
PT 6244 Recitation for PT 6243 <i>Coreq.</i> PT 6243	0 SH		
YEAR 3, FALL SEMESTER			
PT 5209 Neurological Rehabilitation 1 <i>Coreq.</i> PT 5210	4 SH		
PT 5210 Lab for PT 5209 <i>Coreq.</i> PT 5209	1 SH		
PT 5227 Physical Therapy Project 1	3 SH		
PT 5505 Musculoskeletal Management 1 <i>Coreq.</i> PT 5506	4 SH		
PT 5506 Lab for PT 5505 <i>Coreq.</i> PT 5505	1 SH		
PT 6000 Leadership, Administration, and Management	2 SH		
PT 6241 Screening for Medical Conditions in Physical Therapy Practice	4 SH		
YEAR 3, SPRING SEMESTER			
PT 5226 Physical Therapy Professional Seminar 2	2 SH		
PT 5229 Physical Therapy Project 2	2 SH		
PT 5230 Pediatric and Geriatric Aspects of Life Span Management	2 SH		
PT 6221 Neurological Rehabilitation 2 <i>Coreq.</i> PT 6222	4 SH		

PHYSICIAN ASSISTANTwww.northeastern.edu/bouve/pa

ROBIN REED, MD

Interim Program Director

202 Robinson Hall
617.373.3195
paprogram@neu.edu

Established in 1971, the physician assistant (PA) program has a long-standing history of, and expertise in, the education and training of physician assistants. The PA program is located in close proximity to Boston's major academic medical centers and was the first generalist PA training program in the nation to offer a master's degree in 1985.

This rigorous, highly integrated curriculum offers our students the opportunity to obtain broad generalist training that prepares them for successful employment in all fields of clinical practice. Our instructional faculty members are practicing clinicians from throughout New England, and most have been teaching with the program for many years. The clinical year is designed to provide students with experience in diverse healthcare settings in our well-established network of clinical rotation sites.

Northeastern's PA program graduates are employed in positions across the United States, and some have worked internationally. In addition to clinical practice, our graduates are employed in research, administration, and education.

MS in Physician Assistant Studies**YEAR 1, FALL SEMESTER**

PA 6200 Anatomy and Physiology 1	3 SH
PA 6203 Physical Diagnosis and Patient Evaluation 1	3 SH
PA 6205 Pharmacology 1	2 SH
PA 6208 Professional Issues for Physician Assistants	2 SH
PA 6311 Principles of Medicine 1	4 SH
PA 6325 Principles of Psychiatry	2 SH

YEAR 1, SPRING SEMESTER

PA 6201 Anatomy and Physiology 2	3 SH
PA 6204 Physical Diagnosis and Patient Evaluation 2	3 SH
PA 6206 Pharmacology 2	2 SH
PA 6207 Clinical Laboratory and Diagnostic Methods	4 SH
PA 6312 Principles of Medicine 2	4 SH
PA 6321 Principles of Surgery	2 SH
PA 6323 Clinical Neurology	2 SH
PA 6324 Principles of Pediatrics	2 SH
PA 6329 Healthcare Delivery	2 SH

YEAR 1, SUMMER FULL SEMESTER

PA 6313 Principles of Medicine 3	4 SH
PA 6320 Principles of Obstetrics and Gynecology	2 SH
PA 6322 Principles of Orthopedics	2 SH

PA 6326 Aspects of Primary Care	4 SH
PA 6327 Emergency Medicine and Critical Care	2 SH
PA 6328 Aging and Rehabilitation Medicine	2 SH
PA 6330 Research Design	2 SH

YEAR 2, FALL SEMESTER

Clinical course PA 6400 through 6408	15 SH
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YEAR 2, SPRING SEMESTER

Clinical course PA 6400 through 6408	15 SH
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YEAR 2, SUMMER FULL SEMESTER

Clinical course PA 6400 through 6408	15 SH
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PROGRAM TOTAL CREDITS 103.0 SH

SPEECH-LANGUAGE PATHOLOGY AND AUDIOLOGY

www.northeastern.edu/bouve/slpa

ENNIO MINGOLLA, PhD

Professor and Chair

THERESE O'NEIL-PIROZZI, ScD, CCC-SLP

Associate Professor and SLP Program Director

SANDRA CLEVELAND, AuD, CCC-A

Clinical Professor and AuD Program Director

MS in Speech Language Pathology Program

503 Behrakis Health Sciences Center

617.373.5750

617.373.2239 (fax)

t.oneil-pirozzi@neu.edu

Doctor of Audiology Program

503 Behrakis Health Sciences Center

617.373.2496

617.373.8756 (fax)

sa.cleveland@neu.edu

We are a learning community in which faculty and students support each other's learning across the life span. Our department mission is to educate students to the highest levels of professionalism, consistent with American Speech-Language-Hearing Association (ASHA) and Northeastern University accreditation standards and Massachusetts licensure requirements; to provide them with a multidisciplinary and practice-oriented education in our urban university environment; to provide them with research experiences based on the highest standards of scientific knowledge; to provide them with clinical experiences with clients and families from a diverse population base using an evidence-informed practice approach; to evaluate their progress using both formative and summative assessment measures.

Our faculty engage in continuous learning both inside and outside the department to be current in recent research and to contribute to that knowledge base. They use, develop, and address in their teaching technology that improves the hearing, communication, respiration, and swallowing skills of individuals at a variety of age and skill levels.

MS in Speech-Language Pathology

YEAR 1, FALL SEMESTER

SLPA 5109 Neurology of Communication 3 SH

SLPA 5201 Diagnostic Testing in Speech-Language Pathology 1 SH

SLPA 6305 or SLPA 6308 3 SH

SLPA 6306 Speech-Language Disorders in Children 3 SH

SLPA 6415 Speech-Language Pathology Advanced 3 SH

Clinical Practicum 1

YEAR 1, SPRING SEMESTER

SLPA 6211 Research and Evidence-Based Practice 3 SH

SLPA 6301 Speech Science 3 SH

SLPA 6309 Speech-Language Disorders in Adults 3 SH

SLPA 6416 Speech-Language Pathology Advanced Clinical Practicum 2 2 SH

YEAR 1, SUMMER 1 SEMESTER

SLPA 6420 Practical Statistics for Speech-Language Pathology and Audiology 3 SH

YEAR 1, SUMMER FULL SEMESTER

SLPA 6416 Speech-Language Pathology Advanced Clinical Practicum 2 2 SH

YEAR 2, FALL SEMESTER

SLPA 6219 or elective course 3 SH

SLPA 6305 or SLPA 6308 3 SH

SLPA 6307 Voice Disorders 3 SH

SLPA 6417 Speech-Language Pathology Advanced Clinical Practicum 3 2 SH

YEAR 2, SPRING SEMESTER

SLPA 6303 Stuttering 3 SH

SLPA 6304 Augmentative and Alternative Communication 3 SH

SLPA 6321 Motor Speech Disorders 3 SH

SLPA 6322 Language Literacy 3 SH

SLPA 6418 Speech-Language Pathology Advanced Clinical Practicum 4 2 SH

PROGRAM TOTAL CREDITS

54.0 SH

AuD—Doctor of Audiology

YEAR 1, FALL SEMESTER

SLPA 5100 Diagnostic Audiometry 3 SH

SLPA 5111 Anatomy and Physiology of the Auditory System 3 SH

SLPA 6210 Psychosocial Aspects of Communication Disorders 2 SH

SLPA 6221 Hearing Science 3 SH

SLPA 6751 Advanced Audiology Clinic 1 2 SH

YEAR 1, SPRING SEMESTER

SLPA 5104 Differential Diagnosis in Audiology 3 SH

SLPA 5105 Auditory Pathologies 3 SH

SLPA 6336 Instrumentation and Electronics for Audiologists 3 SH

SLPA 6715 Amplification 1 3 SH

SLPA 6752 Advanced Audiology Clinic 2 2 SH

YEAR 1, SUMMER 1 SEMESTER

SLPA 6420 Practical Statistics for Speech-Language Pathology and Audiology 3 SH

SLPA 6722 or SLPA 5108 3 SH

YEAR 1, SUMMER FULL SEMESTER

SLPA 6753 Advanced Audiology Clinic 3 2 SH

YEAR 2, FALL SEMESTER

SLPA 5109 Neurology of Communication 3 SH

SLPA 6208 Pediatric Audiology 2 SH

SLPA 6214 Noise and Hearing 2 SH

SLPA 6716 Amplification 2 3 SH

SLPA 6754 Advanced Audiology Clinic 4 2 SH

YEAR 2, SPRING SEMESTER

SLPA 6209 Psychoacoustics 2 SH

SLPA 6737 Advanced Evoked Potential Measures 3 SH

SLPA 6741 Pharmacology for Audiologists 2 SH

SLPA 6747 Implantable Hearing Devices 3 SH

SLPA 6755 Advanced Audiology Clinic 5 2 SH

YEAR 2, SUMMER 1 SEMESTER

Counseling elective or other elective 3 SH

SLPA 6722 or SLPA 5108 3 SH

YEAR 2, SUMMER FULL SEMESTER

SLPA 6756 Advanced Audiology Clinic 6 2 SH

YEAR 3, FALL SEMESTER

SLPA 5110 Language Disorders across the Life Span 3 SH

SLPA 6211 Research and Evidence-Based Practice 3 SH

SLPA 6711 Scope of Practice in Audiology 2 SH

SLPA 6757 Advanced Audiology Clinic 7 3 SH

SLPA 6773 Topics Seminar 3 SH

YEAR 3, SPRING SEMESTER

SLPA 6314 Professional Practice 2 SH

SLPA 6758 Advanced Audiology Clinic 8 3 SH

YEAR 3, SUMMER FULL SEMESTER

SLPA 6791 AuD Clinic Internship 1 3 SH

YEAR 4, FALL SEMESTER

SLPA 6792 AuD Clinic Internship 2 3 SH

YEAR 4, SPRING SEMESTER

SLPA 6793 AuD Clinic Internship 3 3 SH

PROGRAM TOTAL CREDITS**95.0 SH****INTERDISCIPLINARY**www.northeastern.edu/bouve/id

JAMES C. LEUNG, PhD

Academic Director, Biotechnology Program

DANIEL A. FEINBERG, MBA

*Program Director, Health Informatics Program**Biotechnology Program*

109 Hurtig Hall

617.373.7578

617.373.8795 (fax)

Cynthia Bainton, *Academic Manager*, c.bainton@neu.edu*Health Informatics Program*

312 Robinson Hall

617.373.5005 (fax)

Daniel A. Feinberg, *Program Director*, d.feinberg@neu.edu

Students in Northeastern University's graduate biotechnology program attain a common core knowledge of biotechnology with particular emphasis on the ability to integrate knowledge across disciplinary boundaries. Track objectives are to provide students with didactic and practical knowledge in protein analytical approaches and methodologies for activities and functions of biopharmaceuticals (biopharmaceutical analytical sciences); in formulation development and drug product manufacturing of biopharmaceuticals (pharmaceutical technologies); and in development and optimization of drug substance manufacturing of biopharmaceuticals (process sciences).

With Northeastern University's interdisciplinary graduate programs in health informatics, you have an opportunity to gain the knowledge and skills needed to use information technology to improve healthcare delivery and outcomes—and to advance your career in a growing field. We seek to educate the leaders who use technology to improve healthcare for the future.

MS in Biotechnology—Biopharmaceutical Analytical Sciences Track

Part-time students go at their own pace.

YEAR 1, FALL SEMESTER

BIOT 5120 Introduction to Biotechnology 3 SH

BIOT 5145 Basic Biotechnology Lab Skills 1 SH

BIOT 5219 The Biotechnology Enterprise 2 SH

BIOT 5560 Bioprocess Fundamentals 3 SH

YEAR 1, SPRING SEMESTER

BIOT 6214 Experimental Design and Biometrics 2 SH

BIOT XXXX Molecular Cell Biology for Biotechnology 3 SH

CHEM 5620 Protein Chemistry 3 SH

YEAR 2, FALL SEMESTER

BIOT 5130 Team Skills in Biotechnology	2 SH
CHEM 5550 Introduction to Glycobiology and Glycoprotein Analysis	3 SH
Graduate elective	3 SH

YEAR 2, SPRING SEMESTER

BIOT 6964 Co-op Work Experience	0 SH
BIOT 7245 Biotechnology Applications Laboratory	2 SH
CHEM 5616 Protein Mass Spectrometry	3 SH
CHEM 5660 Analytical Biochemistry	3 SH

PROGRAM TOTAL CREDITS 33.0 SH

MS in Biotechnology—Pharmaceutical Technologies Track

Part-time students go at their own pace.

YEAR 1, FALL SEMESTER

BIOT 5120 Introduction to Biotechnology	3 SH
BIOT 5145 Basic Biotechnology Lab Skills	1 SH
BIOT 5219 The Biotechnology Enterprise	2 SH
BIOT 5560 Bioprocess Fundamentals	3 SH

YEAR 1, SPRING SEMESTER

BIOT 6214 Experimental Design and Biometrics	2 SH
BIOT XXXX Molecular Cell Biology for Biotechnology	3 SH
CHEM 5620 Protein Chemistry	3 SH

YEAR 2, FALL SEMESTER

BIOT 5130 Team Skills in Biotechnology	2 SH
BIOT 5700 Molecular Interactions of Proteins in Biopharmaceutical Formulations	3 SH
Graduate elective	3 SH

YEAR 2, SPRING SEMESTER

BIOT 5640 Drug Product Processes for Biopharmaceuticals	3 SH
BIOT 6964 Co-op Work Experience	0 SH
BIOT 7245 Biotechnology Applications Laboratory	2 SH
CHEM 5660 Analytical Biochemistry	3 SH

PROGRAM TOTAL CREDITS 33.0 SH

MS in Biotechnology—Process Sciences Track

Part-time students go at their own pace.

YEAR 1, FALL SEMESTER

BIOT 5120 Introduction to Biotechnology	3 SH
BIOT 5145 Basic Biotechnology Lab Skills	1 SH
BIOT 5219 The Biotechnology Enterprise	2 SH
BIOT 5560 Bioprocess Fundamentals	3 SH

YEAR 1, SPRING SEMESTER

BIOT 6214 Experimental Design and Biometrics	2 SH
BIOT XXXX Molecular Cell Biology for Biotechnology	3 SH
CHEM 5620 Protein Chemistry	3 SH

YEAR 2, FALL SEMESTER

BIOT 5130 Team Skills in Biotechnology	2 SH
BIOT 5631 or BIOT 5635	3 SH
Graduate elective	3 SH

YEAR 2, SPRING SEMESTER

BIOT 5640 Drug Product Processes for Biopharmaceuticals	3 SH
BIOT 6964 Co-op Work Experience	0 SH
BIOT 7245 Biotechnology Applications Laboratory	2 SH
CHEM 5660 Analytical Biochemistry	3 SH

PROGRAM TOTAL CREDITS 33.0 SH

MS in Health Informatics

GENERAL REQUIREMENTS

HINF 5101 Introduction to Health Informatics and Health Information Systems	3 SH
HINF 5105 The American Healthcare System	3 SH
Complete two courses from business management core	6 SH
Complete two courses from elective core	6 SH
Complete two courses from health informatics core	6 SH
Complete two courses from technical core	6 SH

PROGRAM TOTAL CREDITS 30.0 SH

BUSINESS MANAGEMENT CORE

HINF 6201 Organizational Behavior, Work Flow Design, and Change Management	3 SH
HINF 6215 Project Management	3 SH
HINF 6335 Management Issues in Healthcare Information Technology	3 SH

ELECTIVE CORE

HINF 6325 Legal and Social Issues in Health Informatics	3 SH
HINF 6330 Emerging Technologies in Healthcare	3 SH
HINF 6345 Design for Usability in Healthcare	3 SH
HINF 6350 Public Health Surveillance and Informatics	3 SH

HEALTH INFORMATICS

HINF 6202 Business of Healthcare Informatics	3 SH
HINF 6205 Creation and Application of Medical Knowledge	3 SH
HINF 6225 Health Systems Lab	3 SH

TECHNICAL CORE

HINF 5102 Data Management in Healthcare	3 SH
HINF 6220 Database Design, Access, Modeling, and Security	3 SH
HINF 6230 Strategic Topics in Programming for Health Professionals	3 SH
HINF 6355 Key Standards in Health Informatics Systems	3 SH

PhD in Personal Health Informatics

See College of Computer and Information Science, page 56, for curriculum information.

College of Professional Studies

www.cps.neu.edu/degree-programs/graduate

JOHN LABRIE, EdD, *Dean of the College of Professional Studies and Vice President of Professional Education*

John Caron, EdD, *Senior Associate Dean of Faculty and Academic Affairs*

Kelly Otter, PhD, *Associate Dean of Graduate Academic and Faculty Affairs*

50 Nightingale Hall
877.668.7727, 617.373.2400

Master's Degree Admission Requirements

Please note that all master's degrees offered through the College of Professional Studies (CPS) have the following admission requirements:

- Online application
- Statement of purpose (500–1,000 words)
- Professional resumé
- Official undergraduate transcripts
- Two letters of recommendation
- English-language proficiency proof (for non-native English-language speakers)
 - Official associate or bachelor's degree transcripts
 - TOEFL, IELTS, or TOEIC scores

Doctoral Degree Admission Requirements

Please note that each doctoral degree offered through the College of Professional Studies (CPS) has its own set of admission requirements. Please consult with the program for specific requirements.

ACADEMIC POLICIES

Non-MLOA

Students seeking a leave of absence for any reason, other than medical, must consult with their designated student success specialist or academic program designee.

Academic Internships and Cooperative Education

An academic internship or cooperative education placement is an opportunity for students to engage in a short-term workplace experience that is relevant to their academic course of study. The College of Professional Studies (CPS) cooperative education

department makes every effort to work with students to identify experiential learning opportunities of three to six months to facilitate career exploration and transition. This program is an optional component of most degree programs. Students must qualify to participate. Please review the website for guidelines, academic requirements, and opportunities: www.cps.neu.edu/coop.

Academic Standing/Progress

The minimum cumulative grade-point average (GPA) that a graduate or doctoral student must maintain is 3.000. This standard and the following section on “Academic Warning, Probation, and Dismissal” apply to all matriculated students regardless of when they began their studies at the CPS.

Students should review their grades and academic standing at the end of each term through their myNEU account. If there are any discrepancies, students should immediately contact the instructor(s) directly.

ACADEMIC PROBATION AND DISMISSAL

Notations of academic probation appear on the internal record but not on the permanent transcript.

A matriculated graduate or doctoral student is on academic probation for low academic performance for the first time if his or her cumulative GPA is below 3.000 after he or she has attempted 6 credits at the CPS. At this point, the student is strongly encouraged to consult with his or her designated student success specialist or academic program designee to develop an action plan toward improving his or her academic standing.

A student is placed on academic probation for the second time if his or her cumulative GPA is below 3.000 after he or she has attempted 12 credits at the CPS. The student is required to consult with his or her designated student success specialist or academic program designee to develop options and provide support and recommendations for services for the student to improve his or her academic standing. Otherwise, a registration hold may be placed on the student's account.

A student whose cumulative GPA remains below 3.000 after attempting 18 credits will be academically dismissed. A student who has been academically dismissed is automatically dismissed from his or her major and the college. A student must make consistent satisfactory academic progress toward his or her program. A student who attempts but does not complete credits and earns I, IP, NE, or W grades for two or more consecutive terms may be placed on academic probation, which may then result in academic dismissal.

A doctoral student must satisfy program-specific progression standards to remain in good academic standing. A student may appeal this decision to the college's academic standing committee if

he or she can provide documented evidence supporting an appeal. A student who wishes to appeal must provide a written statement to the committee within 20 working days (four calendar weeks) of the day after academic standing information is posted to the student's record, typically one to two weeks after the term ends.

Students should check their academic progress via their myNEU account at the end of each term.

Reinstatement After Dismissal

A student who is dismissed from CPS is not eligible to register again for CPS courses until he or she is approved to be reinstated. A student may apply for reinstatement after a minimum of one academic year if he or she can provide documented evidence supporting the application (e.g., completed course(s) with a grade of B or higher at another accredited college during the one-plus year absence). The application must be made in writing by submitting the completed Request for Re-entry form, which can be found at www.cps.neu.edu/student-resources/academic-forms.php, and providing supporting documentation to the Office of Academic and Student Support Services.

If reinstatement to the college is approved, a student is expected to meet the most current requirements for program admissions and curriculum.

A student approved for reinstatement but who does not meet the admissions requirements for the intended program of study or if the intended program of study is no longer available may apply to another program.

FINANCIAL AID POLICIES

Financial aid recipients are required to maintain satisfactory academic progress (SAP) in order to be eligible for financial aid.

IMPORTANT CONSIDERATIONS

The following are considered when evaluating a student's SAP:

- Grades noting withdrawals, incompletes, not enrolled, and failures (W, I, NE, F) are considered attempted but not earned hours.
- Passing credits received for satisfactory/unsatisfactory courses are considered attempted and earned credits; failing grades in satisfactory/unsatisfactory courses are considered attempted but not earned.
- Repeated courses are included in the calculation of both attempted and earned hours.
- Transfer credits, including those received during consortium study, are included in the completion rate calculation.

APPEALS

Students who appeal their ineligibility due to not making SAP have the right to have their situation reviewed by Student Financial Services. Approval of a student's financial aid appeal is based on extenuating circumstances outside the normal school activities that have an impact on the student's ability to achieve the minimum standards of SAP.

Each situation is reviewed on a case-by-case basis. A letter of appeal must be submitted to Student Financial Services. In

addition to the letter, each student must meet with their designated student success specialist and submit an academic plan that states the time frame in which the student is able to meet the required quantitative/qualitative standard. A student's eligibility for all aid will be lost in the next academic term if he or she does not meet the requirements in the period stated.

REGAINING ELIGIBILITY

Students may regain eligibility for aid during the academic year if they reach the minimum standards of SAP within the same period of enrollment. Students may continue to attend courses at Northeastern University without the assistance of federal, state, or institutional funding. In addition, students may be able to attend classes elsewhere in order to demonstrate eligibility for reconsideration of aid. Students are determined to be eligible for funds based on the timing in which they reach the minimum standards. The Department of Education's standards outline different eligibility criteria for students who meet SAP standards within the current period of enrollment vs. those who regain eligibility in a later period. Student Financial Services will award appropriate aid as specified by the Department of Education.

SAP

A graduate student's SAP will be reviewed based on the following standards.

Qualitative Standard

For qualitative purposes, SAP requires a cumulative GPA of 3.000 or higher. At the end of the spring term of each academic year, the qualitative standard will be checked for all students. If, at the end of the spring term, a student does not have a 3.000 or higher GPA, he or she will not be eligible for federal aid in the upcoming academic year. Students who fail to meet this standard will not be eligible for federal aid until the cumulative 3.000 GPA is achieved.

Quantitative Standard

At the end of each spring term, a student's academic progress is measured by comparing the number of attempted credit hours with the actual number of credit hours earned (that is, received a grade in the range of A to C-). Students must earn passing grades in at least 50 percent of their courses during the academic year in order to maintain SAP.

A grade of IP (in progress) is considered to be a successful grade for students enrolled in thesis or dissertation continuation courses.

Maximum Time Frame Standard

Students are not eligible to receive financial aid once they have attempted more than 200 percent of the normal credits required for their degree or certificate program. All attempted hours are counted, including transfer hours, whether or not financial aid was received or the course work was successfully completed. In addition, students must complete their program of study within the maximum number of years permitted by their college.

Note: Courses that do not satisfy academic requirements for the program in which a student is matriculated are not eligible for financial aid.

Repeating a Course

If a student fails a course, he or she may repeat the course to try to earn a passing grade. A student may take the same course up to three times to earn a passing grade. Only the grade earned in the last attempt is used to calculate GPA.

Financial aid recipients must be mindful that repeating courses could impact their aid eligibility.

Students with questions about this impact should contact their financial aid counselor.

Active-Duty Military Personnel

As a member of the Service Member Opportunity Colleges, the CPS's academic residency requirement is different for active-duty service members.

Active-duty service members are required to complete 30 percent of the graduate certificate/degree program in the CPS.

Admissions Acceptance Deferral

A student who is not able to start his or her studies in the academic term for which he or she gained acceptance must contact the Office of Admissions to request a deferral of admission. A student may request a deferral for up to one year, unless otherwise noted for specific programs. Please check with the Office of Admissions for more information. If a student does not get approved for an acceptance deferral and does not begin his or her studies within two academic terms of acceptance into a program, he or she forfeits that acceptance and must reapply to the program for a future term.

It is important for the student to inform the Office of Admissions about deferral requests as this may impact the student's time limit on program completion and financial aid.

Attendance and Class Participation

Class participation is essential to success no matter the course format or its delivery.

Attendance and participation requirements vary. It is the student's responsibility to ascertain what each instructor requires. If a student will be absent, it is his or her responsibility to inform the instructor and to abide by the terms about attendance as explained in the course syllabus. Unexplained absence from classes or failure to meet an assignment deadline may seriously affect the student's academic progress and may result in a final grade of F.

Change of Major/Program of Study**GRADUATE (NONDOCTORAL)**

A graduate (nondoctoral) student matriculated in a certificate/degree program who would like to enroll in another graduate program, after consulting with his or her designated student success specialist, must apply to the intended program by submitting the following:

- New personal statement
- Updated resumé, if applicable
- At least one letter of reference for degree applicants only

Note: Previously awarded transfer credit awards are subject to change.

DOCTORAL

Doctoral students should consult with their program director.

Change/Declare a Graduate Concentration

Effective as of the winter 2012 term, graduate and doctoral students matriculated in a degree program that offers concentrations of studies must declare one concentration. This can be done at the time of application to the program as part of the admissions process. Students also may complete the appropriate form in consultation with their designated student success specialist or academic program designee. Students who wish to pursue an individualized concentration must seek prior approval from the academic program director.

Note: Only recognized concentrations are noted on students' official academic records. If a student pursues an individualized concentration, no concentration will be noted on his or her official academic transcript.

Students must declare a concentration by the beginning of their last term of enrollment for degree completion.

Course Load

Students who are currently not studying in F-1 or J-1 status and who are eligible to study in the United States may be enrolled part-time or full-time. Applicants in B-1/B-2 or F-2 status cannot enroll part-time or full-time; however, they may choose to apply for a change to a status eligible to study in the United States and may enroll only upon approval by U.S. Citizenship and Immigration Services. Full-time course load is 9 credits each quarter at the graduate level.

Federal financial aid recipients must be enrolled in and successfully complete a minimum number of credits each quarter to maintain eligibility. For more information, please contact your financial aid counselor at www.northeastern.edu/financialaid/contact/counselors.html.

Course Add/Drop Policy

For 8- and 12-week courses, students may add a course within the first 2 weeks of the course. Students may add a 4- or 6-week course within the first week of the course. Students wishing to add a course that is less than 8 weeks after missing the first week are strongly advised to consult with the instructor to determine the feasibility of catching up and succeeding in the course.

Students who drop a course before the "last day to drop a course without a W" specified in the academic calendar (www.northeastern.edu/registrar/calendars.html) will not be charged for the course and will not have a W (withdrawal) grade

recorded on their transcript. Thereafter, students are responsible for 100 percent of the tuition charges and applicable fees.

Students are expected to add/drop courses using their myNEU account.

Course Overloads

GRADUATE (NONDOCTORAL)

A maximum course load for a graduate (nondoctoral) student is 16 credits taken across a 12-week quarter, with no more than 8 credits per 6-week session.

To be eligible for a course overload (more than 16 credits per 12-week quarter or more than 8 credits per 6-week session), a graduate (nondoctoral) student must:

- Have a record of successful study with 12 or more credits a term at Northeastern University—transfer students must wait at least one term to request an overload.
- Have a minimum cumulative GPA of 3.500.
- Request the overload by completing the appropriate form (www.cps.neu.edu/student-resources/academic-forms.php) and returning it to his or her designated student success specialist, assuming the above two criteria are met.

DOCTORAL

Each doctoral program has its own enrollment and course load requirements. Doctoral students who wish to seek a course overload must consult with the program director.

Course Waiver

Course waivers may be awarded to a student who has completed the equivalent course from another accredited institution in the past seven years. The waiver exempts the student from completing the required course. The student must complete another course, as approved by the program, to satisfy the number of credits required for the program.

Doctoral students must consult with their academic program to determine if course waivers are permitted in the program.

Course Withdrawal Policy

Students may withdraw from a course up until the Saturday before the session/term ends. A W (withdrawal) will be noted on the student's transcript and the student is responsible for 100 percent of the tuition charges and applicable fees.

Should a student decide to withdraw from a course, he or she is expected to do so via his or her myNEU account. Students who experience difficulty adding, dropping, or withdrawing from a course should promptly email the Office of the University Registrar at registrar@neu.edu. If it is determined that there is an issue with the student's myNEU account or access, he or she needs to contact the Service Desk at 617.373.4357 (HELP); help@neu.edu.

Fast-Track students who wish to drop or withdraw from a course must contact their programs directly.

Degree Completion

COMPLETING DEGREE REQUIREMENTS

Graduate and Doctoral Degree Programs

To earn a graduate or doctoral degree at the College of Professional Studies, students must complete all courses as prescribed in the curriculum; the required number of credits as per the curriculum and applicable thesis or dissertation; and must maintain a minimum cumulative grade-point average of 3.000 or as outlined by the specific program.

Graduate Certificate Programs

To earn a graduate certificate at the CPS, students must complete all courses as prescribed in the curriculum and the required number of credits as per the curriculum and must maintain a minimum cumulative GPA of 3.000 or as outlined by the specific program.

Program Adjustments

The CPS makes adjustments to its academic program offerings and curricula to stay current and to be able to offer students the most relevant courses and knowledge in the field. Examples of such changes include adding new programs, adding/adjusting course requirements, adding/adjusting courses, and adding/adjusting curriculum requirements.

When there is a change to a curriculum or program requirement, students already matriculated and actively enrolled in the program may continue to follow the program requirements at the time of matriculation or to follow the new curriculum/program requirements, unless it is otherwise specified by the academic program at the time of the announcement of said changes.

TIME LIMIT ON DEGREE COMPLETION

- Graduate certificate students have up to three full years from the time of the first term of enrollment to complete the program.
- Master's degree students have up to seven full years from the time of the first term of enrollment to complete the program.
- Doctoral degree students have up to seven full years from the time of the first term of enrollment to complete the program.

Exceptions are made for students who are approved for a MOLA and students who are deployed for military service. Active military service members enrolled in a graduate certificate or master's degree program must contact their designated student success specialist to apply for a leave of absence. Those in doctoral degree programs must contact their programs directly.

Graduate (Nondoctoral) Students Seeking More than One Graduate Certificate and/or Degree

A graduate (nondoctoral) student can be enrolled in one graduate degree program at a time.

Graduate (nondoctoral) students seeking more than one certificate or degree after having completed a program should note that graduate credits earned toward:

1. A degree may not be used to satisfy the requirements of another degree program.

2. A degree earned at the CPS may be used to satisfy the requirements of a graduate certificate with a cap of 50 percent of the required credits of a graduate certificate, if the contents are determined to be applicable per the program director and if the credits were earned within seven years of pursuit of the certificate.

If the same course is required in the degree and certificate programs and the student has exceeded the maximum number of credits that can be applied in the certificate program, he or she will request a course waiver to be permitted to take another course instead of repeating the course. Please see the section “Course Waiver.”

3. A certificate earned at the CPS may be used to satisfy the requirements of a graduate degree, if the contents are determined to be applicable per the program director and if the credits were earned within seven years of pursuit of the degree.
4. A certificate earned at the CPS may be used to satisfy the requirements of a second certificate with a cap of one course of no more than 4 credits, if the contents are determined to be applicable per the program director and if the credits were earned within seven years of pursuit of the certificate.

If the same course is required in both certificate programs and the student has exceeded the maximum number of credits that can be applied in the second certificate program, he or she will request a course waiver to be permitted to take another course instead of repeating the course. Please see the section “Course Waiver.”

5. A graduate (nondoctoral) degree student who wishes to pursue a graduate certificate concurrently may seek admission in the certificate program by the end of his or her first term of matriculation in the degree program. Courses that satisfy requirements for both the degree and certificate will count for each.

When the certificate is identical to a concentration in a degree program, only the certificate credential will be earned. The student’s transcript will not indicate completion of a concentration

DOCTORAL

A doctoral student can be enrolled in one program at a time.

Independent Study

Independent study is an opportunity for degree students to undertake special research, literature review, or experimental study projects in areas related to their program of study. As part of the request for independent study, interested students must submit a study proposal for the program director’s approval. The proposal needs to include a detailed outline of the objectives and plan of study and a supporting statement from the faculty member under whose direction the study is intended to take place.

Students may take up to two independent studies for the duration of their program of study.

International Students

In order to maintain lawful student status in the United States, international students must be mindful of the rules and regulations that govern their nonimmigrant visa classification. Numerous U.S. federal regulations make it especially important for students in the F (student) and J (exchange visitor) categories to consult regularly with an international student advisor at the International Student and Scholar Institute (ISSI) before taking any action that might impact their immigration status and educational endeavors in the United States.

All international students in F or J status must register before each term starts. It is strongly recommended that international students be registered at least two weeks before the term starts. They also must be enrolled full-time each term. Any exceptions from full-time registration requirements must be preapproved by the ISSI in accordance with specified regulations. In the CPS, each 12-week term is made up of Parts of Term (courses that run less than 12 weeks). Some courses last the entire 12 weeks of a term, while others run for either the first 6 weeks or the last 6 weeks. Students in F-1 and J-1 status must remain registered at all times during a term to remain in compliance. Students are not allowed to take courses during only one half of an academic term.

INTERNATIONAL STUDENT ENROLLMENT REQUIREMENTS

Full-Time Status

Nine credits each quarter*

Course Format

- For a 9-credit course load, international students must take at least 6 credits of courses that are held on-ground, in the blended or hybrid format.
- Students may not take classes on-ground for just the first or second 6 weeks of a 12-week term and then take only online courses during the other 6 weeks.
- In the final academic term of a student’s program of study, enrollment may be for less than 9 credits, but it must either be on-ground or a combination of on-ground and online throughout the entire term or in the first half of the term.

*For graduate degree programs that require only 4- or 5-credit courses in the curriculum, such as the Master of Science in Regulatory Affairs for Drugs, Biologics, and Medical Devices, international students should consult with their designated student success specialist to develop a course plan to maintain their international student status.

Some degree programs have concentrations that are offered only online. It is imperative that students plan their course schedules accordingly to remain in compliance. Contact your designated student success specialist for assistance or consultation.

In addition, international students must not begin or resume any type of employment without first obtaining proper employment authorization from the ISSI.

Contact the ISSI at issi@neu.edu with questions regarding international student status or immigration policies.

Nonattendance

Nonattendance does not constitute an official withdrawal. A student who registers for a course, completes the I Am Here (IAH) process, or begins attendance and does not officially withdraw from the course is responsible for the grade earned and for paying 100 percent of the tuition charges and applicable fees. Federal financial aid awards may be impacted as a result.

I Am Here (IAH)

Students are required to verify their intent to enroll in CPS class(es) through their myNEU account during the first two weeks of each class start. This verification process is called I Am Here (IAH). Students who fail to complete this process on time will be dropped from the class(es).

Students are responsible for ensuring completion of the IAH process, which requires that they do not log out of the system early. Students who do not receive a “Successful Completion” message have not reached the end of the procedure and must start again. Sometimes it may take 24 hours before students can restart the procedure.

Students who experience difficulty with the process or have questions should contact cpsiamhere@neu.edu.

Reentry to Program

Application for reentry into any academic program is required of students whose studies are interrupted for a period of one year or more for reasons other than dismissal from the college. (Students who were academically dismissed must seek reinstatement. Please see “Reinstatement After Dismissal” section.) Students are expected to meet the requirements of the program curriculum current at the time of approved reentry. If the program into which the student is seeking reentry is no longer offered, the student may choose to enroll in another program if he or she meets the admissions requirements for that program. Please contact the Office of Academic and Student Support Services for assistance and to complete the appropriate form.

Graduate Campus Students

Students enrolled in a Northeastern University graduate campus are required to abide by the policies and procedures specific to that campus.

Other Policies and Procedures

GRADUATION PROCEDURES

The following information is for degree-seeking students only. Certificate students should refer to the “Request to Declare Certificate Completion,” available at www.cps.neu.edu/student-resources/academic-forms.php.

Only students who complete the graduation application process through their myNEU account by specified deadlines will be considered for graduation, issued their diplomas, and included in the graduation ceremony program.

Northeastern University confers degrees three times each academic year: winter, spring, and fall. Degree conferral refers to the official recognition of degree completion by the university. Qualifying degree candidates are invited to the college’s annual graduation ceremony.

Each fall, the Office of the Registrar sends an email notification to students who may be eligible to graduate that academic year about applying to graduate. Eligibility is based on the number of earned credits at the beginning of the fall term. This email notification informs and instructs students to complete the “Apply to Graduate” process, accessed via their myNEU account. Students are prompted to verify and provide critical information, e.g., spelling of the student’s name on the diploma, intent to participate in the graduation ceremony, and mailing address.

To qualify for the winter conferral, students must fulfill all academic requirements by the end of the fall term. For the spring conferral, students must complete requirements by the end of the previous winter term. For the fall conferral, students must complete requirements by the end of the summer term. The actual dates of degree conferral, qualifying term, and graduation ceremony are published on the college graduation site (www.cps.neu.edu/student-resources/graduation) when the information is available.

Diploma

- The major will be printed on diplomas for only nonspecified degrees (Master of Science and Master of Arts).
- Changes made to a student’s name after the diploma has been printed may be subject to a \$50 fee and may not be corrected until after graduation.
- Changes made to a student’s degree information and name submitted after the program deadline will not be noted in the graduation program.

Declaring Certificate Completion

The CPS issues certificates two times each year: winter and summer. Students in their last course of the certificate need to complete the “Request to Declare Certificate Completion” form, available at www.cps.neu.edu/student-resources/academic-forms.php.

ACCOUNTING**Graduate Certificate in Forensic Accounting**

News surrounding corporate corruption has had a significant impact on businesses, particularly the accounting industry. In response, the government has enacted sweeping accounting and business laws such as the Sarbanes-Oxley 2002 legislation. Additionally, many professional organizations, including the American Institute of Certified Public Accountants (AICPA) and the Association of Certified Fraud Examiners (ACFE), have made the prevention, detection, and prosecution of fraud and accounting abuse a priority. This four-course graduate certificate in forensic accounting is designed to help students apply techniques in identifying, collecting, and examining evidence, including how to identify financial statement misrepresentation, transaction reconstruction, and tax evasion.

Note: Effective August 1, 2011, courses from this certificate may not be applied toward the Master of Science in Leadership.

CREDIT REQUIREMENT

16 quarter hours required

GENERAL REQUIREMENTS

Courses should be taken in the sequence below:

ACC 6210 Forensic Accounting Principles	4 QH
ACC 6220 Dissecting Financial Statements	4 QH
ACC 6230 Investigative Accounting and Fraud Examination	4 QH
ACC 6240 Litigation Support	4 QH

APPLIED NUTRITION**Master of Science in Applied Nutrition**

This applied nutrition master's degree offers you the opportunity to build upon your clinical knowledge and concentrate in one of four specialty areas.

Increased attention on disease prevention through better dietary habits has heightened the demand for skilled nutrition professionals. In response, the CPS has developed the Master of Science in Applied Nutrition. Designed to build on your existing knowledge, this advanced program is open to individuals who hold undergraduate degrees in health science, dietetics, or a related area.

Led by real-world practitioners, including dietitians, an exercise scientist, and a clinical psychologist, this innovative nutrition degree seeks to provide you with a solid grounding in nutrition, metabolism, disease prevention, health promotion, and clinical behavior. Complementing the core nutrition courses is the college's renowned nutrition practicum that allows you to work directly with registered dietitians, fitness specialists, as well as other health professionals.

Further differentiating this master's degree in nutrition is the option to choose from four degree concentrations: obesity and nutritional health, nutrition education, nutrition and fitness, and business and entrepreneurship in nutrition. This degree program seeks to give you the knowledge and skills you need to succeed in the field of nutrition.

CREDIT REQUIREMENT

45–47 quarter hours required

CORE COURSES

28 quarter hours required

Complete the following courses:

NTR 6100 Advanced Nutrition and Metabolism	4 QH
NTR 6110 Medical Nutrition Therapy	4 QH
NTR 6112 Research Methods in Nutrition	4 QH
NTR 6115 Health Promotion/Disease Prevention	4 QH
NTR 6118 Clinical Health Behavior Change	4 QH
NTR 6165 Food and Society	4 QH
NTR 6866 Applied Research in Nutrition	1 to 4 QH

CONCENTRATIONS COURSES

17–19 quarter hours required

Concentration in Business and Entrepreneurship in Nutrition

17 quarter hours required

REQUIRED COURSES

Complete the following courses:

NTR 6130 Healthcare and Nutrition Communication	4 QH
NTR 6155 Nutrition Entrepreneurship	3 QH
NTR 6202 The Financing of Nutrition and Wellness	3 QH
NTR 7880 Nutrition in Practice	1 to 4 QH
PJM 5900 Foundations of Project Management	3 QH

Concentration in Nutrition Education

19 quarter hours required

REQUIRED COURSES

Complete the following courses:

NTR 6130 Healthcare and Nutrition Communication	4 QH
NTR 6200 Nutrition Education	4 QH
NTR 6201 Commercialization of Nutrition and Nutritional Information	3 QH
NTR 7880 Nutrition in Practice	1 to 4 QH

ELECTIVE

Complete one of the following courses:

NTR 6101 Nutrition Program Planning	4 QH
NTR 6119 Pediatric Nutrition	4 QH
NTR 6120 Healthy Aging: Nutrition Strategies for Optimal Longevity	4 QH

Concentration in Nutrition and Fitness

17 quarter hours required

REQUIRED COURSES

Complete the following courses:

NTR 6148 Exercise Physiology	3 QH
NTR 6150 Sports Psychology	3 QH
NTR 7147 Sports and Fitness Nutrition	3 QH
NTR 7880 Nutrition in Practice	1 to 4 QH

ELECTIVE

Complete one of the following courses:

NTR 6101 Nutrition Program Planning	4 QH
NTR 6120 Healthy Aging: Nutrition Strategies for Optimal Longevity	4 QH

Concentration in Obesity and Nutritional Health

19 quarter hours required

REQUIRED COURSES

Complete the following courses:

NTR 6201 Commercialization of Nutrition and Nutritional Information	3 QH
NTR 7130 Overweight and Obesity 1	4 QH
NTR 7132 Overweight and Obesity 2	4 QH
NTR 7880 Nutrition in Practice	1 to 4 QH

ELECTIVE

Complete one of the following courses:

NTR 7135 Eating Disorders in Children and Adults	4 QH
NTR 7140 Wellness and Nutrition	4 QH

COMMERCE AND ECONOMIC DEVELOPMENT**Master of Science in Commerce and Economic Development**

Globalization has created a borderless economy with a host of new opportunities and challenges for those engaged in commerce and economic development. While global markets offer exciting growth prospects, navigating the world stage requires in-depth knowledge of the financial, regulatory, and economic environments and institutions that affect the global economy and international trade. To meet the need for both insight and skills development, Northeastern University's College of Professional Studies—in collaboration with Northeastern University's College of Social Sciences and Humanities—offers the online Master of Science in Commerce and Economic Development.

This graduate-level program integrates economics, leadership, institutional organization, technology, and public policy into a unique and focused educational experience designed to help guide and advance a rewarding career in the private or public sectors.

CREDIT REQUIREMENT

45 quarter hours required

REQUIRED CORE COURSES

25 quarter hours required

Complete the following courses:

CED 6010 Applied Microeconomic Theory	4 QH
CED 6020 Applied Macroeconomic Theory	4 QH
CED 6030 Applied Mathematics and Statistics for Economics	4 QH
CED 6040 Applied Econometrics	4 QH
CED 6050 Commerce and Economic Development	4 QH
CED 6910 Capstone: Master's Project	5 QH

ELECTIVE COURSES

20 quarter hours required

Complete five of the following courses:

CED 6070 Economics of Human Capital	4 QH
CED 6080 Commerce, Institutions, and Innovation	4 QH
CED 6090 Cultural Economic Development	4 QH
CED 6100 Economic Growth and Development	4 QH
CED 6110 Law and Economics	4 QH
CED 6120 Environmental Economics	4 QH
CED 6130 Sustainable Economic Development	4 QH
CED 6140 Economics of E-Commerce	4 QH

CONSTRUCTION MANAGEMENT

Graduate Certificate in Construction Management

In the last 10 to 20 years, construction in both the public and private sector has become increasingly complex, requiring construction and project managers to have a stronger skill base to be successful in acquiring and executing projects.

The Construction Management Graduate Certificate is intended to serve owners' representatives, consulting engineers, architects, design engineers, contractors, and subcontractors. Individuals who have a Bachelor of Science, but not necessarily in construction, and who have been identified by their companies as having high potential for advancement are also good candidates for the program.

Courses from this certificate may be applied toward the Master of Science in Project Management.

CREDIT REQUIREMENT

16 quarter hours required

GENERAL REQUIREMENTS

Complete the following courses:

CMG 6400 Introduction to Construction Management	4 QH
CMG 6402 Alternative Project Delivery Methods and Project Controls	4 QH
CMG 6403 Safety, Project Risk, and Quality Management	4 QH
CMG 6405 Construction Law	4 QH

CRIMINAL JUSTICE

Master of Science in Criminal Justice

Criminal justice and security agencies are under increased scrutiny—challenged to provide efficient and effective services; be transparent in their interactions with the public; and respond to changing local, national, and world conditions. To be successful, justice system leaders need to think strategically, communicate locally, and act ethically while developing comprehensive (and often multijurisdictional) solutions to crime and terrorism problems.

In response, Northeastern University's College of Professional Studies—in collaboration with the School of Criminology and Criminal Justice—offers the Master of Science in Criminal Justice. This innovative online master's degree provides a path to excellence for leaders in law enforcement, courts, private security, and corrections organizations. Academically distinctive, graduate courses in this program emphasize leadership, communication, and ethics—themes that are designed to enhance your leadership capacity and improve your career prospects.

CREDIT REQUIREMENT

45 quarter hours required

FOUNDATION COURSES

15 quarter hours required

Complete all of the following courses:

CJS 6020 Contemporary Issues in Criminal Justice Policy	3 QH
CJS 6400 Administration of Justice	3 QH
CJS 6405 Criminological Theory for Criminal Justice Leaders	3 QH
CJS 6415 Legal Decision Making and Leadership	3 QH
CJS 6470 Criminal Justice Capstone	3 QH

OPERATIONS COURSES

12 quarter hours required

Complete all of the following courses:

CJS 6050 Models of Intelligence-Led Policing	3 QH
CJS 6425 Research Methods	3 QH
CJS 6435 Program Evaluations	3 QH
CJS 6440 GIS, Evidence-Based Learning, and Policy	3 QH

CONCENTRATIONS COURSES

18 quarter hours required

Option 1: Choose one concentration and 3 QH of free elective courses from the concentration courses.

Option 2: Choose a combination of 6 elective courses from the concentration courses below.

Community and Family Justice Concentration

15 quarter hours required

REQUIRED COURSES

Complete the following courses:

CJS 6135 Intimate Partner Violence	3 QH
CJS 6300 Communities and Crime	3 QH

CJS 6305 Criminal Behavior and the Family	3 QH
CJS 6330 Youth Justice and Crime	3 QH
CJS 6340 Substance Abuse and Addictions	3 QH

Corrections Concentration

15 quarter hours required

REQUIRED COURSES

Complete five of the following courses:

CJS 6145 Correctional Rehabilitation	3 QH
CJS 6300 Communities and Crime	3 QH
CJS 6315 Administration of the Adult and Juvenile Correction Systems	3 QH
CJS 6320 Community Corrections	3 QH
CJS 6325 Probation and Parole	3 QH
CJS 6340 Substance Abuse and Addictions	3 QH

Global Criminal Justice Concentration

15 quarter hours required

REQUIRED COURSES

Complete five of the following courses:

CJS 6025 Genocide and War Crimes	3 QH
CJS 6030 Organized Crime	3 QH
CJS 6035 Corruption, Integrity, and Accountability	3 QH
CJS 6040 Human Trafficking and Exploitation	3 QH
CJS 6045 Policing Issues around the Globe	3 QH
CJS 6105 Domestic and International Terrorism	3 QH
CJS 6125 Issues in National Security	3 QH
GST 6300 Global Issues: Security and Terrorism	4 QH

Leadership Concentration

15 quarter hours required

REQUIRED COURSES

Complete the following courses:

LDR 6110 Leading Teams	3 QH
LDR 6120 Creating Leadership Capacity: Developing Bench Strength	3 QH
LDR 6125 Managing Organizational Culture	3 QH
LDR 6140 Developing the Strategic Leader	3 QH
LDR 6360 Dynamics of Change at the Community and Social Level	3 QH

Policing Concentration

15 quarter hours required

REQUIRED COURSES

Complete five of the following courses:

CJS 6035 Corruption, Integrity, and Accountability	3 QH
CJS 6045 Policing Issues around the Globe	3 QH
CJS 6050 Models of Intelligence-Led Policing	3 QH
CJS 6205 Law Enforcement Management and Planning	3 QH
CJS 6300 Communities and Crime	3 QH
CJS 6420 U.S. Policing in the Twenty-First Century	3 QH

Security Concentration

15 quarter hours required

REQUIRED COURSES

Complete five of the following courses:

CJS 6005 Legal and Regulatory Issues for Security Management	3 QH
CJS 6010 Advanced Principles of Security Management and Threat Assessment	3 QH
CJS 6035 Corruption, Integrity, and Accountability	3 QH
CJS 6045 Policing Issues around the Globe	3 QH
CJS 6105 Domestic and International Terrorism	3 QH
CJS 6125 Issues in National Security	3 QH
GST 6300 Global Issues: Security and Terrorism	4 QH

DIGITAL MEDIA

Graduate Certificate in 3-D Animation

Three-D animation is not only a major component in the film and broadcast industries, it is also a crucial element in online entertainment and a driving force for the gaming industry. Companies use animation in advertisements, websites, and training programs. The growing use of gaming technologies in education and industry (often referred to as Serious Games) has given rise to a need for skilled animators who can work closely with business and academic institutions.

The Graduate Certificate in 3-D Animation offers a practice-oriented approach to the art and science of animation, with a particular emphasis on the special requirements of 3-D modeling and animating for the gaming industry. Course work is designed to develop students' powers of visualization as well as provide a conceptual basis for visual narrative. The program seeks to produce graduates who are skilled in the use of industry-standard animation applications; understand visual principles of lighting, modeling, and surfacing; and are conversant with motion and special effects compositing.

CREDIT REQUIREMENT

22 quarter hours required

REQUIRED CORE COURSE

4 quarter hours required

Complete the following course:

DGM 6105* Visual Communications Foundation 4 QH

*For students with a portfolio waiver, DGM 6450 Animation Basics (4 QH) is the core course.

GENERAL REQUIREMENTS

18 quarter hours required

Complete the following courses:

DGM 6122 Foundations of Digital Storytelling 4 QH

DGM 6510 3-D Modeling 4 QH

DGM 6530 Character Animation 4 QH

DGM 6540 Compositing 4 QH

DGM 6882 Animation Reel 1 to 4 QH

Graduate Certificate in Digital Photography

The Graduate Certificate in Digital Photography is ideal for those currently in the field as well as those not in the field who want to learn to create professional-quality photographs. The certificate curriculum is designed to train students to record, interpret, and process surroundings in a fast-changing world. Additionally, students have an opportunity to gain experience in editing, manipulating, and managing high-quality still imagery using state-of-the-art labs and various capture tools, color management plans, and image manipulation plug-ins. Creativity and experimentation are not only encouraged but required. The digital imaging capstone course includes a final thesis designed to improve and extend students' professional portfolios.

The courses in this program also serve as a concentration in the Master of Professional Studies in Digital Media.

CREDIT REQUIREMENT

18 quarter hours required

REQUIRED CORE COURSE

4 quarter hours required

Complete the following course:

DGM 6105 Visual Communications Foundation 4 QH

GENERAL REQUIREMENTS

14 quarter hours required

Complete the following courses:

DGM 6300 Digital Capture and Output 4 QH

DGM 6302 Work Flow in Digital Imaging 4 QH

DGM 6307 Creative Approaches to Still Digital Imaging 4 QH

DGM 6880 Portfolio 2 QH

Graduate Certificate in Digital Video

With the quality and ease-of-use of digital video camcorders, anyone can capture moving images, but the result is like a Stradivarius violin: It takes training to make music. The Graduate Certificate in Digital Video is a hands-on introduction to digital video technologies, as well as an examination of the social, cultural, and political implications of moving-image production in the digital age. Students have an opportunity to gain competency in digital production and postproduction while exploring various formal, conceptual, and structural strategies. Students will also have an opportunity to learn to generate digital video that communicates effectively and inventively, in preparation for positions in the creative industries of gaming, design, and media production.

The courses in this program also serve as a concentration in the Master of Professional Studies in Digital Media.

CREDIT REQUIREMENT

18 quarter hours required

REQUIRED CORE COURSES

10 quarter hours required

Complete the following courses:

DGM 6105 Visual Communications Foundation 4 QH

DGM 6122 Foundations of Digital Storytelling 4 QH

DGM 6880 Portfolio 2 QH

ELECTIVE COURSES

8 quarter hours required

Complete two of the following courses:

DGM 6435 Digital Video Production 4 QH

DGM 6440 Editing in the Digital Studio 4 QH

DGM 6520 Lighting for the Camera 4 QH

Graduate Certificate in Game Design

Game design is one of the fastest-growing fields in entertainment, business, and education. From healthcare to political science, companies use games to educate their constituents and enhance employee skills.

The Graduate Certificate in Game Design offers a practice-oriented approach to the art and science of game making. The program emphasizes visual design and programming for video games and fosters conceptual understanding of the principles of game design for all varieties of games—from educational board games to iPhone games.

Courses in this program also serve as a concentration in the Master of Professional Studies in Digital Media.

CREDIT REQUIREMENT

20 quarter hours required

REQUIRED CORE COURSES

16 quarter hours required

Complete the following courses:

DGM 6122 Foundations of Digital Storytelling	4 QH
DGM 6308 Intermediate Programming for Digital Media	4 QH
DGM 6400 Game Design Fundamentals	4 QH
DGM 6405 Game Development	4 QH

ELECTIVE COURSES

4 quarter hours required

Complete one of the following courses:

DGM 6408 Game Design Algorithms and Data Structures	4 QH
DGM 6410 Game Design Technology Lab	4 QH

Graduate Certificate in Interactive Design

Digital media plays an increasingly significant role in the global culture and economy. The Graduate Certificate in Interactive Design offers an overview of courses in the creative process of storytelling and communicating through visuals and sound. Students have an opportunity to gain expertise in time-based design and interface and experience design through a practice-oriented problem-solving approach.

The courses in this program also serve as a concentration in the Master of Professional Studies in Digital Media.

CREDIT REQUIREMENT

22 quarter hours required

REQUIRED CORE COURSES

Complete the following courses:

DGM 6105 Visual Communications Foundation	4 QH
DGM 6108 Programming Foundations for Digital Media	4 QH
DGM 6168 Usability and Human Interaction	4 QH
DGM 6217 Typography for Interactivity	4 QH
DGM 6461 Interactive Information Design 1	4 QH
DGM 6880 Portfolio	2 QH

Master of Professional Studies in Digital Media

New innovations, breakthrough technologies, and changing consumer habits are redefining the media landscape—fueling demand for media professionals who can apply the latest tools and techniques to create compelling digital content.

In response, the Master of Professional Studies in Digital Media provides state-of-the-art digital media courses in moving image, information design, and narrative structure—elements that are critical to producing and developing content-rich and interactive experiences. Complementing the degree's core curriculum are seven distinctive concentrations in 3-D animation, game design, interactive design, digital photography, digital video, digital media management, or social media.

Differentiating this digital media master's degree is its cohort format, a team-based structure that allows you to complete your degree with the same group of students. Designed to strengthen your project management and leadership skills, cohorts enable you to collaborate with your colleagues on complex, multimedia projects, preparing you to excel in an increasingly digital world.

CREDIT REQUIREMENT

49 quarter hours required

REQUIRED CORE COURSES

33 quarter hours required

Complete the following courses:

DGM 6105 Visual Communications Foundation	4 QH
DGM 6108* Programming Foundations for Digital Media	4 QH
DGM 6122 Foundations of Digital Storytelling	4 QH
DGM 6125 Time-Based Media	4 QH
DGM 6140 Sound Design	4 QH
DGM 6145 Information Technology and Creative Practice	4 QH
DGM 6501 Web Creation Boot Camp	2 QH
DGM 6511 Web Creation Bootcamp 2	2 QH
DGM 6890 Thesis Proposal Development	1 to 2 QH
DGM 7990 Thesis	3 to 6 QH

*Students with sufficient programming experience may request a waiver to substitute the required course DGM 6108 Programming Foundations for Digital Media with DGM 6308 Intermediate Programming for Digital Media.

CONCENTRATIONS COURSES

16 quarter hours required

Choose one of the following concentrations:

3-D Animation Concentration

DGM 6450 Animation Basics	4 QH
DGM 6510 3-D Modeling	4 QH
DGM 6530 Character Animation	4 QH
DGM 6540 Compositing	4 QH

Digital Media Management Concentration

Complete at least 16 quarter hours from the following courses:

DGM 6230 Digital Media Entrepreneurship	4 QH
DGM 6280 Managing for Digital Media	4 QH

DGM 6285 Interactive Marketing Fundamentals	4 QH	CMN 6065 Implementation and Management of Social Media Channels and Online Communities	3 QH
DGM 6290 Social Media and Brand Strategy Implementation	4 QH	DGM 6285 Interactive Marketing Fundamentals	4 QH
ITC 6010 Information Technology Strategy and Governance	3 QH	DGM 6290 Social Media and Brand Strategy Implementation	4 QH
PJM 5900* Foundations of Project Management	3 QH	TCC 6710 Content Strategy	4 QH

*This course is required for students who do not have at least two years of professional experience working on projects. This course is only intended for those who are not familiar with professional project work. Students with two years or more of professional project experience should not take this course.

Digital Photography Concentration

Complete four of the following courses:

DGM 6300 Digital Capture and Output	4 QH
DGM 6302 Work Flow in Digital Imaging	4 QH
DGM 6305 Color Management in Still Digital Imaging	4 QH
DGM 6307 Creative Approaches to Still Digital Imaging	4 QH
DGM 6520 Lighting for the Camera	4 QH

Digital Video Concentration

Complete four of the following courses:

DGM 6430 Screenwriting: Linear and Interactive	4 QH
DGM 6435 Digital Video Production	4 QH
DGM 6440 Editing in the Digital Studio	4 QH
DGM 6456 Media Content Delivery	4 QH
DGM 6520 Lighting for the Camera	4 QH

Game Design Concentration

DGM 6400 Game Design Fundamentals	4 QH
DGM 6405 Game Development	4 QH
DGM 6408 Game Design Algorithms and Data Structures	4 QH
DGM 6410 Game Design Technology Lab	4 QH

Interactive Design Concentration

REQUIRED COURSES

DGM 6168 Usability and Human Interaction	4 QH
DGM 6461 Interactive Information Design 1	4 QH

COURSE GROUPS

Complete either group 1 or group 2:

GROUP 1

DGM 6217 Typography for Interactivity	4 QH
DGM 6463 Interactive Information Design 2	4 QH

GROUP 2

DGM 6268 Usable Design for Mobile Digital Media	4 QH
DGM 6451 Web Development	4 QH

Social Media Concentration

Choose at least 15 quarter hours from among the following courses:

CMN 6045 Leveraging Digital Technologies: Strategy, Assessment, and Governance	3 QH
CMN 6055 Planning and Design of Social Media Channels and Online Communities	3 QH

WORKSHOPS

Optional digital media workshops are designed to provide valuable technical skills and tools for students in all graduate degree programs. Students may choose one of the following workshops:

DGM 6500 Working with Digital Images	2 QH
DGM 6501 Web Creation Boot Camp	2 QH
DGM 6502 Working with Sound	2 QH
DGM 6503 Flash Intensive	2 QH
DGM 6504 ActionScript (Intensive)	2 QH
DGM 6505 Modeling and Rendering (Intensive)	2 QH
DGM 6506 Introduction to Digital Video	2 QH
DGM 6507 Illustrator Intensive	2 QH
DGM 6508 Game Development Intensive	2 QH
DGM 6509 Integrated Suite Workshop	2 QH
DGM 6511 Web Creation Bootcamp 2	2 QH
DGM 6513 Single-Lens Reflex Camera Workshop	2 QH
DGM 6515 Introduction to After Effects	2 QH
DGM 6531 Rigging Workshop	2 QH
DGM 6532 Rigging Workshop 2	2 QH

EDUCATION

Graduate Certificate in Adult and Organizational Learning

From globalization to technology, economic volatility to talent management, there is an increasing need to educate today's workforce for competitive advantage. To meet these needs, trainers, executive development professionals, human resource managers, and educators must stay current in adult and organizational learning.

The Graduate Certificate in Adult and Organizational Learning is designed to provide participants with foundational knowledge in adult learning, needs assessment, and program review. Students have an opportunity to gain expertise and understanding of the methods and models available for instruction, delivery channels, and overall program development.

CREDIT REQUIREMENT

16 quarter hours required

REQUIRED CORE COURSES

9 quarter hours required

Complete three of the following courses:

EDU 6211 New Directions for Adult Learning	3 QH
EDU 6212 Needs and Competencies Assessment	3 QH
EDU 6213 Curriculum and Program Development	3 QH
EDU 6214 Facilitation and Instruction	3 QH
EDU 6230 Program Evaluation and Assessment	4 QH

GENERAL REQUIREMENTS

Technology-Mediated Learning Courses

Complete one of the following courses:

EDU 6320 New Technologies and Emerging Trends for Distance Learning	3 QH
EDU 6325 Teaching Strategies in E-Learning	3 QH

Globalization Courses

Complete one of the following courses:

EDU 6445 Internationalization at Home: Concept and Application	4 QH
GST 6410 Global Focus: Education and Information Technology	4 QH

Graduate Certificate in Distance Learning

Distance learning is the fastest-growing area of postsecondary education in the United States. In order to meet the expanding need for qualified instructors and professionals, the CPS created the online Graduate Certificate in Distance Learning.

The curriculum is based on cutting-edge distance education techniques, recognized best practices, and proven methodologies, as applied by Northeastern University and other leading institutions. Focused on emerging trends in distance learning and hands-on instruction, this online certificate offers educators the opportunity to achieve excellence in distance learning administration and instruction.

CREDIT REQUIREMENT

18 quarter hours required

REQUIRED CORE COURSES

12 quarter hours required

Complete the following courses:

EDU 6211 New Directions for Adult Learning	3 QH
EDU 6320 New Technologies and Emerging Trends for Distance Learning	3 QH
EDU 6325 Teaching Strategies in E-Learning	3 QH
EDU 6327 Innovative Management of Distance Learning Program	3 QH

ELECTIVE COURSES

6 quarter hours required

Complete two of the following courses:

EDU 6407 Essentials of Multimedia for Distance Learning	3 QH
EDU 6408 Evaluation and Assessment for Distance Learning	3 QH
EDU 6409 Legal and Intellectual Property Issues for Distance Learning	3 QH

Graduate Certificate in Higher Education Administration

The effective administration of higher education institutions has never been so critical than at this time. Consider:

- The president of the United States of America and the secretary of education are calling for access to higher education for all.
- European and Asian universities are ascending in quality, increasing as market forces.
- The electronic delivery of education is escalating, creating new pedagogy and delivery models.

To meet these challenges, as well as changing demographics, financial concerns, and legal and policy requirements, administrators and leaders in higher education need to be increasingly sophisticated and knowledgeable.

The Graduate Certificate in Higher Education Administration is designed to provide participants with an overall understanding of managerial concepts as well as the operational and strategic concepts that lead to effective administration. This program is best suited for individuals seeking mid- to senior-level administrative roles and individuals interested in transitioning from industry and other organizations into academia.

The certificate comprises 16 quarter hours, which may be applied toward the Master of Education in Higher Education Administration.

CREDIT REQUIREMENT

16 quarter hours required

REQUIRED CORE COURSES

9 quarter hours required

Complete three of the following courses:

EDU 6200 Management of Higher Education Institutions	3 QH
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EDU 6210 Faculty: Evolving Roles	3 QH
EDU 6215 Higher Education Law	3 QH
EDU 6220 Retention and Enrollment Strategies	3 QH

Technology-Mediated Learning Courses

Complete one of the following courses:

EDU 6320 New Technologies and Emerging Trends for Distance Learning	3 QH
EDU 6325 Teaching Strategies in E-Learning	3 QH

Globalization Courses

Complete one of the following courses:

EDU 6445 Internationalization at Home: Concept and Application	4 QH
GST 6410 Global Focus: Education and Information Technology	4 QH

Master of Arts in Teaching, Elementary Licensure Curriculum

Designed for aspiring teachers and career changers, the Master of Arts in Teaching in Elementary Education (MAT) * offers an appreciation for and an understanding of the diverse educational needs, social concerns, and cultural values of today's elementary and secondary schools. This graduate degree in teaching seeks to enhance your foundational skills, broaden your perspectives, and strengthen your ability to inspire and educate. The master's degree, which includes a full term of student teaching, seeks to produce graduates well positioned to make a meaningful impact in their school, in their community, and in the lives of their students.

*The MAT (grades 1–6) has been approved at the initial licensure level by the Massachusetts Department of Elementary and Secondary Education.

CREDIT REQUIREMENT

45 quarter hours required

REQUIRED CORE COURSES

36 quarter hours required

Complete the following courses:

EDU 6051 Culture, Equity, Power, and Influence	4 QH
EDU 6086 Foundations of Literacy Development and Instruction	4 QH
EDU 6104 Child and Adolescent Development, Learning, and Teaching	4 QH
EDU 6107 Inclusion, Equity, and Diversity	4 QH
EDU 6154 Inquiry in the Sciences and Humanities	4 QH
EDU 6155 Inquiry in Mathematics	4 QH
EDU 6185 English-Language Learners in the General Education Classroom	4 QH
EDU 6866* Teaching Practicum and Seminar	1 to 8 QH

*Students must successfully pass all sections of the Massachusetts Test for Educator Licensure (MTEL) in order to qualify to participate in the practicum course. If you are enrolled in the full-time 12-month MAT program, we recommend you explore taking the MTEL as soon as possible. Visit www.doe.mass.edu/mtel for more information on the registration and test dates.

ELECTIVE COURSES

9 quarter hours required

Students may complete two elective courses.

Looking to deepen your knowledge and expertise?

The MAT+ offers qualifying students the opportunity to complete a MAT with further study in a selected area of expertise.

Currently, students can take additional course work to earn either an additional license in special education (teacher of students of moderate disabilities, PreK–8 or 5–12) or a certificate in Teaching English as a Second Language (TESOL).

MAT+ in Special Education

This Commonwealth of Massachusetts–approved program may be completed with only an additional 10 quarter hours beyond the standard MAT curriculum. Qualifying students must take the seven licensure courses outlined in the MAT curriculum, select qualifying special education courses for the two elective course options (within the MAT curriculum), and complete three additional special education courses.

The special education course requirements are:

Advanced special education course	4 QH
Advanced literacy course	4 QH
Advanced behavior management course	4 QH
Assessment course	4 QH
EDU 6874 Practicum, Portfolio, and Panel Review	0 to 4 QH

MAT+ in TESOL

Changing demographics and changing definitions have created a deficit of teachers who have a strong grounding in English as a second language. To combat this, the School of Education has established the MAT+ TESOL. This program combines research, theory, and technique with real-life observation and classroom experience to prepare K–12 teachers with the skills to meet the challenges of diverse classrooms. Qualifying students must take the seven licensure courses outlined in the MAT curriculum and five additional courses (outlined below). Upon completion of the MAT+ TESOL, instructors will receive a MAT and a graduate certificate in TESOL.

The TESOL course requirements are:

EDU 6300 Introduction to Language and Linguistics: How English Is Structured and Used	4 QH
EDU 6302 Teaching, Learning, and Assessment: How English Is Learned and Used	3 QH
EDU 6516 Sheltered English Instruction and Assessment	4 QH
EDU 6534 Bilingualism, Second Language, and Literacy Development	4 QH
EDU 6874 Practicum, Portfolio, and Panel Review	0 to 4 QH

The Department of Elementary and Secondary Education requires that all teachers of moderate disabilities pass the Foundations of Reading MTEL. Elementary teachers already have the requirements; secondary teachers will need to add that subtest.

Master of Arts in Teaching, Secondary Licensure Curriculum

Designed for aspiring teachers and career changers, the Master of Arts in Secondary Education (MAT) * offers an appreciation for and an understanding of the diverse educational needs, social concerns, and cultural values of today's secondary schools.

This MAT in secondary education seeks to enhance your foundational skills, broaden your perspectives, and strengthen your ability to inspire and educate. This master's degree, which includes a full term of student teaching, seeks to produce graduates well positioned to make a meaningful impact in their school, in their community, and in the lives of their students.

- Gain political, social, and historical perspectives on education.
- Explore the richly complex environments of schools and communities.
- Develop a working understanding of teaching and learning in diverse settings.
- Investigate how humans learn, acquire knowledge, and make sense of their experiences.
- Examine theories of teaching and explore how best to teach for understanding and learning achievement.
- Research methods and materials, pedagogies, and assessment strategies that foster integrated learning.

*The Master of Arts in Secondary Education (grades 8–12) has been approved at the initial licensure level by the Massachusetts Department of Elementary and Secondary Education.

CREDIT REQUIREMENT

45 quarter hours required

REQUIRED CORE COURSES

36 quarter hours required

Complete all of the following courses:

EDU 6051 Culture, Equity, Power, and Influence	4 QH
EDU 6064 Curriculum and Assessment	4 QH
EDU 6104 Child and Adolescent Development, Learning, and Teaching	4 QH
EDU 6107 Inclusion, Equity, and Diversity	4 QH
EDU 6162 Language, Culture, and Literacy in Middle and High Schools	4 QH
EDU 6185 English-Language Learners in the General Education Classroom	4 QH

Complete one of the following courses:

EDU 6122 Teaching the Language Arts	4 QH
EDU 6124 Teaching History and the Social Sciences	4 QH
EDU 6127 Teaching Science	4 QH
EDU 6129 Teaching Mathematics	4 QH
EDU 6130 Teaching Spanish	4 QH

Complete the following course:

EDU 6866* Teaching Practicum and Seminar	1 to 8 QH
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*Students must successfully pass all sections of the Massachusetts Test for Educator Licensure (MTEL) in order to qualify to participate in the practicum course. If you are enrolled in the full-

time 12-month MAT program, we recommend you explore taking the MTEL as soon as possible. Visit www.doe.mass.edu/mtel for more information on the registration and test dates.

ELECTIVE COURSES

9 quarter hours required

Students may complete two elective courses.

Looking to deepen your knowledge and expertise?

The MAT+ offers qualifying students the opportunity to complete a MAT with further study in a selected area of expertise.

Currently, students can take additional course work to earn either an additional license in special education (teacher of students of moderate disabilities, PreK–8 or 5–12) or a certificate in Teaching English as a Second Language (TESOL).

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The special education course requirements are:

Advanced special education course	4 QH
Advanced literacy course	4 QH
Advanced behavior management course	4 QH
Assessment course	4 QH
EDU 6874 Practicum, Portfolio, and Panel Review	0 to 4 QH

MAT + in TESOL

Changing demographics and changing definitions have created a deficit of teachers who have a strong grounding in English as a second language. To combat this, the School of Education has established the MAT+ TESOL. This program combines research, theory, and technique with real-life observation and classroom experience to prepare K–12 teachers with the skills to meet the challenges of diverse classrooms. Qualifying students must take the seven licensure courses outlined in the MAT curriculum and five additional courses (outlined below). Upon completion of the MAT+ TESOL, instructors will receive a MAT and a graduate certificate in TESOL.

The TESOL course requirements are:

EDU 6300 Introduction to Language and Linguistics: How English Is Structured and Used	4 QH
EDU 6302 Teaching, Learning, and Assessment: How English Is Learned and Used	3 QH
EDU 6516 Sheltered English Instruction and Assessment	4 QH
EDU 6534 Bilingualism, Second Language, and Literacy Development	4 QH
EDU 6874 Practicum, Portfolio, and Panel Review	0 to 4 QH

The Department of Elementary and Secondary Education requires that all teachers of moderate disabilities pass the Foundations of Reading MTEL. Elementary teachers already have the requirements; secondary teachers will need to add that subtest.

Master of Education, Learning and Instructional Design Concentration

Recent research on the science of learning has revolutionized our understanding of how people learn. As technology has become ubiquitous in society, learning takes place in many venues and formats: face-to-face, blended, online, and mobile. Seismic shifts are taking place in the education sector, such as competency-based learning and open education. These developments are creating a growing demand for professionals who can help their organizations think strategically about approaches to learning that are pedagogically sound and technology-savvy.

The learning and instructional design concentration explores the leading edge of next-generation learning design, with the goal of preparing its graduates to thrive in a world of expanded opportunities and delivery modes for learning. The concentration's innovative approach blends academic and experiential workplace-based learning. During the course of study, students develop an online portfolio of work to demonstrate their capacity to think strategically, put creative ideas into action, and design environments that improve student learning to meet academic, personal, institutional, and organizational goals.

CREDIT REQUIREMENT

45 quarter hours required

REQUIRED CORE COURSES

9 quarter hours required

Complete the following courses:

EDU 6050 Education as an Advanced Field of Study	5 QH
EDU 6051 Culture, Equity, Power, and Influence	4 QH

REQUIRED LEARNING AND INSTRUCTIONAL DESIGN CONCENTRATION COURSES

36 quarter hours required

Complete the following courses:

EDU 6225 Cases in Higher Education Management: Capstone	4 QH
EDU 6319 How People Learn	4 QH
EDU 6321 Models for Learning Design	4 QH
EDU 6322 Iterative Design of Learning Experiences	4 QH
EDU 6323 Technology as a Medium for Learning	4 QH
EDU 6324 Competencies, Assessment, and Learning Analytics	4 QH
EDU 6329 Connecting Theory and Practice	4 QH

Complete one of the following courses:

EDU 6202 Faculty, Curriculum, and Academic Community	4 QH
EDU 6331 Design as a Collaborative Profession (pending approval)	4 QH

Complete one of the following courses:

EDU 6332 Open Learning	4 QH
EDU XXXX Social Media and Beyond (pending approval)	4 QH

Master of Education, Higher Education Administration Concentration

Due to advances in e-learning and increasing student enrollments, the need for capable and effective school administrators has never been greater. In addition to providing solid guidance and direction, they must work to meet the needs of faculty, students, and parents alike. In response, the CPS offers a Master of Education program with a concentration in higher education administration.

This innovative master's degree program explores complex industry issues such as student demographics, financial concerns, legal and policy requirements, technology, and competitive forces.

CREDIT REQUIREMENT

45 quarter hours required

REQUIRED CORE COURSES

9 quarter hours required

Complete the following courses:

EDU 6050 Education as an Advanced Field of Study	5 QH
EDU 6051 Culture, Equity, Power, and Influence	4 QH

REQUIRED HIGHER EDUCATION ADMINISTRATION CONCENTRATION COURSES

36 quarter hours required

Complete the following courses:

EDU 6201 The Landscape of Higher Education	4 QH
EDU 6202 Faculty, Curriculum, and Academic Community	4 QH
EDU 6203 Education Law, Policy, and Finance	4 QH
EDU 6225 Cases in Higher Education Management: Capstone	4 QH
EDU 6437 Assessment in Education	4 QH
EDU 6447 The Demographics of Higher Education	4 QH

Complete one of the following courses:

EDU 6221 Enrollment, Retention, Graduation, Success	4 QH
EDU 6450 The Globalization of Higher Education	4 QH

Complete two of the following courses:

EDU 6319 How People Learn	4 QH
EDU 6321 Models for Learning Design	4 QH
EDU 6322 Iterative Design of Learning Experiences	4 QH
EDU 6323 Technology as a Medium for Learning	4 QH
EDU 6329 Connecting Theory and Practice	4 QH

Master of Education, Learning and Instruction Concentration—Overview

As the field of education evolves, today's educators are constantly challenged to be aware of and incorporate best-in-class practices, new technologies, and the latest research and trends within their classrooms. In response, the CPS offers the Master of Education with a Concentration in Learning and Instruction.

Designed for a broad range of educators, this program provides an in-depth look at the critical issues that are transforming the face of education: technology and distance

learning, globalization, creative and critical thinking, assessments, and learning outcomes.

Reflecting the new direction of education, this master's degree program also allows you to choose your area of focus by selecting from degree specializations in math, science, English-language learning, literacy, leadership, and technology.

Whether you are a classroom teacher or an administrator or work in youth development, community education, early childhood, or in a before/aftercare program, you have an opportunity to gain new perspectives and acquire fresh strategies for meeting the needs of today's students. This program seeks to produce graduates empowered to implement new ideas and innovative strategies that are designed to improve educational effectiveness.

CREDIT REQUIREMENT

45 quarter hours required

REQUIRED CORE COURSES

9 quarter hours required

Complete the following courses:

EDU 6050 Education as an Advanced Field of Study	5 QH
EDU 6051 Culture, Equity, Power, and Influence	4 QH

REQUIRED LEARNING AND INSTRUCTION CONCENTRATION COURSES

20 quarter hours required

Complete the following courses:

EDU 6225 Cases in Higher Education Management: Capstone	4 QH
EDU 6328 Policy and Leadership	4 QH
EDU 6330 Digital Media Literacy	4 QH
EDU 6437 Assessment in Education	4 QH

Complete one of the following courses:

EDU 6319 How People Learn	4 QH
EDU 6465 Critical and Creative Thinking	4 QH
EDU 6520 Learning and the Brain: Translating Research into Practice	4 QH

REQUIRED ELECTIVE COURSES

16 quarter hours required

Complete four courses from any other MEd concentration

Master of Education, Special Education Concentration

Demand for graduate-level-prepared special education practitioners is on the rise, driven by heightened degree requirements and a shortage of licensed, qualified teachers. In response, the CPS is pleased to offer the Master of Education with a Concentration in Special Education. Designed for educators who are licensed at the initial or professional level in another discipline, this innovative master's degree program prepares you to meet the special needs of students across a variety of school environments.

This program meets the Massachusetts Department of Elementary and Secondary Education standards and competencies

for an additional licensure as a Teacher of Students with Moderate Disabilities, PreK–8 and 5–12.

In this advanced program, you have an opportunity to explore specific topics on modifying curriculum, designing curriculum-based assessments, managing severe behaviors, developing individualized education programs (IEPs), leveraging community resources, and improving literacy. As a result, you have an opportunity to enhance your ability to meet the needs of a diverse student population and to achieve the competencies required for this specialized license.

CREDIT REQUIREMENT

45 quarter hours required

REQUIRED CORE COURSES

9 quarter hours required

Complete the following courses:

EDU 6050 Education as an Advanced Field of Study	5 QH
EDU 6051 Culture, Equity, Power, and Influence	4 QH

REQUIRED SPECIAL EDUCATION CONCENTRATION COURSES

20 quarter hours required

Complete the following courses:

EDU 6225 Cases in Higher Education Management: Capstone	4 QH
EDU 6425 Special Education: Foundations for Understanding the Inclusive School	4 QH
EDU 6426 Developmental Language, Literacy, and Writing: Assessment and Instruction	4 QH
EDU 6528 Adaptive Learning/Behavior Management Strategies: Consultation and Collaboration	4 QH
EDU 6569 Differentiated Instruction and Assessment in Mathematics	4 QH

REQUIRED ELECTIVE COURSES

16 quarter hours required

Complete four courses from any other MEd concentration

Doctor of Education

The Doctor of Education (EdD) program offers a rich, dynamic learning experience—one that blends critical engagement with theory, practice, and research.

Offering innovative and engaging opportunities, our EdD seeks to further cultivate the skills and knowledge necessary to effect meaningful change in your organization. As a doctor of education student, you have an opportunity to collaborate with an accomplished group of fellow practitioners, exposing you to global perspectives and strengthening your ability to think critically about today's educational challenges.

Built on Northeastern University's scholar-practitioner model, the EdD program integrates your professional experience with doctoral-level research, which should enable you to identify and address your practice-based issues while investigating matters of social justice. Through rigorous course work and collaborative opportunities, you have an opportunity to conduct empirical

research culminating in a doctoral thesis that examines a compelling educational challenge.

ADMISSION REQUIREMENTS

Please note that all doctor of education degrees offered through the CPS have the following admission requirements:

- Online application
- Academic transcripts (undergraduate **and** graduate)
- Admissions statement (1,000–1,200 words)
- Minimum of three years of professional work experience in a related field
- Professional resumé
- Faculty recommendation
- Two professional recommendations
- English-language proficiency proof (for non-native English-language speakers)

Doctor of Education—Curriculum, Teaching, Learning, and Leadership Concentration

The Doctor of Education (EdD) curriculum, teaching, learning, and leadership concentration seeks to help educational leaders develop the competencies, dispositions, and values required to pursue educational reform, based on a commitment to social justice. Students have an opportunity to explore the relationship between effective educational leadership and the ways that curriculum and teaching can enhance learning opportunities for students across their life span.

This EdD concentration focuses on preparing transformational leaders who recognize the importance of providing quality educational experiences for all learners.

CREDIT REQUIREMENT

60 quarter hours required*

REQUIRED FOUNDATION COURSES

12 quarter hours required

Complete the following courses:

EDU 7202 Transforming Human Systems	3 QH
EDU 7209 Introduction to Doctoral Studies	3 QH
EDU 7210 Leadership Theory and Research	3 QH
EDU 7214 Changing Conceptions of Learning and Human Development: Research and Practice	3 QH

REQUIRED RESEARCH COURSES

9 quarter hours required

EDU 7280 Fundamentals of Research	3 QH
EDU 7281 Research Design	3 QH
EDU 7283 Proposal Development—Qualitative	3 QH

CURRICULUM, TEACHING, LEARNING, AND LEADERSHIP CONCENTRATION COURSES

15 quarter hours required

EDU 7213 Education Entrepreneurship	3 QH
EDU 7216 Social Justice and Educational Equity	3 QH
EDU 7217 Educational Systems: The Dynamics between Policy, Values, and Practice	3 QH

EDU 7242 Situated Leadership	3 QH
EDU 7244 Curriculum Theory and Practice Over Time: Implications for Educational Leadership	3 QH

ELECTIVE COURSES

12 quarter hours required

EDU 7222 Community Engagement	3 QH
EDU 7230 Current and Emerging Practice in STEM Education	3 QH
EDU 7241 International Research and Practices in Curricula	3 QH
EDU 7243 Doctoral Seminar in Curriculum Leadership	3 QH
EDU 7282 Proposal Development—Quantitative Doctor of Education advanced graduate credit	3 QH Up to 9 QH

DOCTORAL THESIS COURSES

12 quarter hours required

EDU 8796 Thesis Proposal and the Internal Review Board	3 QH
EDU 8797 Thesis Data Collection, Initial Analysis, and Management	3 QH
EDU 8798 Thesis Data Analysis and Presentation	3 QH
EDU 8799 Thesis Findings and Discussion	3 QH

*North Carolina residents must complete an additional 9 quarter hours to satisfy degree requirements (EDU 7284, EDU 7285, and EDU 7286).

Doctor of Education—Higher Education Administration Concentration

The Doctor of Education (EdD) higher education administration concentration includes the study of practice and scholarship across a variety of postsecondary education settings, including community and four-year colleges, for-profit organizations, and research institutions. Addressing globalization trends in higher education, this concentration combines theoretical with practice-based concepts.

This concentration offers students an opportunity to conduct and apply research that advances administrative practice or theory in higher education administration. Students have an opportunity to further their understanding and utilization of research design as they interpret research literature and conduct research studies.

This program seeks to produce graduates well grounded in the educational roles and critical issues in colleges and universities, including:

- Cultural, ethical, and societal issues in higher education
- Historical considerations in higher education around the world
- Organization, governance, leadership, and administrative theories
- Higher education finance, law, and planning
- Establishing and sustaining initiatives in higher education

CREDIT REQUIREMENT

60 quarter hours required*

REQUIRED FOUNDATION COURSES

12 quarter hours required

Complete the following courses:

EDU 7202 Transforming Human Systems	3 QH
EDU 7209 Introduction to Doctoral Studies	3 QH
EDU 7210 Leadership Theory and Research	3 QH
EDU 7214 Changing Conceptions of Learning and Human Development: Research and Practice	3 QH

REQUIRED RESEARCH COURSES

9 quarter hours required

EDU 7280 Fundamentals of Research	3 QH
EDU 7281 Research Design	3 QH
EDU 7283 Proposal Development—Qualitative	3 QH

HIGHER EDUCATION ADMINISTRATION CONCENTRATION COURSES

15 quarter hours required

EDU 7204 Global and Historical Perspectives on Higher Education	3 QH
EDU 7250 Organizational Systems and Institutional Governance	3 QH
EDU 7253 The Legal Environment of Higher Education	3 QH
EDU 7256 Financial Decision Making in Higher Education	3 QH
EDU 7258 Strategic Management in Higher Education	3 QH

ELECTIVE COURSES

12 quarter hours required

EDU 7251 Student Engagement in Higher Education	3 QH
EDU 7254 Postsecondary and Institutional Public Policy	3 QH
EDU 7257 The Urban University in the United States	3 QH
EDU 7260 Comparative International/Global Higher Education	3 QH
EDU 7264 Educating Global Students: Issues and Practices	3 QH
EDU 7266 Contemporary Issues in Community Colleges	3 QH
EDU 7267 Community College and Learning Communities	3 QH
EDU 7268 Community College Leadership	3 QH
EDU 7282 Proposal Development—Quantitative	3 QH
Doctor of Education advanced graduate credit	Up to 9 QH

DOCTORAL THESIS COURSES

12 quarter hours required

EDU 8796 Thesis Proposal and the Internal Review Board	3 QH
EDU 8797 Thesis Data Collection, Initial Analysis, and Management	3 QH
EDU 8798 Thesis Data Analysis and Presentation	3 QH
EDU 8799 Thesis Findings and Discussion	3 QH

*North Carolina residents must complete an additional 9 quarter hours to satisfy degree requirements (EDU 7284, EDU 7285, and EDU 7286).

Doctor of Education—Organizational Leadership Studies Concentration

The Doctor of Education (EdD) organizational leadership studies concentration positions experienced leaders to assume greater responsibilities within their organizations. Designed for leaders working in educational, government, healthcare, military, not-for-profit, for-profit, and management consulting organizations, this concentration combines theory, research, and practice to develop individuals who can effectively manage and lead change in today's fast-paced, global environment.

The interdisciplinary curriculum offers a strong foundation in leadership, culture, learning, change, communications, systems, and strategy. Students have an opportunity to conduct and apply doctoral research to develop real-world answers to the leadership challenges facing twenty-first-century organizations.

Throughout the course of the program, students have an opportunity to:

- Review contemporary leadership theory and models emphasizing recent conceptualizations such as adaptive, relational, distributed, complexity, and global leadership to refine their personal leadership knowledge, skills, and abilities.
- Examine key models of organizational culture to build their own capability to understand and interact with different societal and organizational cultures across the world.
- Enhance their ability to think systemically by developing the required competencies to create cultures and structuring processes for learning in their organizations.
- Explore classical and modern theories of organization and design a forward-thinking organization creating all components, including vision, mission, strategy, structure, and processes.
- Use both seminal and current theoretical approaches of organizational communication to investigate the dynamic interplay between communication processes and human organizing.
- Examine seminal and modern group dynamics research to assess group processes and to stimulate group development inside their organizations.
- Investigate topical consulting strategies and organizational assessment tools and conduct an organizational diagnosis to gain a comprehensive understanding of the models, variables, and perspectives used to understand complex organizational processes.
- Integrate organizational power theory, research, and practical diagnostic tools to systematically identify and evaluate the political processes and behaviors at play inside their organizations.

This program seeks to produce graduates who have the capacity to contribute new knowledge to leadership scholarship and become positive forces of change.

CREDIT REQUIREMENT

60 quarter hours required*

REQUIRED FOUNDATION COURSES

12 quarter hours required

Complete the following courses:

EDU 7202 Transforming Human Systems	3 QH
EDU 7209 Introduction to Doctoral Studies	3 QH
EDU 7210 Leadership Theory and Research	3 QH
EDU 7214 Changing Conceptions of Learning and Human Development: Research and Practice	3 QH

REQUIRED RESEARCH COURSES

9 quarter hours required

EDU 7280 Fundamentals of Research	3 QH
EDU 7281 Research Design	3 QH
EDU 7283 Proposal Development—Qualitative	3 QH

ORGANIZATIONAL LEADERSHIP STUDIES CONCENTRATION COURSES

15 quarter hours required

EDU 7244 Curriculum Theory and Practice Over Time: Implications for Educational Leadership	3 QH
EDU 7272 Global Perspectives of Organizational Culture	3 QH
EDU 7275 Contemporary Models of Leadership	3 QH
EDU 7276 Organizational Communication: Institutional and Global Perspectives	3 QH
EDU 7277 Organizational Learning and Systems Thinking	3 QH

ELECTIVE COURSES

12 quarter hours required

EDU 7274 Doctoral Seminar in Organizational Leadership and Communication	3 QH
Doctor of Education advanced graduate credit	Up to 9 QH

DOCTORAL THESIS COURSES

12 quarter hours required

EDU 8796 Thesis Proposal and the Internal Review Board	3 QH
EDU 8797 Thesis Data Collection, Initial Analysis, and Management	3 QH
EDU 8798 Thesis Data Analysis and Presentation	3 QH
EDU 8799 Thesis Findings and Discussion	3 QH

*North Carolina residents must complete an additional 9 quarter hours to satisfy degree requirements (EDU 7284, EDU 7285, and EDU 7286).

FINANCIAL MARKETS AND INSTITUTIONS**Graduate Certificate in Financial Markets and Institutions**

In this rapidly changing business environment, the barriers between institutions are eroding, and competition is increasing due to deregulation and new product development. Managing internal operations more efficiently and adapting to the changing external environment is critical to the long-term survival of institutions. The Graduate Certificate in Financial Markets and Institutions seeks to prepare students to measure the impact of accounting decisions on performance; to manage risks, assets, and liabilities to meet corporate goals; to understand domestic and international financial systems and the institutions within them; and to build financial relationships that foster marketing financial products.

An examination of financial services industry principles and practices seeks to provide individuals working in brokerage houses, investment or commercial banks, insurance companies, or real estate with a greater understanding of financial systems as well as how to manage risks, assets, and liabilities in meeting corporate goals.

Note: Effective August 1, 2011, courses from this certificate may not be applied toward the Master of Science in Leadership.

CREDIT REQUIREMENT

16 quarter hours required

REQUIRED CORE COURSES

16 quarter hours required

Complete the following courses:

FIN 6101 Accounting Fundamentals for Financial Institutions	4 QH
FIN 6102 Asset and Liability Management	4 QH
FIN 6120 Building Financial Relationships	4 QH
FIN 6161 Investment Analysis	4 QH

GEOGRAPHIC INFORMATION SYSTEMS

Graduate Certificate in Geographic Information Systems

A geographic information system (GIS) combines layers of data to give needed information on specific locations. Such a system can map environmental sensitivities or geological features or can report on how best to speed emergency personnel to an accident or crime scene. Current fields using GIS include healthcare, public safety, environmental management, transportation and operations technology, real estate, and public utilities.

The Graduate Certificate in Geographic Information Systems program offers hands-on training, seeking to give students the necessary skills and understanding to apply GIS competently and effectively. As a result of the certificate curriculum, students should be well versed in GIS theory, have practical hands-on exposure to GIS software and hardware, understand the representation of data in both mapped and tabular forms, and know how to plan and construct spatial databases.

The courses in this certificate program may be applied to the Master of Professional Studies in Geographic Information Technology.

CREDIT REQUIREMENT

18 quarter hours required

REQUIRED CORE COURSES

12 quarter hours required

Complete the following courses:

GIS 5101 Introduction to Geographic Information Systems	3 QH
GIS 5102 Fundamentals of GIS Analysis	3 QH
GIS 5201 Advanced Spatial Analysis	3 QH
RMS 5105 Fundamentals of Remote Sensing	3 QH

ELECTIVE COURSES

6 quarter hours required

Complete two of the following courses:

GIS 6340 GIS Customization	3 QH
GIS 6350 GIS Management and Implementation	3 QH
GIS 6360 Spatial Databases	3 QH
GIS 6370 Internet-Based GIS	3 QH
GIS 6385 GIS/Cartography	3 QH
GIS 6390 Business Applications of Geographic Information Systems	3 QH
GIS 6391 Healthcare Applications of Geographic Information Systems	3 QH
GIS 6395 Geospatial Analysis of Crime	3 QH
GIS 6396 GIS for Defense, Homeland Security, and Emergency Response	3 QH
RMS 6220 Geographic Information Systems for Remote Sensing	3 QH
RMS 6230 Remote Sensing and Global Change	3 QH
RMS 6240 Introduction to Radar and LIDAR Remote Sensing	3 QH

RMS 6250 Remote Sensing of Vegetation	3 QH
RMS 6260 Remote Sensing for Archaeology	3 QH
RMS 6270 Remote Sensing for Disaster Management	3 QH
RMS 6280 Automated and Assisted Feature Extraction Techniques	3 QH
RMS 6290 Spectroscopic Image Analysis	3 QH
RMS 6292 Photogrammetry and GPS	3 QH

Master of Professional Studies in Geographic Information Technology

Increased interest in geographic information and its applications is fueling demand for surveyors, cartographers, photogrammetrists, and mapping technicians. In response to this increased demand, Northeastern University's College of Professional Studies has developed the Master of Professional Studies in Geographic Information Technology (GIT).

Designed to advance your technical expertise, this online degree in geographic information technology explores a range of topics that are essential to the geographic information systems (GIS) field—from project management and system implementation to database design and execution. In addition, advanced concepts and techniques in areas such as raster-based GIS, geospatial information, and GIS modeling are also addressed within this online master's degree. Combining technical knowledge with hands-on GIS training, this results-oriented program seeks to enhance your skills and broaden your knowledge base—equipping you to competently apply GIS in your chosen field. Please note: High-speed Internet service is required for course work in this program.

CREDIT REQUIREMENT

45 quarter hours required

REQUIRED CORE COURSES

21 quarter hours required

Complete the following courses:

GIS 5101 Introduction to Geographic Information Systems	3 QH
GIS 5102 Fundamentals of GIS Analysis	3 QH
GIS 5201 Advanced Spatial Analysis	3 QH
ITC 6020 Information Systems Design and Development	3 QH
PJM 5900* Foundations of Project Management	3 QH
RMS 5105 Fundamentals of Remote Sensing	3 QH

*This course is required for students who do not have at least two years of professional experience working on projects. This course is only intended for those who are not familiar with professional project work. Students with two years or more of professional project experience may substitute PJM 6000 for PJM 5900.

Complete one of the following courses:

CMN 6010 Foundations of Organizational Communication	3 to 6 QH
LDR 6100 Developing Your Leadership Capability	3 to 6 QH
LDR 6125 Managing Organizational Culture	3 QH

CONCENTRATIONS COURSES

18–20 quarter hours

Students must complete 18–20 quarter hours from one of the concentrations below and complement their studies with 6 additional quarter hours of elective courses from the concentration or open elective courses below to meet the minimum 45-quarter-hour degree requirement.

Students are not required to complete a concentration. Any combination of 24 quarter hours from concentration and elective courses will satisfy degree requirements.

Geographic Information Systems

18 quarter hours required

Complete six of the following courses:

GIS 6340 GIS Customization	3 QH
GIS 6350 GIS Management and Implementation	3 QH
GIS 6360 Spatial Databases	3 QH
GIS 6370 Internet-Based GIS	3 QH
GIS 6385 GIS/Cartography	3 QH
GIS 6390 Business Applications of Geographic Information Systems	3 QH
GIS 6391 Healthcare Applications of Geographic Information Systems	3 QH
GIS 6395 Geospatial Analysis of Crime	3 QH
GIS 6396 GIS for Defense, Homeland Security, and Emergency Response	3 QH

Remote Sensing

18 quarter hours required

Complete the following course:

RMS 6110 Digital Image Processing	3 QH
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Complete five of the following courses:

RMS 6220 Geographic Information Systems for Remote Sensing	3 QH
RMS 6230 Remote Sensing and Global Change	3 QH
RMS 6240 Introduction to Radar and LIDAR Remote Sensing	3 QH
RMS 6250 Remote Sensing of Vegetation	3 QH
RMS 6260 Remote Sensing for Archaeology	3 QH
RMS 6270 Remote Sensing for Disaster Management	3 QH
RMS 6280 Automated and Assisted Feature Extraction Techniques	3 QH
RMS 6290 Spectroscopic Image Analysis	3 QH
RMS 6292 Photogrammetry and GPS	3 QH

ELECTIVE COURSES

6 quarter hours required

Complete two of the following courses:

GIS 6340 GIS Customization	3 QH
GIS 6350 GIS Management and Implementation	3 QH
GIS 6360 Spatial Databases	3 QH
GIS 6370 Internet-Based GIS	3 QH
GIS 6385 GIS/Cartography	3 QH
GIS 6390 Business Applications of Geographic Information Systems	3 QH

GIS 6391 Healthcare Applications of Geographic Information Systems	3 QH
GIS 6395 Geospatial Analysis of Crime	3 QH
GIS 6396 GIS for Defense, Homeland Security, and Emergency Response	3 QH
RMS 6220 Geographic Information Systems for Remote Sensing	3 QH
RMS 6230 Remote Sensing and Global Change	3 QH
RMS 6240 Introduction to Radar and LIDAR Remote Sensing	3 QH
RMS 6250 Remote Sensing of Vegetation	3 QH
RMS 6260 Remote Sensing for Archaeology	3 QH
RMS 6270 Remote Sensing for Disaster Management	3 QH
RMS 6280 Automated and Assisted Feature Extraction Techniques	3 QH
RMS 6290 Spectroscopic Image Analysis	3 QH
RMS 6292 Photogrammetry and GPS	3 QH

GLOBAL STUDIES AND INTERNATIONAL AFFAIRS

Graduate Certificate in Global Studies and International Affairs

The Graduate Certificate in Global Studies and International Affairs is designed to provide students with the skills and training necessary to analyze, research, and evaluate a topic of interest in a global location. Overall, the program curriculum focuses on the themes of transition and development in the global world. Core courses provide a base of knowledge about global issues.

CREDIT REQUIREMENT

16 quarter hours required

Complete all of the following courses:

GST 6100 Global Basics: Globalization and Global Politics and Economics	4 QH
GST 6101 Global Basics: Global Literacy, Culture, and Community	4 QH
GST 6102 Global Basics: Global Corporate and Social Responsibility	4 QH
Global studies elective	4 QH

Master of Science in Global Studies and International Affairs

Globalization has created a world of new opportunities for those savvy enough to recognize them and acquire the new skill sets needed for success in international government, consulting, business and industry, nonprofit, and educational sectors.

This program prepares students for internationally focused positions that range from traditional practitioners of diplomacy, to development workers, to executives employed in the dynamic world of international consultancy, trade, and industry. With courses enriched by classmates from every continent, students are active learners in a collaborative, cross-cultural setting from their very first course.

The core curriculum ensures all students have a solid grounding in foundational courses such as international politics, economics, security, and diplomacy. Students then select from a broad-based menu of concentrations, allowing them to develop specialties. The program culminates in a capstone experience in which students elect to write a thesis, engage in a case study, or undertake short-term travel to conduct intensive field research.

CREDIT REQUIREMENT

46 quarter hours required

REQUIRED FOUNDATION COURSES

24 quarter hours required

Complete the following courses:

GST 6000 Political Philosophy for Global Studies	4 QH
GST 6100 Global Basics: Globalization and Global Politics and Economics	4 QH
GST 6101 Global Basics: Global Literacy, Culture, and Community	4 QH

GST 6102 Global Basics: Global Corporate and Social Responsibility	4 QH
GST 6109 Basic Field Research Methods	4 QH
GST 6920 Case Study in Global Studies	4 QH
GST 7990* Thesis	4 QH

*This course, which requires faculty approval, should be taken as the last course within the program.

CONCENTRATIONS COURSES

16 quarter hours

If students prefer to focus their studies on a particular concentration, they may select 16–19 quarter hours from one of the concentrations below and complement their studies with 4–8 quarter hours of elective courses (listed at the end of the curriculum) to meet the minimum 46-quarter-hour degree requirement.

Conflict Resolution Concentration

GST 6320 Global Issues: Peace and Conflict	4 QH
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Complete three of the following courses:

GST 6300 Global Issues: Security and Terrorism	4 QH
GST 6324 Divided Societies in the Modern World	4 QH
GST 6326 International Conflict and Cooperation	4 QH
GST 6327 Conflict and Postconflict Development	4 QH

Global Development Concentration

GST 6340 Global Issues: Poverty and Wealth	4 QH
GST 6610 Sustainable Development	4 QH

Complete two of the following courses:

GST 6200 Global Players: The Funders	4 QH
GST 6210 Global Players: The Developers	4 QH
GST 6220 Globalization of Emerging Economies	4 QH
GST 6310 Global Issues: Immigration and Labor	4 QH
GST 6350 Global Economics of Food and Agriculture	4 QH
GST 6440 Global Focus: Resources and Markets	4 QH

Global Health Concentration

The global health concentration is currently available at the Boston campus only. Online classes are not offered within this concentration.

GST 6700 Global Health Perspectives, Politics, and Experiences in International Development	4 QH
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Complete three of the following courses:

GST 6350 Global Economics of Food and Agriculture	4 QH
GST 6710 Critical Issues and Challenges in the Practice of Global Health	4 QH
GST 6720 Emerging Infectious Diseases and Health Impacts of Social and Environmental Changes	4 QH
GST 6730 Health and Human Rights and Ethical Issues in Global Health Futures	4 QH

Nonprofit Management Concentration

GST 6430 Global Focus: Leadership and Management	4 QH
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Complete five of the following courses:

NPM 6110 Legal and Governance Issues in Nonprofit Organizations	3 QH
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NPM 6120 Financial Management for Nonprofit Organizations	3 QH
NPM 6125 Promoting Nonprofit Organizations	3 QH
NPM 6130 Fund-Raising and Development for Nonprofit Organizations	3 QH
NPM 6140 Grant and Report Writing	3 QH
NPM 6150 Human Resources Management in Nonprofit Organizations	3 QH

ELECTIVE COURSES

In addition to a concentration, students must take 8 additional quarter hours of elective courses. These may come from the concentration courses above or the open electives listed below:

GST 6108 Introduction to Quantitative Research and Applied Statistics	2 QH
GST 6330 Global Issues: Religion, the State, and Society	4 QH
GST 6360 Nuclear Weaponry: Science and Politics	2 QH
GST 6410 Global Focus: Education and Information Technology	4 QH
GST 6430 Global Focus: Leadership and Management	4 QH
GST 6530 Global Hot Spots: Europe and North Africa	4 QH
GST 6540 Politics of the European Union	4 QH
GST 6550 U.S. Foreign Policy	4 QH

HEALTH MANAGEMENT

Graduate Certificate in Health Management

Projections for the healthcare industry state that job growth will remain above average into the next decade. The needs of an aging population along with the increased human life cycle are just some of the factors contributing to this growth.

The Graduate Certificate in Health Management examines the financial, political, legal, and operational aspects of a healthcare facility and explores the evolution of healthcare delivery in the United States.

Health managers are found in different roles across healthcare organizations including:

- Strategic planning
- Operations
- Human resources
- Fund-raising
- Purchasing

Health managers are responsible for designing, administering, managing, and evaluating health policies, programs, and services. The courses in this certificate also serve as a concentration in the Master of Science in Leadership program.

CREDIT REQUIREMENT

18 quarter hours required

REQUIRED CORE COURSES

12 quarter hours required

Complete the following courses:

HMG 6110 Organization, Administration, Financing, and History of Healthcare	3 QH
HMG 6120 Human Resource Management in Healthcare	3 QH
HMG 6130 Healthcare Strategic Management	3 QH
NPM 6120 Financial Management for Nonprofit Organizations	3 QH

ELECTIVE COURSES

6 quarter hours required

Complete two of the following courses:

HRM 6020 Strategic Recruitment, Training, and Performance Management	3 QH
HMG 6140 Principles of Population-Based Management	3 QH
HMG 6160 Healthcare Information Systems Management	3 QH
HMG 6170 Health Law, Politics, and Policy	3 QH
NPM 6110 Legal and Governance Issues in Nonprofit Organizations	3 QH
NPM 6150 Human Resources Management in Nonprofit Organizations	3 QH

HOMELAND SECURITY

Master of Science in Homeland Security

The Master of Science in Homeland Security is intended to prepare the next generation of emergency managers and homeland security professionals for leadership roles in the public and private sectors. The degree offers a comprehensive program of studies covering core elements of homeland security and emergency management at the graduate level, including management skills, intelligence gathering and analysis, risk management, emergency planning and management, legal issues, technological issues, and social psychology. The MS in Homeland Security program is designed to develop high-level operational expertise through the application of the above content to the implementation of emergency response protocols as executed in the United States.

CREDIT REQUIREMENT

45 quarter hours required

CORE COURSE REQUIREMENT

21 quarter hours required

Complete the following courses:

CMN 6050 Crisis Communication	3 QH
HLS 6000 Introduction to Homeland Security	3 QH
HLS 6010 The Unconventional Threat to Homeland Security	3 QH
HLS 6020 Technology for Homeland Security	3 QH
HLS 6030 Intelligence for Homeland Security	3 QH
HLS 6040 Critical Infrastructure: Vulnerability Analysis and Protection	3 QH
HLS 6050 Multidisciplinary Approaches to Homeland Security	3 QH

ELECTIVE COURSES

6 quarter hours required

Complete two of the following courses:

CJS 5978 Independent Study	3 QH
CJS 6000 Management for Security Professionals	3 QH
CJS 6005 Legal and Regulatory Issues for Security Management	3 QH
CJS 6010 Advanced Principles of Security Management and Threat Assessment	3 QH
CJS 6105 Domestic and International Terrorism	3 QH
CJS 6125 Issues in National Security	3 QH
CJS 6430 Risk Management	3 QH
CJS 6964 Co-op	0 QH
CMN 6060 Negotiation, Mediation, and Facilitation	3 QH
GST 6300 Global Issues: Security and Terrorism	4 QH
GST 6720 Emerging Infectious Diseases and Health Impacts of Social and Environmental Changes	4 QH

CONCENTRATIONS COURSES

18 quarter hours

Emergency Management and Geographic Information Technologies Concentration

GIS 5101 Introduction to Geographic Information Systems	3 QH
GIS 5102 Fundamentals of GIS Analysis	3 QH
HLS 6060 Strategic Planning and Budgeting	3 QH
RMS 6270 Remote Sensing for Disaster Management	3 QH
XXX XXXX Continuity of Operations and Planning (pending approval)	3 QH
XXX XXXX Emergency Management and Geographic Information Technologies (pending approval)	3 QH

Organization and Infrastructure Continuity Concentration

CJS 6430 Risk Management	3 QH
GIS 5101 Introduction to Geographic Information Systems	3 QH
GIS 6390 Business Applications of Geographic Information Systems	3 QH
ITC 6310 Information Security Governance	3 QH
ITC 6315 Information Security Risk Management	3 QH
XXX XXXX Organization and Structural Continuity Planning (pending approval)	3 QH

HUMAN RESOURCES MANAGEMENT

Graduate Certificate in Human Resources Management

In today's multifaceted organizations, human resource professionals must respond to the growing challenges of regulatory compliance, complex benefit plans, and training and motivating employees.

The Graduate Certificate in Human Resources Management seeks to foster a deep understanding of organizational development and effective change management, workforce planning and strategic recruitment, and training and performance management.

CREDIT REQUIREMENT

18 quarter hours required

REQUIRED CORE COURSES

18 quarter hours required

Complete the following courses:

HRM 6005 Creating a High-Performance Organization: Strategic Organizational and HRM Choices	3 QH
HRM 6010 Total Compensation	3 QH
HRM 6020 Strategic Recruitment, Training, and Performance Management	3 QH
HRM 6030 Employee Rights and Employer Obligations	3 QH
HRM 6040* High-Performance Human Resources Systems and Development	3 QH
HRM 6045 Change, Challenge, and Competence	3 QH

*This course recommended as the last course within the program.

HUMAN SERVICES

Master of Science in Human Services

Professionals with graduate degrees in human services are needed to address a wide range of societal issues—whether by providing direct services, supervising personnel, or administering programs and policies. Often responsible for working with vulnerable populations, human services professionals must be adept at conducting assessments, developing service plans and policies, leading interdisciplinary teams, and managing care for at-risk clients.

To address this important need, the CPS offers the online Master of Science in Human Services. In addition to a solid core curriculum, the program offers several electives, as well as concentrations in leadership, organizational communication, and global studies—enabling you to focus your graduate studies in the area that best matches your interests and career objectives. Reflecting Northeastern's philosophy of practice-oriented education, this human services master's degree includes work-based applications and a capstone service-learning project, offering you an opportunity to deepen your knowledge within your chosen specialty. This human services graduate degree program seeks to produce graduates with the knowledge and skills they need to pursue a leadership role in the fulfilling field of human services.

CREDIT REQUIREMENT

45 quarter hours required

REQUIRED CORE COURSES

21 quarter hours required

Complete the following courses:

HSV 6100 Theory and Practice of Human Services	3 QH
HSV 6110 Human Services Management and Development	3 QH
HSV 6120 Social Inequality, Social Change, and Community Building	3 QH
HSV 6160 Introduction to Employee Assistance Programs	3 QH
HSV 6630 Research and Evaluation in Human Services	3 QH
HSV 6640 Policy Issues in Human Services	3 QH
HSV 6980 Capstone	1 to 4 QH

ELECTIVE COURSES

9 quarter hours required

Complete three of the following courses:

CMN 6015 Introduction to the Digital Era: The Power of Social Media	3 QH
CMN 6080 Intercultural Communication	3 to 6 QH
NPM 6120 Financial Management for Nonprofit Organizations	3 QH
NPM 6130 Fund-Raising and Development for Nonprofit Organizations	3 QH
NPM 6140 Grant and Report Writing	3 QH
NPM 6150 Human Resources Management in Nonprofit Organizations	3 QH

CONCENTRATIONS COURSES

15–16 quarter hours required

Choose one of the following concentrations:

Global Studies Concentration

16 quarter hours required

Complete all of the following courses:

GST 6100 Global Basics: Globalization and Global Politics and Economics	4 QH
GST 6101 Global Basics: Global Literacy, Culture, and Community	4 QH
GST 6102 Global Basics: Global Corporate and Social Responsibility	4 QH

Complete one of the following courses:

GST 6300 Global Issues: Security and Terrorism	4 QH
GST 6310 Global Issues: Immigration and Labor	4 QH
GST 6330 Global Issues: Religion, the State, and Society	4 QH

Leadership Concentration

15 quarter hours required

Complete all of the following courses:

LDR 6100 Developing Your Leadership Capability	3 QH
LDR 6110 Leading Teams	3 QH
LDR 6120 Creating Leadership Capacity: Developing Bench Strength	3 QH

LDR 6140 Developing the Strategic Leader	3 QH
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Complete one of the following courses:

LDR 6125 Managing Organizational Culture	3 QH
LDR 6135 The Ethical Leader	3 QH

Organizational Communication Concentration

15 quarter hours required

Complete all of the following courses:

CMN 6010 Foundations of Organizational Communication	3 QH
CMN 6020 Ethical Issues in Organizational Communication	3 QH
CMN 6050 Crisis Communication	3 QH
CMN 6090 Organizational Culture, Climate, and Communication	3 QH
CMN 6110 Group Dynamics and Interpersonal Conflict: Meeting Management	3 QH

INFORMATICS**Master of Professional Studies in Informatics**

A relatively new and rapidly evolving area, informatics is increasingly used to solve today's problems. Whether it's used to create information and communication technologies, design decision support systems, develop 3-D visualizations, or devise mobile applications, informatics can be applied across a wide range of industries to address a variety of privacy, security, healthcare, environmental, educational, and social challenges. In response, Northeastern University offers the Master of Professional Studies in Informatics. Designed to improve your computing skills and enhance your knowledge of computing applications, this master's degree seeks to prepare you to excel in the fast-growing and dynamic field of informatics.

CREDIT REQUIREMENT

45–47 quarter hours required

REQUIRED CORE COURSES

24 quarter hours required

Complete the following courses:

ITC 6000 Database Management Systems	3 QH
ITC 6010 Information Technology Strategy and Governance	3 QH
ITC 6020 Information Systems Design and Development	3 QH
ITC 6030 Computer Systems and Networks	3 QH
ITC 6035 Information Technology Project Management	3 QH
ITC 6040 Informatics Capstone	3 QH
ITC 6045 Information Technology Policy, Ethics, and Social Responsibility	3 QH
ITC 6300 Foundations of Information Security	3 QH

If students prefer to focus their studies on a particular concentration, they may complete 18–20 QH from one of the concentrations below and complement their studies with 3–4 QH of elective courses (listed at the end of the curriculum) to meet the minimum 45-QH degree requirement.

Students are not required to complete a concentration. Any combination of 21–24 QH from concentration and elective courses satisfies the degree requirement.

Information Security Management Concentration

18–20 quarter hours required

ITC 6305 IT Infrastructure (Systems, Networks, Telecom)	3 QH
ITC 6310 Information Security Governance	3 QH
ITC 6315 Information Security Risk Management	3 QH
ITC 6320 Information Security Technology	3 QH

Complete two of the following courses:

ITC 6325 CISA Preparation	3 QH
ITC 6330 CISSP Preparation	3 QH
MIS 6080 Network Security Concepts	4 QH
MIS 6082 Network Protection	4 QH

Geographic Information Systems Concentration

18 quarter hours required

Complete the following courses:

GIS 5101 Introduction to Geographic Information Systems 3 QH

GIS 5102 Fundamentals of GIS Analysis 3 QH

GIS 5201 Advanced Spatial Analysis 3 QH

RMS 5105 Fundamentals of Remote Sensing 3 QH

Complete two of the following courses:

GIS 6340 GIS Customization 3 QH

GIS 6350 GIS Management and Implementation 3 QH

GIS 6360 Spatial Databases 3 QH

GIS 6370 Internet-Based GIS 3 QH

GIS 6385 GIS/Cartography 3 QH

GIS 6390 Business Applications of Geographic Information Systems 3 QH

GIS 6391 Healthcare Applications of Geographic Information Systems 3 QH

ELECTIVE COURSES

Complete a minimum of 3 quarter hours from the following list:

DGM 6145 Information Technology and Creative Practice 4 QH

DGM 6500 Working with Digital Images 2 QH

DGM 6501 Web Creation Boot Camp 2 QH

DGM 6511 Web Creation Bootcamp 2 2 QH

GIS 5101 Introduction to Geographic Information Systems 3 QH

GIS 5102 Fundamentals of GIS Analysis 3 QH

GIS 6360 Spatial Databases 3 QH

GIS 6370 Internet-Based GIS 3 QH

ITC 6015 Enterprise Information Architecture 3 QH

ITC 6335 Data Warehousing and Data Mining 3 QH

ITC 6340 Mobile and Wireless Networks and Applications 3 QH

ITC 6345 Systems and Network Administration 3 QH

ITC 6355 Web Application Design and Development 3 QH

ITC 7120 Healthcare Information Systems 3 QH

PJM 6000 Project Management Practices 3 QH

TCC 6110 Information Architecture 4 QH

TCC 6120 Usability and User Experience 4 QH

INFORMATION SECURITY**Graduate Certificate in Information Security Management**

Information security is a management issue with global business implications. To succeed in today's network economy requires more than simply a focus on information technology (IT) issues. Succeeding also requires a focus on security strategy and management. IT security governance is an overarching consideration in all risk-assessment and management-related endeavors and is important for information security since many issues have legal, regulatory, policy, and ethical considerations. The associated risks of business today must be clearly understood and managed.

CREDIT REQUIREMENT

18 quarter hours required

REQUIRED CORE COURSES

15 quarter hours required

Complete the following courses:

ITC 6300 Foundations of Information Security 3 QH

ITC 6305 IT Infrastructure (Systems, Networks, Telecom) 3 QH

ITC 6310 Information Security Governance 3 QH

ITC 6315 Information Security Risk Management 3 QH

ITC 6320 Information Security Technology 3 QH

ELECTIVE COURSES

3 quarter hours required

Complete one of the following courses:

ITC 6325 CISA Preparation 3 QH

ITC 6330 CISSP Preparation 3 QH

MIS 6080 Network Security Concepts 4 QH

MIS 6082 Network Protection 4 QH

LAW AND POLICY

Doctorate in Law and Policy

Public servants, executives, and managers operate in an increasingly complex global environment. A doctoral education seeks to provide the policy, analytic, and research skills necessary to advance one's career.

Developed jointly by the College of Professional Studies and Northeastern's Law and Public Policy program, the Doctorate in Law and Policy program (LPD) is designed for experienced professionals who are interested in the origins, development, implementation, and analysis of legal and public policy decisions in government and related institutions. The program prepares students to advance their careers within a variety of fields while focusing their thesis research on a precise law and policy topic.

Students undertake the LPD in order to understand the ways in which public and related institutions formulate and execute policy. Students have the opportunity to develop the ability to interpret and assess the research of others, to acquire skills as researchers, and to communicate their knowledge to a wide range of audiences. Those who successfully complete the degree are equipped to bring their skills and knowledge to senior policy and management positions in government, nonprofit agencies, research organizations, consulting firms, and corporations.

The LPD program is structured so course work and the doctoral thesis can be completed in two years. Classes meet one weekend per month in Boston, and the learning continues online throughout the rest of the month.

Northeastern University also offers a traditional PhD in Law, Policy, and Society. To learn more, visit the law and public policy program website at www.northeastern.edu/law/academics/curriculum/dual-degrees/lawpolicy.html.

ADMISSION REQUIREMENTS

Please note that the Doctorate in Law and Policy degree offered through the CPS has the following admission requirements:

- Online application
- Academic transcripts (undergraduate **and** graduate)
- Statement of purpose
- Professional resumé
- Three letters of recommendation
- Interview (selected students only)
- English-language proficiency proof (for non-native English-language speakers)

CREDIT REQUIREMENT

48 quarter hours required

REQUIRED COURSES***Year One, Summer Quarter***

LWP 6120 Law and Legal Reasoning 1	2 QH
LWP 6401 Law and Policy Concepts 1: The Policy Making Process	2 QH
LWP 6424 Research Methods	2 QH

Year One, Fall Quarter

LWP 6121 Law and Legal Reasoning 2	2 QH
LWP 6402 Law and Policy Concepts 2: Strategizing for Public Policy	2 QH
LWP 6420 Quantitative Methods	2 QH

Year One, Winter Quarter

LWP 6122 Law and Legal Reasoning 3	2 QH
LWP 6403 Law and Policy Concepts 3: Policy Case Studies	2 QH
LWP 6423 Qualitative Methods	2 QH

Year One, Spring Quarter

LWP 6123 Law and Legal Reasoning 4	2 QH
LWP 6404 Evaluation Research	2 QH
LWP 6410 Economics for Policy Analysis	2 QH

Year Two, Summer Quarter

LWP 6425 Methods and Theory as Applied to Doctoral Research	2 QH
LWP 6431 Political and Moral Ethics and Dilemmas	2 QH
LWP 6500 Doctoral Research Design 1	2 QH

Year Two, Fall Quarter

LWP 6450 Public Policy Theory and Practice 1	4 QH
LWP 6501 Doctoral Research Design 2	2 QH

Year Two, Winter Quarter

LWP 6451 Public Policy Theory and Practice 2	4 QH
LWP 6502 Doctoral Research Design 3	2 QH

Year Two, Spring Quarter

LWP 6452 Public Policy Theory and Practice 3	4 QH
LWP 6503 Doctoral Research Design 4	2 QH

Additional Quarters (if needed)

LWP 7994 Thesis Continuation—Part Time	0 QH
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LEADERSHIP

Graduate Certificate in Leadership

Today's cross-functional teams and organizations require a leadership style that capitalizes on the collective expertise and capabilities of the group. The development and mastery of collaborative leadership skills are not typically part of one's focused discipline preparation; hence, leadership requires deliberate development by those who assume leadership roles. The Graduate Certificate in Leadership starts with the premise that everyone is capable of leadership. The program studies every aspect of leadership dynamics from the leader as an individual to working in teams and from the organization itself to the development of strategic leadership techniques. Course work exposes participants to a series of alternative perspectives of leadership, including collaborative models. Using the course's action-learning methods, participants build a personal model of leadership that they can put to immediate use in their workplace.

CREDIT REQUIREMENT

18 quarter hours required

REQUIRED COURSES

12 quarter hours required

Complete all of the following courses:

LDR 6100 Developing Your Leadership Capability	3 QH
LDR 6110 Leading Teams	3 QH
LDR 6120 Creating Leadership Capacity: Developing Bench Strength	3 QH
LDR 6140 Developing the Strategic Leader	3 QH

ELECTIVE COURSES

6 quarter hours required

Complete two of the following courses:

CMN 6010 Foundations of Organizational Communication	3 QH
HRM 6005 Creating a High-Performance Organization: Strategic Organizational and HRM Choices	3 QH
LDR 6125 Managing Organizational Culture	3 QH
LDR 6135 The Ethical Leader	3 QH

Master of Science in Leadership

As today's workforce continues to diversify, leadership tasks and responsibilities have become more complex. The Master of Science in Leadership seeks to prepare you to meet these evolving challenges by helping you cultivate a personal leadership philosophy. Leveraging students' interdisciplinary backgrounds, this master's degree in leadership combines real-world lessons with an action-learning approach that is designed to build and strengthen your leadership capabilities.

In September of 2009, the Master of Science in Leadership with a Concentration in Project Management received accreditation by the Project Management Institute's Global Accreditation Center (GAC), the world's leading association for project management professionals. Accreditation is achieved by meeting the GAC's rigorous standards, which include an assessment of program objectives and outcomes, a review of on-site and online resources, evaluations of faculty and students, and proof of continuous improvements in the area of project management.

Note: Effective August 1, 2011, courses from FIN and ACC may not be applied toward this degree.

CREDIT REQUIREMENT

45–46 quarter hours required

REQUIRED CORE COURSES

24 quarter hours required

Complete all of the following courses in the order listed below:

LDR 6100 Developing Your Leadership Capability	3 QH
LDR 6110 Leading Teams	3 QH
LDR 6120 Creating Leadership Capacity: Developing Bench Strength	3 QH
LDR 6125 Managing Organizational Culture	3 QH
LDR 6135 The Ethical Leader	3 QH
LDR 6140 Developing the Strategic Leader	3 QH
LDR 6145 Managing a Diverse Workforce	3 QH
LDR 7995 Project	1 to 4 QH

ELECTIVE COURSES

6 quarter hours required

Complete two of the following courses:

CMN 6015 Introduction to the Digital Era: The Power of Social Media	3 QH
CMN 6060 Negotiation, Mediation, and Facilitation	3 QH
CMN 6080 Intercultural Communication	3 QH
CMN 6110 Group Dynamics and Interpersonal Conflict: Meeting Management	3 QH
COP 6940* Personal and Career Development	1 to 4 QH

*Enrollment into this course requires participation in the cooperative education program.

CONCENTRATION COURSES

15–16 quarter hours required

Choose one of the following concentrations:

Health Management Concentration

15 quarter hours required

Complete all of the following courses:

HMG 6110 Organization, Administration, Financing, and History of Healthcare	3 QH
HMG 6130 Healthcare Strategic Management	3 QH
HMG 6140 Principles of Population-Based Management	3 QH
HMG 6160 Healthcare Information Systems Management	3 QH
HMG 6170 Health Law, Politics, and Policy	3 QH

Human Resources Concentration

15 quarter hours required

Complete all of the following courses:

HRM 6005 Creating a High-Performance Organization: Strategic Organizational and HRM Choices	3 QH
HRM 6010 Total Compensation	3 QH
HRM 6020 Strategic Recruitment, Training, and Performance Management	3 QH
HRM 6030 Employee Rights and Employer Obligations	3 QH
HRM 6040 High-Performance Human Resources Systems and Development	3 QH

Nonprofit Management Concentration

15 quarter hours required

Complete all of the following courses:

NPM 6110 Legal and Governance Issues in Nonprofit Organizations	3 QH
NPM 6120 Financial Management for Nonprofit Organizations	3 QH
NPM 6125 Promoting Nonprofit Organizations	3 QH
NPM 6130 Fund-Raising and Development for Nonprofit Organizations	3 QH
NPM 6140 Grant and Report Writing	3 QH

Organizational Communications Concentration

15 quarter hours required

Complete all of the following courses:

CMN 6010 Foundations of Organizational Communication	3 to 6 QH
CMN 6020 Ethical Issues in Organizational Communication	3 QH
CMN 6050 Crisis Communication	3 to 6 QH
CMN 6090 Organizational Culture, Climate, and Communication	3 QH
CMN 6110 Group Dynamics and Interpersonal Conflict: Meeting Management	3 QH

Project Management Concentration

15–16 quarter hours required

Complete the following courses:

PJM 5900* Foundations of Project Management	3 QH
PJM 6000 Project Management Practices	3 QH
PJM 6010 Project Planning and Scheduling	3 QH
PJM 6015 Project Risk Management	3 QH

*This course is required for students who do not have at least two years of professional experience working on projects. This course is highly recommended for students who don't have a basic working knowledge of MsProject software. Students with project management experience are not required to take this course.

Complete two** of the following courses:

PJM 6020 Project Cost and Budget Management	3 QH
PJM 6125 Project Evaluation and Assessment	3 QH
PJM 6135 Project Quality Management	3 QH

**Students who take PJM 5900 are only required to take one course within this section.

Sport and Social Change Concentration

16 quarter hours required

Complete all of the following courses:

GST 6102 Global Basics: Global Corporate and Social Responsibility	4 QH
HSV 6120 Social Inequality, Social Change, and Community Building	3 QH
LDR 6360 Dynamics of Change at the Community and Social Level	3 QH
LDR 6410 Leadership and Organization in Sport	3 QH
LDR 6427 Gender and Diversity in Sport	3 QH

Master of Sports Leadership

The practice-oriented sports leadership master's degree is structured to accommodate midcareer athletic administrators and coaches, as well as individuals seeking to prepare for careers in the sports industry.

Developed in collaboration with Northeastern University's Center for the Study of Sport in Society, the Master of Sports Leadership seeks to prepare you for a variety of sport-related occupations—whether it's working with a professional or intercollegiate sports team; with a fitness club or wellness organization; or in marketing, communication, or sports management. Courses within this unique graduate degree examine the social and business issues that are critical to sports leadership. Offered in an online format with an intensive one-week summer institute in Boston, this practice-oriented degree seeks to provide you with a well-rounded educational experience, equipping you to advance your career in the sports industry.

CREDIT REQUIREMENT

45 quarter hours required

REQUIRED CORE COURSES

24 quarter hours required

Complete all of the following courses:

LDR 6100 Developing Your Leadership Capability	3 to 6 QH
LDR 6135 The Ethical Leader	3 QH
LDR 6400 Sports Management	3 QH
LDR 6405* Sport in Society	3 QH
LDR 6410 Leadership and Organization in Sport	3 QH
LDR 6430 Sports Law	3 QH
LDR 6441* Sports Media Relations	3 QH

*Summer institute course; only available on-campus in Boston.

Summer institute courses should be taken only after students have completed their first year of classes.

Complete one of the following courses. This course should be taken as the last course in the program and requires faculty advisor approval:

LDR 6961 Internship	1 to 4 QH
LDR 6995 Project	1 to 6 QH

ELECTIVE COURSES

18 quarter hours required

Complete six of the following courses:

CMN 6015 Introduction to the Digital Era: The Power of Social Media	3 QH
LDR 6323 Event Management	3 QH
LDR 6427 Gender and Diversity in Sport	3 QH
LDR 6435 Fiscal Practices in Sports	3 QH
LDR 6440 Sports Marketing and Promotions	3 QH
LDR 6442 Athletic Fund-Raising	3 QH
LDR 6443 Ticket Sales and Strategies	3 QH
LDR 6445 Corporate Sponsorships	3 QH
LDR 6455 NCAA Compliance	3 QH
LDR 6460 Risk Management in Athletics	3 QH
LDR 6465 Title IX	3 QH
LDR 6615 Academic Advising and Life Skills	3 QH
Open elective*	3 QH

*Choose one course from any College of Professional Studies graduate program.

NONPROFIT MANAGEMENT**Graduate Certificate in Nonprofit Management**

Nonprofits today simply require a higher level of management expertise. Nonprofit managers are required to manage people and programs more efficiently and effectively. The Graduate Certificate in Nonprofit Management focuses on developing skills in organizational management, financial management, fund-raising, grant and report writing, human resources management, and governance.

The program integrates theoretical approaches with practical application to prepare students for positions in either small or large nonprofit organizations. The program targets individuals who work in the nonprofit sector as executive directors, managers, program staff, board members, and volunteers. Students have an opportunity to participate in case studies, individual and group projects, and class discussions.

CREDIT REQUIREMENT

18 quarter hours required

REQUIRED COURSES

18 quarter hours required

Complete all of the following courses:

NPM 6110 Legal and Governance Issues in Nonprofit Organizations	3 QH
NPM 6120 Financial Management for Nonprofit Organizations	3 QH
NPM 6125 Promoting Nonprofit Organizations	3 QH
NPM 6130 Fund-Raising and Development for Nonprofit Organizations	3 QH
NPM 6140 Grant and Report Writing	3 QH
NPM 6150 Human Resources Management in Nonprofit Organizations	3 QH

Master of Science in Nonprofit Management

Facing the threat of privatization and for-profit competition, nonprofit organizations are challenged to find leaders who not only possess keen business and managerial skills but can also effect change at a community or social level. Being successful in this dynamic and rewarding field requires strong leadership, managerial and interpersonal skills, as well as in-depth knowledge of fund-raising, marketing, program development, and governance issues.

Integrating theoretical approaches with practical applications, the Master of Science in Nonprofit Management seeks to prepare you for a leadership position in a not-for-profit university, hospital, charity, foundation, or religious organization. This nonprofit degree program seeks to produce graduates well equipped to embark on a career in nonprofit management—prepared, and inspired, to make a meaningful impact.

CREDIT REQUIREMENT

45 quarter hours required

REQUIRED COURSES

24 quarter hours required

Complete all of the following courses:

LDR 6100 Developing Your Leadership Capability	3 QH
LDR 6360 Dynamics of Change at the Community and Social Level	3 QH
NPM 6110 Legal and Governance Issues in Nonprofit Organizations	3 QH
NPM 6120 Financial Management for Nonprofit Organizations	3 QH
NPM 6125 Promoting Nonprofit Organizations	3 QH
NPM 6130 Fund-Raising and Development for Nonprofit Organizations	3 QH
NPM 6140 Grant and Report Writing	3 QH
NPM 6150 Human Resources Management in Nonprofit Organizations	3 QH

ELECTIVE COURSES

6 quarter hours required

Complete two of the following courses:

CMN 6050 Crisis Communication	3 QH
CMN 6080 Intercultural Communication	3 QH
COP 6940* Personal and Career Development	1 to 4 QH
LDR 6110 Leading Teams	3 to 6 QH

*Enrollment into this course requires participation in the cooperative education program.

CONCENTRATIONS COURSES

15–17 quarter hours required

Choose one of the following concentrations or select any College of Professional Studies graduate certificate.

Global Studies Concentration

16 quarter hours required

Complete the following courses:

GST 6100 Global Basics: Globalization and Global Politics and Economics	4 QH
GST 6101 Global Basics: Global Literacy, Culture, and Community	4 QH
GST 6102 Global Basics: Global Corporate and Social Responsibility	4 QH

Complete one of the following courses:

GST 6210 Global Players: The Developers	4 QH
GST 6340 Global Issues: Poverty and Wealth	4 QH
GST 6610 Sustainable Development	4 QH

Human Services Concentration

15 quarter hours required

Complete all of the following courses:

HSV 6100 Theory and Practice of Human Services	3 QH
HSV 6110 Human Services Management and Development	3 QH
HSV 6160 Introduction to Employee Assistance Programs	3 QH
HSV 6630 Research and Evaluation in Human Services	3 QH
HSV 6640 Policy Issues in Human Services	3 QH

Leadership Concentration

15 quarter hours required

Complete all of the following courses:

LDR 6110 Leading Teams	3 QH
LDR 6120 Creating Leadership Capacity: Developing Bench Strength	3 QH
LDR 6125 Managing Organizational Culture	3 QH
LDR 6135 The Ethical Leader	3 QH
LDR 6140 Developing the Strategic Leader	3 QH

Organizational Communications Concentration

15 quarter hours required

Complete all of the following courses:

CMN 6010 Foundations of Organizational Communication	3 QH
CMN 6020 Ethical Issues in Organizational Communication	3 QH
CMN 6050 Crisis Communication	3 QH
CMN 6090 Organizational Culture, Climate, and Communication	3 QH
CMN 6110 Group Dynamics and Interpersonal Conflict: Meeting Management	3 QH

Project Management Concentration

15–16 quarter hours required

Complete the following courses:

PJM 5900* Foundations of Project Management	3 QH
PJM 6000 Project Management Practices	3 QH
PJM 6010 Project Planning and Scheduling	3 QH
PJM 6015 Project Risk Management	3 QH

*This course is required for students who do not have at least two years of professional experience working on projects. This course is highly recommended for students who don't have a basic working knowledge of MsProject software. Students with project management experience are not required to take this course.

Complete two** of the following courses:

PJM 6020 Project Cost and Budget Management	3 QH
PJM 6125 Project Evaluation and Assessment	3 QH
PJM 6135 Project Quality Management	3 QH

**Students who take PJM 5900 are only required to take one course within this section.

Social Media and Online Communities Concentration

15 quarter hours required

Complete five of the following courses:

CMN 6015 Introduction to the Digital Era: The Power of Social Media	3 QH
CMN 6025 Digital Era Skills: Platforms, Tools, and Techniques	3 QH
CMN 6035 Legal, Policy, and Ethical Issues in the Digital Era	3 QH
CMN 6045 Leveraging Digital Technologies: Strategy, Assessment, and Governance	3 QH
CMN 6055 Planning and Design of Social Media Channels and Online Communities	3 QH

CMN 6065 Implementation and Management of Social Media Channels and Online Communities	3 QH
DGM 6285 Interactive Marketing Fundamentals	4 QH
DGM 6290 Social Media and Brand Strategy Implementation	4 QH
<i>Sports and Social Change Concentration</i>	
16 quarter hours required	
Complete all of the following courses:	
GST 6102 Global Basics: Global Corporate and Social Responsibility	4 QH
HSV 6120 Social Inequality, Social Change, and Community Building	3 QH
LDR 6360 Dynamics of Change at the Community and Social Level	3 QH
LDR 6410 Leadership and Organization in Sport	3 QH
LDR 6427 Gender and Diversity in Sport	3 QH

ORGANIZATIONAL COMMUNICATION

Graduate Certificate in Organizational Communication

The study of organizational communication focuses on the dynamics of communication in complex organizations for the purpose of learning how individuals within such organizations can become effective communicators. Whether the context of such communication is meetings or professional presentations, communicating during a crisis, or intercultural exchanges, the message is consistent: Effective communication is a crucial factor in determining organizational success.

CREDIT REQUIREMENT

18 quarter hours required

REQUIRED COURSES

9 quarter hours required

Complete all of the following courses:

CMN 6010 Foundations of Organizational Communication	3 QH
CMN 6020 Ethical Issues in Organizational Communication	3 QH
CMN 6910* Organizational Communication Assessment	3 QH

*Should be taken as the last course within the program.

ELECTIVE COURSES

9 quarter hours required

Complete two of the following courses:

CMN 6050 Crisis Communication	3 QH
CMN 6060 Negotiation, Mediation, and Facilitation	3 QH
CMN 6061 Personal Branding	3 QH
CMN 6070 Interviewing	3 QH

Complete one of the following courses:

CMN 6015 Introduction to the Digital Era: The Power of Social Media	3 QH
CMN 6080 Intercultural Communication	3 QH
CMN 6090 Organizational Culture, Climate, and Communication	3 QH
CMN 6100 Communication Networks and Managing Information	3 QH
CMN 6110 Group Dynamics and Interpersonal Conflict: Meeting Management	3 QH

Master of Science in Corporate and Organizational Communication

Across all industries and professions, strong written and oral communication skills are essential to success. Whether you are seeking to advance in a communications-related field or get ahead in your current organization, this program seeks to provide the practical knowledge and valuable perspectives you need to communicate across a variety of contexts and situations.

From negotiation and writing to crisis management and public speaking, the Master of Science in Corporate and Organizational Communication examines topics that are critical to effective organizational communication. Incorporating best practices, case studies, and classroom learning, courses within this innovative master's degree in communication address complex communication challenges, seeking to provide you with a distinct advantage in today's competitive marketplace.

CREDIT REQUIREMENT

45 quarter hours required

REQUIRED CORE COURSES

21 quarter hours required

Complete all of the following courses:

CMN 6010 Foundations of Organizational Communication	3 QH
CMN 6020 Ethical Issues in Organizational Communication	3 QH
CMN 6050 Crisis Communication	3 QH
CMN 6080 Intercultural Communication	3 QH
CMN 6090 Organizational Culture, Climate, and Communication	3 QH
CMN 6100 Communication Networks and Managing Information	3 QH
CMN 6910 Organizational Communication Assessment	3 QH

ELECTIVE COURSES

9 quarter hours required

Complete three of the following courses:

CMN 6060 Negotiation, Mediation, and Facilitation	3 QH
CMN 6061 Personal Branding	3 QH
CMN 6070 Interviewing	3 QH
CMN 6110 Group Dynamics and Interpersonal Conflict: Meeting Management	3 QH
CMN 6120 Communicating to and with the Media	3 QH
COP 6940* Personal and Career Development	3 QH

*Enrollment into this course requires participation in the cooperative education program.

CONCENTRATIONS COURSES

15–17 quarter hours required

Choose one of the following concentrations or select any College of Professional Studies graduate certificate.

Human Resources Management Concentration

15 quarter hours required

Complete all of the following courses:

HRM 6005 Creating a High-Performance Organization: Strategic Organizational and HRM Choices	3 QH
HRM 6010 Total Compensation	3 QH
HRM 6020 Strategic Recruitment, Training, and Performance Management	3 QH
HRM 6030 Employee Rights and Employer Obligations	3 QH
HRM 6040 High-Performance Human Resources Systems and Development	3 QH

Human Services Concentration

15 quarter hours required

Complete all of the following courses:

HSV 6100 Theory and Practice of Human Services	3 QH
HSV 6110 Human Services Management and Development	3 QH
HSV 6120 Social Inequality, Social Change, and Community Building	3 QH
HSV 6160 Introduction to Employee Assistance Programs	3 QH
HSV 6630 Research and Evaluation in Human Services	3 QH

Leadership Concentration

15 quarter hours required

Complete the following courses:

LDR 6100 Developing Your Leadership Capability	3 QH
LDR 6110 Leading Teams	3 QH
LDR 6120 Creating Leadership Capacity: Developing Bench Strength	3 QH
LDR 6140 Developing the Strategic Leader	3 QH

Complete one of the following courses:

LDR 6125 Managing Organizational Culture	3 QH
LDR 6135 The Ethical Leader	3 QH

Leading and Managing Technical Projects

15 quarter hours required

Complete one of the following courses:

ITC 6035 Information Technology Project Management	3 QH
PJM 6000 Project Management Practices	3 QH

Complete all of the following courses:

PJM 6205 Communications Skills for Project Managers (pending approval)	3 QH
PJM 6206 Leading and Managing Technical Projects (pending approval)	3 QH
PJM 6215 Leading Virtual Teams (pending approval)	3 QH
PJM 6220 Planning and Scheduling Technical Projects (pending approval)	3 QH

Project Management Concentration

15 quarter hours required

Complete all of the following courses:

PJM 5900* Foundations of Project Management	3 QH
PJM 6000 Project Management Practices	3 QH
PJM 6010 Project Planning and Scheduling	3 QH
PJM 6015 Project Risk Management	3 QH

*This course is required for students who do not have at least two years of professional experience working on projects. This course is highly recommended for students who don't have a basic working knowledge of MsProject software. Students with project management experience are not required to take this course.

Complete two** of the following courses:

PJM 6020 Project Cost and Budget Management	3 QH
PJM 6135 Project Quality Management	3 QH
PJM 6910 Capstone	3 QH

**Students who take PJM 5900 are only required to take one course within this section.

Social Media and Online Communities Concentration

15 quarter hours required

Complete five of the following courses:

CMN 6015 Introduction to the Digital Era: The Power of Social Media	3 QH
CMN 6025 Digital Era Skills: Platforms, Tools, and Techniques	3 QH
CMN 6035 Legal, Policy, and Ethical Issues in the Digital Era	3 QH
CMN 6045 Leveraging Digital Technologies: Strategy, Assessment, and Governance	3 QH
CMN 6055 Planning and Design of Social Media Channels and Online Communities	3 QH
CMN 6065 Implementation and Management of Social Media Channels and Online Communities	3 QH
DGM 6285 Interactive Marketing Fundamentals	4 QH
DGM 6290 Social Media and Brand Strategy Implementation	4 QH
TCC 6710 Content Strategy	4 QH

Sport and Social Change Concentration

16 quarter hours required

Complete all of the following courses:

GST 6102 Global Basics: Global Corporate and Social Responsibility	4 QH
HSV 6120 Social Inequality, Social Change, and Community Building	3 QH
LDR 6360 Dynamics of Change at the Community and Social Level	3 QH
LDR 6410 Leadership and Organization in Sport	3 QH
LDR 6427 Gender and Diversity in Sport	3 QH

PHYSICAL THERAPY**Transitional Doctor of Physical Therapy**

Designed for practicing physical therapists, the transitional Doctor of Physical Therapy (DPT) is an innovative, 100 percent online program. Integrating art and science, as well as professional and experiential learning, the degree curriculum seeks to provide you with the necessary knowledge base for today's doctorally prepared practitioners.

Core courses within this physical therapy doctoral program include differential diagnosis and medical screening, diagnostic imaging, pharmacology, nutrition, and motor control. The capstone course, "Comprehensive Case Analysis," is a culmination of all work within the transitional DPT curriculum. Students have an opportunity to prepare a comprehensive and publishable case report or other scholarly work in partial fulfillment of the requirement for a transitional DPT degree.

The transitional DPT also includes specializations in a variety of areas such as orthopedics, pediatrics, geriatrics, advanced nutrition, women's health, education, and business management. If you have a unique specialization interest, you may also complete a directed study on a preapproved topic of your choosing.

ADMISSION REQUIREMENTS

Please note that the transitional DPT degree offered through the CPS has the following admission requirements:

- Online application
- Academic transcripts (undergraduate **and** graduate)
- Statement of purpose (500–1,000 words)
- Professional resumé
- Two letters of recommendation
- Interview (selected students only)
- English-language proficiency proof (for non-native English-language speakers)

CREDIT REQUIREMENT

The transitional DPT degree is built upon a core of six courses. Beyond the common core, requirements may vary depending on whether the physical therapist is MSPT or BSPT prepared in addition to the student's past experiences.

For students entering with a Master of Science in Physical Therapy, 26 quarter hours required

REQUIRED COURSES

22 quarter hours required

Complete all of the following courses:

PTH 6100 Differential Diagnosis and Medical Screening	4 QH
PTH 6110 Diagnostic Imaging	4 QH
PTH 6120 Clinical Nutrition	3 QH
PTH 6130 Pharmacology	3 QH
PTH 6140 Motor Control	4 QH
PTH 6900 Comprehensive Case Analysis	4 QH

ELECTIVE COURSES

4 quarter hours required

Complete one of the following courses:

PTH 6200 Research Methods and Statistical Analysis	5 QH
PTH 6220* Fostering Change in Health Behavior	4 QH
PTH 6235 Administrative and Management Keys for Contemporary Physical Therapist Practice	4 QH
PTH 6400 Orthopedics: Shoulder	4 QH
PTH 6402 Orthopedics: The Cervical Spine	4 QH
PTH 6403 Orthopedics: Foot and Ankle	4 QH
PTH 6430* Educational Strategies for Effective Healthcare Delivery	4 QH
PTH 6450 Orthopedics: Recent Advances for the Knee—Evaluation and Interventions	4 QH
PTH 6480 Evidence-Based Exercise for the Older Adult	4 QH
PTH 6490 Pediatric Physical Therapy: Emerging Topics and Evidence-Based Practice	4 QH
PTH 6983 Topics in Physical Therapy	4 QH
PTH 6985 Psychosocial and Emotional Challenges Facing Older Adults	4 QH

*These elective courses may be taken only by MSPT students.

Residents of the state of North Carolina must complete 8 quarter hours of elective course work.

For students entering with a Bachelor of Science in Physical Therapy, 35 quarter hours required

REQUIRED COURSES

31 quarter hours required

Complete the following courses:

PTH 6100 Differential Diagnosis and Medical Screening	4 QH
PTH 6110 Diagnostic Imaging	4 QH
PTH 6120 Clinical Nutrition	3 QH
PTH 6130 Pharmacology	3 QH
PTH 6140 Motor Control	4 QH
PTH 6200 Research Methods and Statistical Analysis	5 QH
PTH 6900 Comprehensive Case Analysis	4 QH

Complete one of the following courses:

PTH 6220 Fostering Change in Health Behavior	4 QH
PTH 6235 Administrative and Management Keys for Contemporary Physical Therapist Practice	4 QH
PTH 6430 Educational Strategies for Effective Healthcare Delivery	4 QH

ELECTIVE COURSES

4 quarter hours required

Complete one elective course:

PTH 6200 Research Methods and Statistical Analysis	5 QH
PTH 6235 Administrative and Management Keys for Contemporary Physical Therapist Practice	4 QH
PTH 6400 Orthopedics: Shoulder	4 QH
PTH 6402 Orthopedics: The Cervical Spine	4 QH
PTH 6403 Orthopedics: Foot and Ankle	4 QH
PTH 6450 Orthopedics: Recent Advances for the Knee—Evaluation and Interventions	4 QH

PTH 6480 Evidence-Based Exercise for the Older Adult	4 QH
PTH 6490 Pediatric Physical Therapy: Emerging Topics and Evidence-Based Practice	4 QH
PTH 6983 Topics in Physical Therapy	4 QH
PTH 6985 Psychosocial and Emotional Challenges Facing Older Adults	4 QH

Residents of the state of North Carolina are not eligible for admission to the Transitional Doctorate of Physical Therapy program without a master's degree.

PROJECT MANAGEMENT

Graduate Certificate in Project Management

Technical and managerial employees at all levels of organizations are being asked to manage small and large projects. Many of these professionals have not been specifically trained to effectively and efficiently manage projects. The task of managing projects has its own body of knowledge. This program seeks to provide the practical and theoretical knowledge for which the Project Management Institute tests, and it is expected that individuals who successfully complete this program will be capable of fulfilling the education requirements of the Project Management Professional (PMP) certification exam.

This certificate program in project management is designed with sufficient course flexibility to accommodate professionals with various levels of project management experience. Project management principles are applicable to both manufacturing and service industries, including professionals in fields such as software engineering, construction management, and financial services.

CREDIT REQUIREMENT

18 quarter hours required

REQUIRED COURSES

9 quarter hours required

Complete all of the following courses:

PJM 6000 Project Management Practices	3 QH
PJM 6015 Project Risk Management	3 QH
PJM 6025 Project Scheduling and Cost Planning	3 QH

ELECTIVE COURSES

9 quarter hours required

Complete three of the following courses:

CMN 6060 Negotiation, Mediation, and Facilitation	3 QH
LDR 6110 Leading Teams	3 QH
PJM 6125* Project Evaluation and Assessment	3 QH
PJM 6135 Project Quality Management	3 QH
PJM 6140 Managing Troubled Projects	3 QH
PJM 6145 Global Project Management	3 QH

*Recommended as the last course in the program.

Master of Science in Project Management

Companies succeed or fail based on their ability to bring quality products and services to market in a timely manner. Without skilled project managers in place, companies are challenged to deliver projects on time, on budget, and according to specifications. From inception to completion, project managers are responsible for every step in the process: project definition, cost and risk estimation, schedule planning and monitoring, budget management, negotiation and conflict resolution, project leadership, and project presentation and evaluation.

The Master of Science in Project Management is designed to provide you with the practical skills and theoretical concepts you need to lead complex projects. Featuring real-world case studies,

this project management degree presents techniques and tools for managing long- and short-term projects successfully and cost-effectively. Augmenting the core project management courses are concentrations that seek to provide you with content-specific expertise that enables you to deepen your knowledge in your field of interest.

In September of 2009, the Master of Science in Project Management received accreditation by the Project Management Institute's Global Accreditation Center (GAC), the world's leading association for project management professionals. Accreditation is achieved by meeting the GAC's rigorous standards, which include an assessment of program objectives and outcomes, a review of on-site and online resources, evaluations of faculty and students, and proof of continuous improvements in the area of project management.

CREDIT REQUIREMENT

45–47 quarter hours required

REQUIRED COURSES

21–22 quarter hours required

Complete all of the following courses:

PJM 5900* Foundations of Project Management	3 QH
PJM 6000 Project Management Practices	3 QH
PJM 6910 Capstone	3 QH

*This course is required for students who do not have at least two years of professional experience working on projects. This course is highly recommended for students who don't have a basic working knowledge of MsProject software. Students with project management experience are not required to take this course.

Complete five** of the following courses:

PJM 6005 Project Scope Management	3 QH
PJM 6015 Project Risk Management	3 QH
PJM 6025 Project Scheduling and Cost Planning	3 QH
PJM 6135 Project Quality Management	3 QH
PJM 6140 Managing Troubled Projects	3 QH
PJM 6145 Global Project Management	3 QH
PJM 6705 Portfolio Management in the Enterprise Environment	3 QH

**Students who take PJM 5900 are only required to take four courses in this section.

ELECTIVE COURSES

9 quarter hours required

Complete three of the following courses:

CMN 6015 Introduction to the Digital Era: The Power of Social Media	3 QH
CMN 6060 Negotiation, Mediation, and Facilitation	3 QH
CMN 6110 Group Dynamics and Interpersonal Conflict: Meeting Management	3 QH
COP 6940* Personal and Career Development	1 to 4 QH
LDR 6110 Leading Teams	3 QH
LDR 6135 The Ethical Leader	3 QH

*Enrollment into this course requires participation in the cooperative education program.

CONCENTRATIONS COURSES

15–16 quarter hours required

Clinical Trial Design Concentration

16 quarter hours required

Complete all of the following courses:

BTC 6211 Validation and Auditing of Clinical Trial Information	4 QH
BTC 6213 Clinical Trial Design Optimization and Problem Solving	4 QH
PMC 6212 Clinical Drug Development Data Analysis: Concepts	4 QH
RGA 6210 Strategic Planning and Project Management for Regulatory Affairs	4 QH

Construction Management Concentration

15 quarter hours required

Complete all of the following courses:

CMG 6400 Introduction to Construction Management	4 QH
CMG 6402 Alternative Project Delivery Methods and Project Controls	4 QH
CMG 6403 Safety, Project Risk, and Quality Management	4 QH
LDR 6110 Leading Teams	3 QH

Geographic Information Systems Concentration

15 quarter hours required

Complete the following courses:

GIS 5101 Introduction to Geographic Information Systems	3 QH
GIS 5102 Fundamentals of GIS Analysis	3 QH
GIS 5201 Advanced Spatial Analysis	3 QH
RMS 5105 Fundamentals of Remote Sensing	3 QH

Complete one of the following courses:

GIS 6340 GIS Customization	3 QH
GIS 6350 GIS Management and Implementation	3 QH
GIS 6370 Internet-Based GIS	3 QH
GIS 6390 Business Applications of Geographic Information Systems	3 QH
GIS 6391 Healthcare Applications of Geographic Information Systems	3 QH

Information Security Management Concentration

15 quarter hours required

Complete the following courses:

ITC 6300 Foundations of Information Security	3 QH
ITC 6310 Information Security Governance	3 QH
ITC 6315 Information Security Risk Management	3 QH
ITC 6320 Information Security Technology	3 QH

Complete one of the following courses:

ITC 6305 IT Infrastructure (Systems, Networks, Telecom)	3 QH
ITC 6345 Systems and Network Administration	3 QH
MIS 6080 Network Security Concepts	4 QH
MIS 6082 Network Protection	4 QH

Leadership Concentration

15 quarter hours required

Complete the following courses:

LDR 6100 Developing Your Leadership Capability	3 QH
LDR 6110 Leading Teams	3 QH
LDR 6120 Creating Leadership Capacity: Developing Bench Strength	3 QH
LDR 6140 Developing the Strategic Leader	3 QH

Complete one of the following courses:

LDR 6125 Managing Organizational Culture	3 QH
LDR 6135 The Ethical Leader	3 QH

Organizational Communication Concentration

15 quarter hours required

Complete all of the following courses:

CMN 6010 Foundations of Organizational Communication	3 QH
CMN 6020 Ethical Issues in Organizational Communication	3 QH
CMN 6050 Crisis Communication	3 QH
CMN 6090 Organizational Culture, Climate, and Communication	3 QH
CMN 6110 Group Dynamics and Interpersonal Conflict: Meeting Management	3 QH

REGULATORY AFFAIRS

Graduate Certificate in Biopharmaceutical Domestic Regulatory Affairs

The biotechnology and pharmaceutical industries continue to experience rapid growth in the U.S. market. As companies in these industries seek approval to market their products in the United States, demand for qualified regulatory affairs professionals continues to increase. Product development scientists, marketers, quality personnel, as well as legal experts that guide companies through the Food and Drug Administration (FDA) approval process, will benefit from regulatory affairs training.

The Graduate Certificate in Biopharmaceutical Domestic Regulatory Affairs is designed to provide students with a greater understanding of U.S. biologic and pharmaceutical product regulation and their unique development, marketing, manufacturing and postmarket approval-related issues. The program also seeks to prepare students to ensure regulatory compliance, proper validation, and utilization of proper quantitative measurement techniques. Courses from this certificate may be applied toward the Master of Science in Regulatory Affairs for Drugs, Biologics, and Medical Devices.

CREDIT REQUIREMENT

16–17 quarter hours required

REQUIRED COURSES

16–17 quarter hours required

Complete the following courses:

RGA 6200 Biologics Development: A Regulatory Overview	4 QH
RGA 6201 New Drug Development: A Regulatory Overview	4 QH
RGA 6202 Medical Device Development: A Regulatory Overview	4 QH
Complete one of the following courses:	
RGA 6203 Food, Drug, and Medical Device Law: Topics and Cases	5 QH
RGA 6206 Practical Aspects of Regulatory Compliance	4 QH
RGA 6210 Strategic Planning and Project Management for Regulatory Affairs	4 QH
RGA 6211 Combination Products and Convergence	4 QH
RGA 6212 Safety Sciences 1: Introduction to Safety and Surveillance	4 QH
RGA 6214 The Food and Drug Administration: Creation, Behavior, Regulatory Culture	4 QH
RGA 6216 The Medical, Social, and Financial Dimensions of Orphan Drugs	4 QH
RGA 6217 Biomedical Product Development: From Biotech to Boardroom to Market	4 QH
TCC 6370 Regulatory Writing: Medical Device Submissions	4 QH
TCC 6380 Regulatory Writing: New Drug Applications	4 QH

Graduate Certificate in Biopharmaceutical International Regulatory Affairs

To work in today's global biopharmaceutical industry, there is a strong need to understand international regulations that impact the development, marketing, and manufacturing of pharmaceutical and biotechnology products.

The Graduate Certificate in Biopharmaceutical International Regulatory Affairs curriculum focuses on factors that facilitate the safety, performance, and efficacy of biomedical goods. Program training covers the assessment of international regulations and interpretation of their likely impact on a company's global commercialization strategies. Through participation in the program, students will have an opportunity to gain an understanding of international regulatory requirements necessary to implement such strategies.

Course work covers biotechnology and pharmaceutical product approval processes, regulatory analysis, and liability laws as they exist across different regulatory systems. The graduate certificate will provide core regulatory knowledge to students entering into the field from bench research, clinical studies, quality control/assurance, pharmacy, bioengineering, business, and legal analysis. The curriculum covers regulatory environments in Europe, Latin America, Australia, Japan, and other emerging economies. Courses from this certificate may be applied toward the Master of Science in Regulatory Affairs for Drugs, Biologics, and Medical Devices.

CREDIT REQUIREMENT

16 quarter hours required

REQUIRED COURSES

16 quarter hours required

Complete the following courses:

RGA 6220 Global Biotechnology Product Registration: E.U., U.S. Product Regulation	4 QH
RGA 6221 European Union Compliance Process and Regulatory Affairs	4 QH
Complete two of the following courses:	
RGA 6210 Strategic Planning and Project Management for Regulatory Affairs	4 QH
RGA 6212 Safety Sciences 1: Introduction to Safety and Surveillance	4 QH
RGA 6222 European Medical Device Regulations	4 QH
RGA 6223 Introduction to Canadian, Asian, and Latin American Regulatory Affairs	4 QH
RGA 6225 Japanese Medical Device Regulations and Registration	4 QH
RGA 6226 Canadian and Australian Medical Device Regulations	4 QH
RGA 6227 Emerging Medical Device Markets	4 QH
RGA 6228 Managing International Clinical Trials	4 QH

Graduate Certificate in Medical Devices Regulatory Affairs

The national and regional medical device industries have continued to experience significant market growth, despite the fluctuations in the overall global economy. There are more than 7,000 medical device companies in the United States alone, and nearly 1,000 of these are based in Massachusetts. In total, the medical device sector in Massachusetts employs 36,000 workers, has a payroll of over \$1.8 billion, and annual product shipments of \$7.3 billion.

The Graduate Certificate in Medical Devices Regulatory Affairs provides students with an opportunity to gain a detailed knowledge of the regulations influencing the commercialization of new and existing medical devices. The intensely practical curriculum spans the entire life cycle of product development and introduces students to the salient features governing both pre- and postapproval stages. The program content also examines the relationship between regulatory agencies and the medical device industry. Students have the opportunity to take specialized courses on regulatory systems outside of the United States.

The certificate will help advance the careers of students coming from such fields as bioengineering, quality control/assurance, intellectual property, business, and marketing. The choice of several courses makes this certificate ideal for students already working in the regulatory world as well as those just entering into the profession.

Courses from this certificate may be applied toward the Master of Science in Regulatory Affairs for Drugs, Biologics, and Medical Devices.

CREDIT REQUIREMENT

16–17 quarter hours required

REQUIRED COURSES

8 quarter hours required

Complete the following two courses:

RGA 6202 Medical Device Development: A Regulatory Overview	4 QH
RGA 6205 Emerging Trends and Issues in the Medical Device Industry	4 QH

ELECTIVE COURSES

8–9 quarter hours required

Complete two of the following courses:

BTC 6260 The Business of Medicine and Biotechnology	4 QH
ITP 6305 Technology Licensing	4 QH
RGA 6112 Biomedical Intellectual Property Management: Patents	4 QH
RGA 6203 Food, Drug, and Medical Device Law: Topics and Cases	5 QH
RGA 6211 Combination Products and Convergence	4 QH
RGA 6222 European Medical Device Regulations	4 QH
RGA 6225 Japanese Medical Device Regulations and Registration	4 QH
RGA 6226 Canadian and Australian Medical Device Regulations	4 QH

RGA 6227 Emerging Medical Device Markets	4 QH
TCC 6370 Regulatory Writing: Medical Device Submissions	4 QH

Master of Science in Regulatory Affairs for Drugs, Biologics, and Medical Devices

The rapid growth of the biomedical product industries and the ever-evolving regulatory landscape have driven high demand for trained regulatory affairs professionals in both the public and private sectors. In response to this demand, Northeastern University's College of Professional Studies offers the Master of Science in Regulatory Affairs for Drugs, Biologics, and Medical Devices.

This unique graduate degree is designed to both broaden and deepen the student's understanding of current regulations and their practical application in the development of biomedical products. Courses within this program provide students with the opportunity to integrate both scientific knowledge and regulatory perspectives, within the larger context of global commercialization. From discovery through the postmarket phase of product development, this master's degree covers the regulatory and market access requirements to bring a medical product to—and maintain its presence in—the global marketplace.

CREDIT REQUIREMENT

45 quarter hours required

REQUIRED COURSES

25 quarter hours required

Complete all of the following courses:

BTC 6210 Human Experimentation: Methodological Issues Fundamentals	4 QH
RGA 6100 Introduction to Drug and Medical Device Regulation	4 QH
RGA 6200 Biologics Development: A Regulatory Overview	4 QH
RGA 6201 New Drug Development: A Regulatory Overview	4 QH
RGA 6202 Medical Device Development: A Regulatory Overview	4 QH
RGA 6203* Food, Drug, and Medical Device Law: Topics and Cases	5 QH

*This course should be taken as the final required course.

Note: Completion of RGA 6280 Advanced Writing on International Biomedical Topics may be required of students as a condition for their continued enrollment in this program.

BUSINESS AND LAW COURSES

4 quarter hours required

Complete one of the following courses:

BTC 6260 The Business of Medicine and Biotechnology	4 QH
RGA 6110 Understanding the Healthcare Landscape	4 QH
RGA 6214 The Food and Drug Administration: Creation, Behavior, Regulatory Culture	4 QH

RGA 6216 The Medical, Social, and Financial Dimensions of Orphan Drugs	4 QH
RGA 6217 Biomedical Product Development: From Biotech to Boardroom to Market	4 QH
RGA 6218 Regulatory Affairs in an Entrepreneurial Environment	4 QH
RGA 6219 The Advertising and Promotion of Drug and Medical Device Products	4 QH
RGA 6235 Emerging Product Categories in the Regulation of Drugs and Biologics	4 QH

SAFETY AND SURVEILLANCE COURSES

4 quarter hours required

Complete one of the following courses:

BTC 6211 Validation and Auditing of Clinical Trial Information	4 QH
RGA 6212 Safety Sciences 1: Introduction to Safety and Surveillance	4 QH
RGA 6213 Safety Science 2: Safety Surveillance, Pharmacoeconomics, Risk	4 QH
RGA 6230 Clinical Laboratory Management in Clinical Trials	4 QH
RGA 6233 Application of Quality System Regulation in Medical Device Design and Manufacturing	4 QH
RGA 6234 Drug and Device Supplier Risk Management: Compliance and Processes	4 QH
RGA 6280* Advanced Writing on International Biomedical Topics	4 QH
TCC 6310 Regulatory Documentation Processes	4 QH
TCC 6370 Regulatory Writing: Medical Device Submissions	4 QH
TCC 6380 Regulatory Writing: New Drug Applications	4 QH

*Completion of this course may be required of students as a condition for their continued enrollment in this program.

DEVELOPMENT AND STRATEGY COURSES

4 quarter hours required

Complete one of the following courses:

BTC 6213 Clinical Trial Design Optimization and Problem Solving	4 QH
PMC 6212 Clinical Drug Development Data Analysis: Concepts	4 QH
RGA 6112 Biomedical Intellectual Property Management: Patents	4 QH
RGA 6205 Emerging Trends and Issues in the Medical Device Industry	4 QH
RGA 6210 Strategic Planning and Project Management for Regulatory Affairs	4 QH
RGA 6211 Combination Products and Convergence	4 QH
RGA 6215 Project Management in Early Drug Discovery and Development	4 QH
RGA 6245 Regulation of Generic Pharmaceutical and Biosimilar Products	4 QH
RGA 6250 Financing and Reimbursement in Biomedical Product Development	4 QH

INTERNATIONAL COURSES

4 quarter hours required

Complete one of the following courses:

RGA 6220 Global Biotechnology Product Registration: E.U., U.S. Product Regulation	4 QH
RGA 6221 European Union Compliance Process and Regulatory Affairs	4 QH
RGA 6222 European Medical Device Regulations	4 QH
RGA 6223 Introduction to Canadian, Asian, and Latin American Regulatory Affairs	4 QH
RGA 6225 Japanese Medical Device Regulations and Registration	4 QH
RGA 6226 Canadian and Australian Medical Device Regulations	4 QH
RGA 6227 Emerging Medical Device Markets	4 QH
RGA 6228 Managing International Clinical Trials	4 QH
RGA 6240 The Evolving Indian Regulatory Landscape	4 QH

ELECTIVE COURSES

4 quarter hours required

Complete one of the following courses or one additional elective from any of the other categories:

COP 6940** Personal and Career Development	3 QH
RGA 6206 Practical Aspects of Regulatory Compliance	4 QH

**Enrollment in this course requires participation in the cooperative education program (subject to availability). Students must also take RGA 6920 (1 QH) to meet the 4 QH elective course requirement. Effective spring 2012, all students in this program are required to complete both RGA 6100 and BTC 6210 before enrolling in COP 6940.

Master of Science in Regulatory Affairs of Food and Food Industries

The Master of Science in Regulatory Affairs of Food and Food Industries degree is designed to offer a combination of theory and practical training for professionals looking to enter into the field of food regulatory affairs or to advance their careers in a critical industrial sector of the United States and abroad. In this field, rapidly evolving regulations and expansion of international markets create an increasing need for highly trained professionals equipped to serve instrumental roles in the formation of efficient public policies, the implementation of regulatory guidelines, industry's compliance with regulations, and the regulatory strategies of companies looking to create a sustainable competitive advantage in the food industry.

CREDIT REQUIREMENT

47 quarter hours required

REQUIRED CORE COURSES

23 quarter hours required

Complete all of the following courses:

RFA 6100 Introduction to Regulatory Affairs of Food and Food Industries	3 QH
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RFA 6110 From Farm to Family Table: Understanding the Food Regulatory Life Cycle	3 QH
RFA 6120 Economic and Social Aspects of Food	3 QH
RFA 6130 Food Law in the United States	3 QH
RFA 6140 Managing Projects in Food Regulatory Affairs: Practical Considerations	3 QH
RFA 6200 Comparing U.S. Regulatory Systems and Agencies	4 QH
RFA 6205 Key Submissions for Food Regulatory Affairs	4 QH

REGULATORY PROCESSES

8 quarter hours required

Complete two of the following courses:

RFA 6210 Food Safety and Modernization	4 QH
RFA 6215 Risk Analysis and Hazard Analysis in the Food Industry	4 QH
RFA 6220 Food Safety and Surveillance: Concepts and Applications	4 QH
RFA 6225 Introduction to Food Science	4 QH
RFA 6230 The Scientific, Social, and Commercial Aspects of Genetically Modified Foods	4 QH
RFA 6235 Regulatory Differences and Similarities: An International Investigation	4 QH

BUSINESS AND MARKETING

8 quarter hours required

Complete 2 of the following courses:

COP 6940** Personal and Career Development	3 QH*
NTR 6155 Nutrition Entrepreneurship	3 QH*
NTR 6165 Food and Society	4 QH*
RFA 6310 Food Across International Borders: The International Food Trade	4 QH
RFA 6315 From Farm to Dinner Table: The Industrialization and Commercialization of Food	4 QH

*Additional course work is required to meet total category quarter-hour requirement.

**This course may fulfill only one requirement.

INTERNATIONAL FOOD REGULATIONS

8 quarter hours required

Complete 2 of the following courses:

GST 6350 Global Economics of Food and Agriculture	4 QH
RFA 6410 Food and the North American Free Trade Agreement	4 QH
RFA 6415 Food Safety and Surveillance in Asia	4 QH
RFA 6420 Between Science and Governments: Food Regulations in the European Union	4 QH
RFA 6425 Food Laws in Latin America	4 QH
RFA 6430 Food Safety and Commercialization in Emerging Economies	4 QH

REMOTE SENSING

Graduate Certificate in Remote Sensing

Remote sensing is the measurement of information by a recording device that is not in physical contact with the object being measured. In practice, remote sensing is the utilization at a distance (as from aircraft, space shuttle, spacecraft, satellite, or ship) of any device for gathering information about the environment. The term remote sensing is most often applied to terrestrial and weather observations but can be applied to planetary environments and astronomy. Remote sensing is applicable to many other situations, including land-use change, pollution tracking, land-use and planning, transportation systems, and military observation.

The online Graduate Certificate in Remote Sensing aims to make education and training in remote sensing available to adult and professional students. The remote sensing certificate program seeks to produce students who are well versed in remote sensing theory, who have hands-on exposure to remote sensing software and hardware, and who have learned how to extract pertinent data from remotely sensed data sets. This six-course certificate program seeks to provide students with the necessary skills and understanding to apply remote sensing knowledge competently and effectively in a variety of areas.

CREDIT REQUIREMENT

18 quarter hours required

REQUIRED CORE COURSES

6 quarter hours required

Complete the following courses:

RMS 5105 Fundamentals of Remote Sensing	3 QH
RMS 6110 Digital Image Processing	3 QH

ELECTIVE COURSES

12 quarter hours required

Complete four of the following courses:

RMS 6220 Geographic Information Systems for Remote Sensing	3 QH
RMS 6230 Remote Sensing and Global Change	3 QH
RMS 6240 Introduction to Radar and LIDAR Remote Sensing	3 QH
RMS 6250 Remote Sensing of Vegetation	3 QH
RMS 6260 Remote Sensing for Archaeology	3 QH
RMS 6270 Remote Sensing for Disaster Management	3 QH
RMS 6280 Automated and Assisted Feature Extraction Techniques	3 QH
RMS 6290 Spectroscopic Image Analysis	3 QH
RMS 6292 Photogrammetry and GPS	3 QH

RESPIRATORY CARE

Master of Science in Respiratory Care Leadership

Emerging environmental issues, recent technological advances, and a growing elderly population are escalating the need for skilled respiratory therapists. To be successful, today's respiratory care leaders must be skilled educators, practitioners, and case managers. In response, Northeastern University's College of Professional Studies has developed the Master of Science in Respiratory Care Leadership.

Created for practicing respiratory therapists, this master's degree in respiratory care incorporates an action-learning approach that seeks to build leadership competencies and to advance your clinical knowledge. Core respiratory care courses cover areas such as advanced cardiopulmonary physiology and research design. In addition, you have the opportunity to focus your studies in one of six concentrations: adult and organizational learning, clinical trial design, health management, higher education administration, nonprofit management, and regulatory affairs.

CREDIT REQUIREMENT

43–44 quarter hours required

REQUIRED RESPIRATORY CARE COURSES

16 quarter hours required

Complete all of the following courses:

RPT 6970 Seminar	1 to 4 QH
RPT 7200 Advanced Cardiopulmonary Physiology	3 QH
RPT 7205 The Evolving Roles of Respiratory Care Professionals	3 QH
RPT 7210 Research Design	4 QH
RPT 7215 Applied Research in Respiratory Care	3 QH

REQUIRED LEADERSHIP COURSES

12 quarter hours required

Complete all of the following courses:

LDR 6100 Developing Your Leadership Capability	3 to 6 QH
LDR 6110 Leading Teams	3 to 6 QH
LDR 6135 The Ethical Leader	3 QH
LDR 6140 Developing the Strategic Leader	3 to 6 QH

Note: Leadership courses are offered in both online and on-campus formats.

CONCENTRATIONS COURSES

15–16 quarter hours required

Choose one of the following concentrations:

Adult and Organizational Learning Concentration

15–16 quarter hours required

Complete five of the following courses:

EDU 6051 Culture, Equity, Power, and Influence	4 QH
EDU 6211 New Directions for Adult Learning	3 QH
EDU 6212 Needs and Competencies Assessment	3 QH
EDU 6213 Curriculum and Program Development	3 QH
EDU 6214 Facilitation and Instruction	3 QH
EDU 6230 Program Evaluation and Assessment	4 QH

Clinical Trial Design Concentration

16 quarter hours required

Complete all of the following courses:

BTC 6210 Human Experimentation: Methodological Issues Fundamentals	4 QH
BTC 6211 Validation and Auditing of Clinical Trial Information	4 QH
PMC 6212 Clinical Drug Development Data Analysis: Concepts	4 QH
BTC 6213 Clinical Trial Design Optimization and Problem Solving	4 QH

Health Management Concentration

15 quarter hours required

Complete five of the following courses:

HMG 6110 Organization, Administration, Financing, and History of Healthcare	3 QH
HMG 6120 Human Resource Management in Healthcare	3 QH
HMG 6130 Healthcare Strategic Management	3 QH
HMG 6140 Principles of Population-Based Management	3 QH
HMG 6160 Healthcare Information Systems Management	3 QH
HMG 6170 Health Law, Politics, and Policy	3 QH

Higher Education Administration Concentration

15 quarter hours required

Complete the following two courses:

EDU 6200 Management of Higher Education Institutions	3 QH
EDU 6210 Faculty: Evolving Roles	3 QH

Complete three of the following courses:

EDU 6211 New Directions for Adult Learning	3 QH
EDU 6215 Higher Education Law	3 QH
EDU 6220 Retention and Enrollment Strategies	3 QH
EDU 6225 Cases in Higher Education Management: Capstone	4 QH
EDU 6230 Program Evaluation and Assessment	4 QH

Nonprofit Management Concentration

15 quarter hours required

Complete five of the following courses:

NPM 6110 Legal and Governance Issues in Nonprofit Organizations	3 QH
NPM 6120 Financial Management for Nonprofit Organizations	3 QH
NPM 6125 Promoting Nonprofit Organizations	3 QH
NPM 6130 Fund-Raising and Development for Nonprofit Organizations	3 QH
NPM 6140 Grant and Report Writing	3 QH
NPM 6150 Human Resources Management in Nonprofit Organizations	3 QH

Regulatory Affairs Concentration

16–17 quarter hours required

Complete the following courses:

RGA 6202 Medical Device Development: A Regulatory Overview	4 QH
RGA 6205 Emerging Trends and Issues in the Medical Device Industry	4 QH
Complete two of the following courses:	
BTC 6260 The Business of Medicine and Biotechnology	4 QH
ITP 6305 Technology Licensing	4 QH
RGA 6203 Food, Drug, and Medical Device Law: Topics and Cases	5 QH
RGA 6222 European Medical Device Regulations	4 QH
RGA 6223 Introduction to Canadian, Asian, and Latin American Regulatory Affairs	4 QH

TECHNICAL COMMUNICATION

Master of Science in Technical Communication

A proliferation of new technologies and applications has heightened the call for professionals who can communicate complex technical ideas succinctly and articulately. In response, Northeastern University's College of Professional Services offers the Master of Science in Technical Communication.

This online master's degree is designed to improve your technical communication skills and to provide you with a foundation for applying those skills across a variety of contexts. With two concentrations from which to choose—biomedical writing or computer industry writing—this graduate degree in technical communication seeks to prepare you for a rewarding career as a technical writer, editor, tool expert, or technical trainer.

CREDIT REQUIREMENT

46 quarter hours required

REQUIRED COURSES

20 quarter hours required

Complete all of the following courses:

TCC 6100 Introduction to Technical and Professional Writing	4 QH
TCC 6102 Editing Technical Content	4 QH
TCC 6110 Information Architecture	4 QH
TCC 6120 Usability and User Experience	4 QH
TCC 6850* Technical Communications Capstone Project	4 QH

*Should be taken as the final course in the program

CONCENTRATIONS COURSES

16 quarter hours

If students prefer to focus their studies on a particular concentration, they may select 16 quarter hours from one of the concentrations below and complement their studies with 10 quarter hours of elective courses (listed at the end of the curriculum) to meet the minimum 46-quarter-hour degree requirement.

Biomedical Writing Concentration

Complete the following course:

TCC 6330 Information Strategies for Biomedical Writers	4 QH
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Complete three of the following courses:

TCC 6310 Regulatory Documentation Processes	4 QH
TCC 6320 The Role of a Technical Communicator in a Biotech Startup	4 QH
TCC 6350 Ethical and Legal Issues in Biomedical Communication	4 QH
TCC 6360 Research in Biomedical Communication	4 QH
TCC 6370 Regulatory Writing: Medical Device Submissions	4 QH
TCC 6380 Regulatory Writing: New Drug Applications	4 QH
TCC 6520 Marketing Writing	4 QH

Computer Industry Writing Concentration

Complete four of the following courses:

TCC 6400 Structured Documentation	4 QH
TCC 6430 Writing for the Computer Industry	4 QH
TCC 6440 Advanced Writing for the Computer Industry	4 QH
TCC 6450 Managing Technical Publications	4 QH
TCC 6460 Information Management	4 QH
TCC 6520 Marketing Writing	4 QH

ELECTIVE COURSES

10 quarter hours required

DGM 6500 Working with Digital Images	2 QH
DGM 6501 Web Creation Boot Camp	2 QH
DGM 6503 Flash Intensive	2 QH
DGM 6506 Introduction to Digital Video	2 QH
DGM 6509 Integrated Suite Workshop	2 QH
DGM 6511 Web Creation Bootcamp 2	2 QH
TCC 6410 Online Documentation	4 QH
TCC 6470 Web Accessibility for Technical Communicators	4 QH
TCC 6480 Instructional Design for Technical Communicators	4 QH
TCC 6610 Prototyping	2 QH
TCC 6620 Collecting User Data	2 QH
TCC 6630 Introduction to XML	2 QH
TCC 6640 Wiki-Based Documentation	2 QH
TCC 6650 Practical Issues in Biomedical Publishing	2 QH
TCC 6660 Biostatistics for Medical Writers	2 QH
TCC 6710 Content Strategy	4 QH

College of Science

www.northeastern.edu/cos/graduate

J. MURRAY GIBSON, PhD, Dean

David E. Budil, PhD, Associate Dean, Research

Patricia A. Mabrouk, PhD, Associate Dean, Academic and Faculty Affairs

James Sarazen, MBA, Associate Dean, Administration and Finance

115 Richards Hall
617.373.5085
617.373.8583 (fax)
cos@neu.edu

The College of Science seeks to offer advanced students outstanding academics and real-world research experience through cutting-edge research opportunities that are both discipline based and interdisciplinary. These doctoral, master's, and professional degree programs in the physical sciences, life sciences, and mathematics seek to give students a deep understanding of emerging fields such as chemical biology, cognition and neuroscience, environmental and marine science, biochemistry, nanoscience, and network science. Our programs are positioned at the forefront of discovery, invention, and innovation. We seek to prepare students and professionals to enter the scientific workforce serving the academy, government, or private sector.

Fifteen degrees are awarded in the College of Science at the graduate level. The Master of Science degree is awarded in biology, bioinformatics, biotechnology, marine biology, chemistry, mathematics, applied mathematics, operations research, and physics.

The Doctor of Philosophy degree is available in biology; chemistry; ecology, evolution, and marine biology; mathematics; physics; and psychology.

Grading Policies

In the College of Science, not more than two courses or 6 semester hours of credit, whichever is greater, may be repeated to satisfy the requirements for the degree. Only such repeats will be counted in calculating the cumulative grade-point average.

No grade changes are permitted after the end of the final examination period one calendar year from the semester in which the student registered for the course. In calculating the overall cumulative average, all graduate-level course work completed at the time of clearance for graduation will be counted unless the student is immediately continuing on for a PhD degree in his or her department.

Course Registration

Students are encouraged to obtain advisor approval of course selections each semester. This approval is required for all assistantship recipients, and some departments require it for all students. Students should check with individual departments for specific guidelines.

Transfer Credit

A student may petition to transfer up to 9 semester hours of his or her program using credits from another institution, provided that the credits transferred consist of a grade of B (3.000) or better in graduate-level courses, have been earned at a U.S. accredited institution, and have not been used toward any other degree. Note: If approved by the College of Science, credits from Northeastern University's College of Professional Studies (CPS) transfer to the College of Science as external credits and count toward the 9-semester-hour maximum of transfer credit. As courses at other institutions may not parallel courses at Northeastern, the student's academic department will determine the number of semester hours the external course will be worth. This calculation may result in fewer semester hours than the course was assigned at the institution at which the student completed the course. In addition, courses accepted for transfer credit must have been completed within five years of the date the student is admitted to graduate study. Grades are not transferred. Some departments may accept fewer than 9 transfer credits.

Awards

Only those students who are registered in degree programs are eligible for awards. Award recipients will receive an official award letter from the College of Science via email. Please pay attention to this letter as it is an official contract that should be read carefully.

In addition, to maintain awards, students must be making satisfactory progress toward their degrees.

Receipt of financial support administered by the College of Science is contingent on satisfactory academic progress toward the degree and on meeting department-specific guidelines. The College of Science requires that all students receiving awards will generally have two semesters to reach a 3.000 GPA. Students whose cumulative GPA is below 3.000 will be reviewed by their departments and by the College of Science and may have their funding terminated on recommendation of their department or by decision of the College of Science in consultation with their department. Renewals of awards will depend on the student making satisfactory academic progress toward the degree, including a GPA of 3.000 or the department's minimum GPA, if it

is higher than the College of Science minimum, and satisfactory performance of any duties required by the award.

Satisfactory Progress

Satisfactory progress means satisfying requirements in the College of Science, graduate catalog, and in the regulations specified by the departments.

The College of Science sets minimum standards for all students to fulfill. Departments and programs may have additional requirements that exceed those of the College of Science. Students in the College of Science must be making satisfactory progress, including working toward the graduation requirement of a grade-point average of 3.000 in their course work and the timely completion of course work and comprehensive/qualifying examinations.

Time Limitation

Please refer to university policy regarding time limitations. If students wish to apply for an extension of the time limit, they must submit a petition to their department of study. The petition must include a detailed plan for completion of all remaining degree requirements. In the case of master's degree time limit extension requests for course work, the department must certify that the content of each of the courses has not changed since the time the student completed the course. If deemed appropriate, the department will recommend time limit extension to graduate student services. The associate dean for academic and faculty affairs has final approval of time limit extensions.

Changes in Requirements

The continuing development of the College of Science graduate programs forces regular revision of curricula. When no hardship is imposed on the student because of changes and the facilities of the school permit, the student is expected to meet the most recent requirements. However, if it can be demonstrated to the director of graduate student services that doing so does impose a substantial hardship, the requirements of the year in which the student matriculated will be applicable.

The Doctor of Philosophy Degree (PhD)

The Doctor of Philosophy degree is awarded to candidates who give evidence of high scholastic attainment and research ability in their major field. Specific degree requirements are administered by a committee in charge of the degree program. It is the responsibility of the chair of this committee to certify to the College of Science the completion of each requirement for each candidate.

Residence Requirement

A Doctor of Philosophy degree student must spend the equivalent of at least one academic year in residence at the university as a full-time graduate student. The committee of each degree program

specifies the method by which the residence requirement is satisfied.

Qualifying Exam

In programs where a qualifying exam is required, students must complete this requirement within the time limit set by the program of study.

Comprehensive Examination

Degree programs may require a comprehensive examination. Generally, students are expected to complete all of the required degree course work prior to taking the comprehensive examination. Students must complete this requirement within the time limit set by the program of study, usually within one term of completing the required course work.

Doctoral Degree Candidacy

PhD degree candidacy is established when students have completed all departmental requirements for candidacy. These requirements vary by department and include completing the minimum number of graduate semester hours required of doctoral students by the department (this may include an earned master's degree accepted by the department) and passing a qualifying examination and/or a comprehensive examination. Once students reach doctoral degree candidacy they will be certified, in writing, by the college. Registration in course work is not permitted once a student reaches candidacy.

Continuity of Registration

For each of the first two semesters that a doctoral candidate has established candidacy, the student must register for Doctoral Dissertation. For each semester beyond the two dissertation registrations, the student must register for Doctoral Dissertation Continuation until the dissertation is approved by the College of Science. During the terms when a student is registered for Doctoral Dissertation or Dissertation Continuation, course work is not permitted as the course requirements for the degree have already been met. If the academic program requires enrollment in seminars or courses in addition to Dissertation or Dissertation Continuation, the graduate coordinator will make a recommendation to the College of Science for approval. Approval must happen prior to registration. Students must be registered for Dissertation or Dissertation Continuation during the semester in which they take the final oral examination (including the full summer semester if that is when defense occurs). Any student who does not attend Northeastern University for a period of one year may be required to apply for readmission.

Dissertation

Each doctoral student must complete a dissertation that embodies the results of extended research and makes an original contribution to the field. This work should give evidence of the candidate's ability to carry out investigation and interpret in a logical manner

the results of the research. The method of approval of the dissertation is established by the committee in charge of the degree program. The chair of the dissertation committee must be a full-time member of the faculty of Northeastern University. In addition, the chair of a doctoral program dissertation committee must hold a doctoral degree. Typically, only one external committee member is allowed.

Final Oral Examination

The final oral examination will be on the subject matter of the Doctoral Dissertation and on important developments in the field of the dissertation. Other fields may be included if recommended by the examining committee. This examination will be taken after completion of all other degree requirements and must be held at least two weeks prior to the Commencement at which the PhD is awarded. The oral exam must take place on campus in the presence of the chair/advisor and other dissertation committee members.

The Master's Degree Academic Requirements

A candidate for the master's degree must complete a minimum of 30 semester hours of graduate-level course work and such other study as may be required by the department in which the student is registered.

To qualify for the degree, a minimum cumulative average of 3.000, equivalent to a grade of B, must be obtained. This average will be calculated each semester according to the university grading system and will exclude any transfer credits or repeated courses. A student who does not make satisfactory progress toward degree requirements, as specified by the individual department, may be terminated from the program.

Comprehensive Examination

A final written or oral comprehensive examination is required in some programs. This examination will be given by the department concerned at least two weeks before the Commencement at which the degree is expected.

Thesis

Theses are required in some programs and should demonstrate the individual's capacity to execute independent work based on original material. Registration for Thesis is required in most programs.

Theses must be approved by the departmental graduate committee and, in cases in which a grade is required, must receive a grade of B (3.000) or better to be accepted.

Continuity of Registration

Students are expected to maintain satisfactory progress toward their intended degrees. Students who have not completed their thesis after having registered for the specified number of thesis credits must register and pay for Master's Continuation each subsequent semester until the thesis is approved and submitted to

ProQuest. Master's Continuation will carry no credit but will be recorded on the student transcript with the appropriate grade (S or U) for each semester of registration. All students must be registered in the last semester of their program.

Interdisciplinary Doctoral Programs

Some graduate students may wish to pursue doctoral programs that involve substantial work in two or more departments. To meet this need, an interdisciplinary program may be established that corresponds in scope and depth to doctoral standards but does not agree exactly with the individual departmental regulations. Please consult the graduate catalog for policies and guidelines pertaining to this doctoral option.

BIOLOGYwww.northeastern.edu/biology

JONATHAN L. TILLY, PhD
Professor and Chair

134 Mugar Life Sciences Building
 617.373.2260
 617.373.3724 (fax)
 gradbio@neu.edu

Graduate Coordinator for Biology
 Donald M. O'Malley, PhD, *Associate Professor*,
 d.omalley@neu.edu

Graduate Coordinator for Bioinformatics
 Steven Vollmer, PhD, *Assistant Professor and Director*,
 s.vollmer@neu.edu

The biology PhD and MS programs seek to provide a broad background knowledge base in conjunction with in-depth study of a specialized area of biology. The programs emphasize close interaction between graduate students and faculty members in developing the intellectual and experimental skills required for creative, independent research. The professional science master's programs seek to prepare students to enter the research management and technology transfer fields.

The PhD program entails course work from a core biology curriculum along with advanced courses in the student's area of research interest. This is complemented by intensive research and completion of a dissertation under faculty supervision. Faculty research includes biochemistry, microbiology, cell and molecular biology, developmental and neurobiology, marine biology, and ecology and evolution. Financial support (teaching assistantships or research assistantships) is normally provided for students admitted to this program and who are making good progress toward completion of their degree. The MS program includes the same course work, research under faculty supervision, and completion of a written MS thesis.

The Master of Science in Bioinformatics is a professional program that consists of four parts: fundamental courses, core courses, internship, and electives. All courses are available in the late afternoon or evening to accommodate those who are employed during the day.

MS in Biology**GENERAL REQUIREMENTS**

BIOL 5100 Biology Colloquium	2 SH
BIOL 6303, 6399, 6401, or 6403	8 SH
BIOL 7399 Research Problem Solving, Ethics, and Communication Skills	4 SH
BIOL 7990 Thesis	1 SH
Biology or other approved electives	15 SH

PROGRAM TOTAL CREDITS 30.0 SH

MS in Bioinformatics**YEAR 1, FALL SEMESTER**

BIOL 6308 Bioinformatics Computational Methods 1	4 SH
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YEAR 1, SPRING SEMESTER

BIOL 6309 Bioinformatics Computational Methods 2	4 SH
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GENERAL REQUIREMENTS

BIOL 6200 Bioinformatics Programming	4 SH
BIOL 6381 Ethics in Biological Research	2 SH
BIOL 7385 Bioinformatics Seminar	2 SH
BIOL 8964 Co-op Work Experience	0 SH
MATH 7340 Statistics for Bioinformatics	4 SH
Graduate electives	12 SH

PROGRAM TOTAL CREDITS 32.0 SH

PhD in Biology—Advanced Degree Entrance**GENERAL REQUIREMENTS**

Advisor-recommended courses	0 SH
Advisor-approved electives	0 SH
BIOL 9990 Dissertation	0 SH
BIOL 9990 Dissertation	0 SH

PROGRAM TOTAL CREDITS VARIABLE

PhD in Biology—Bachelor's Degree Entrance**GENERAL REQUIREMENTS**

BIOL 5100 Biology Colloquium	2 SH
BIOL 6303, 6399, 6401, or 6403	8 SH
BIOL 7399 Research Problem Solving, Ethics, and Communication Skills	4 SH
BIOL 9990 Dissertation	0 SH
BIOL 9996 Dissertation Continuation	0 SH
Approved electives	16 SH

PROGRAM TOTAL CREDITS 30.0 SH

CHEMISTRY AND CHEMICAL BIOLOGY

www.northeastern.edu/chem

GRAHAM B. JONES, PhD

Professor and Chair

102 Hurtig Hall
617.373.2383

Graduate Administrative Officer

Cara Shockley, C.Shockley@neu.edu, 617.373.2824

Graduate Coordinator for Biotechnology

Jim Leung, PhD, *Academic Director for Biotechnology*,
j.leung@neu.edu

The department offers thesis- and non-thesis-based advanced degrees with concentrations in analytical, inorganic, organic, and physical chemistry and in interdisciplinary fields such as polymers, materials, and chemical biology.

The PhD program is designed for students who have earned a bachelor's or a master's degree in chemistry or related areas and who wish to earn a doctorate in chemistry. The program of study includes some course work, but the primary emphasis is on the completion of an original research project, its articulation in a well-written thesis, and its subsequent defense before the thesis (oral examination) committee.

The PhD program is a full-time degree program that typically takes five years to complete. Financial support (teaching assistantships or research assistantships) is normally provided for students throughout their period of study if they are found to be making satisfactory progress toward their degree in accordance with departmental and university guidelines.

Applicants for the PhD program are expected to have earned a BA, BS, or MS in chemistry or related field or to have completed the equivalent course work with an overall GPA of 3.000 or better from an accredited college or university. Applications should be submitted online via the Apply Yourself system as instructed by the College of Science graduate student services, including the following materials: personal statement, transcripts, and three letters of recommendation. Submission of the general GRE score is required for applications for the PhD or thesis MS program. Subject GRE score is not required but recommended for PhD applications. For international students, a TOEFL score of 93 (Internet-based test) is expected.

The Professional Master of Science in Biotechnology seeks to provide students with a common core of knowledge in biotechnology, with particular emphasis on their ability to integrate knowledge across disciplinary boundaries. Specific objectives are to provide students with didactic and practical knowledge in genomics, proteomics, and other bioanalytical approaches; in drug discovery, development, and delivery; and in bioprocess development and optimization.

Special Student Status

Special student status allows students to take up to 12 semester hours of credit in graduate courses offered in the department without being enrolled in a degree program. Students who wish to further their education in an MS or PhD program must apply to and be accepted into one of the graduate programs. Students who are successfully admitted into a degree program may apply for transfer credit (up to 12 semester hours) for course work taken as a special student.

MS in Chemistry—Nonthesis Option

GENERAL REQUIREMENTS

CHEM 5600 through CHEM 7999 30 SH

PROGRAM TOTAL CREDITS 30.0 SH

MS in Chemistry—Thesis Option

GENERAL REQUIREMENTS

CHEM 5600 Research Skills and Ethics in Chemistry 3 SH

CHEM 5601 through CHEM 7999 18 SH

CHEM 7730 Advanced Laboratory Methods 4 SH

CHEM 8504 Graduate Seminar 1 SH

CHEM 8986 Research 6 SH

PROGRAM TOTAL CREDITS 32.0 SH

MS in Biotechnology—Biopharmaceutical Analytical Sciences Track

Part-time students go at their own pace.

YEAR 1, FALL SEMESTER

BIOT 5120 Introduction to Biotechnology 3 SH

BIOT 5145 Basic Biotechnology Lab Skills 1 SH

BIOT 5219 The Biotechnology Enterprise 2 SH

BIOT 5560 Bioprocess Fundamentals 3 SH

YEAR 1, SPRING SEMESTER

BIOL XXXX (title pending approval) 3 SH

BIOT 6214 Experimental Design and Biometrics 2 SH

CHEM 5620 Protein Chemistry 3 SH

YEAR 2, FALL SEMESTER

BIOT 5130 Team Skills in Biotechnology 2 SH

CHEM 5550 Introduction to Glycobiology and

Glycoprotein Analysis

Graduate elective 3 SH

YEAR 2, SPRING SEMESTER

BIOT 6964 Co-op Work Experience 0 SH

BIOT 7245 Biotechnology Applications Laboratory 3 SH

(credit value pending approval)

CHEM 5616 Protein Mass Spectrometry 3 SH

CHEM 5660 Analytical Biochemistry 3 SH

PROGRAM TOTAL CREDITS 34.0 SH

MS in Biotechnology—Pharmaceutical Technologies Track

Part-time students go at their own pace.

YEAR 1, FALL SEMESTER

BIOT 5120 Introduction to Biotechnology	3 SH
BIOT 5145 Basic Biotechnology Lab Skills	1 SH
BIOT 5219 The Biotechnology Enterprise	2 SH
BIOT 5560 Bioprocess Fundamentals	3 SH

YEAR 1, SPRING SEMESTER

BIOL XXXX (title pending approval)	3 SH
BIOT 6214 Experimental Design and Biometrics	2 SH
CHEM 5620 Protein Chemistry	3 SH

YEAR 2, FALL SEMESTER

BIOT 5130 Team Skills in Biotechnology	2 SH
BIOT 5700 Molecular Interactions of Proteins in Biopharmaceutical Formulations	3 SH
Graduate elective	3 SH

YEAR 2, SPRING SEMESTER

BIOT 5640 Drug Product Processes for Biopharmaceuticals	3 SH
BIOT 6964 Co-op Work Experience	0 SH
BIOT 7245 Biotechnology Applications Laboratory (credit value pending approval)	3 SH
CHEM 5660 Analytical Biochemistry	3 SH

PROGRAM TOTAL CREDITS 34.0 SH

MS in Biotechnology—Process Sciences Track

Part-time students go at their own pace.

YEAR 1, FALL SEMESTER

BIOT 5120 Introduction to Biotechnology	3 SH
BIOT 5145 Basic Biotechnology Lab Skills	1 SH
BIOT 5219 The Biotechnology Enterprise	2 SH
BIOT 5560 Bioprocess Fundamentals	3 SH

YEAR 1, SPRING SEMESTER

BIOL XXXX (title pending approval)	3 SH
BIOT 6214 Experimental Design and Biometrics	2 SH
CHEM 5620 Protein Chemistry	3 SH

YEAR 2, FALL SEMESTER

BIOT 5130 Team Skills in Biotechnology	2 SH
BIOT 5631 or BIOT 5635	3 SH
Graduate elective	3 SH

YEAR 2, SPRING SEMESTER

BIOT 5640 Drug Product Processes for Biopharmaceuticals	3 SH
BIOT 6964 Co-op Work Experience	0 SH
BIOT 7245 Biotechnology Applications Laboratory (credit value pending approval)	3 SH
CHEM 5660 Analytical Biochemistry	3 SH

PROGRAM TOTAL CREDITS 34.0 SH

PhD in Chemistry—Advanced Degree Entrance

GENERAL REQUIREMENTS

CHEM 5600 Research Skills and Ethics in Chemistry	3 SH
CHEM 7750 Advanced Problem Solving	3 SH
CHEM 8504 Graduate Seminar	1 SH
CHEM 9990 Dissertation (taken twice)	0 SH
CHEM 9996 Dissertation Continuation	0 SH

PROGRAM TOTAL CREDITS 7.0 SH

PhD in Chemistry—Bachelor's Degree Entrance

GENERAL REQUIREMENTS

CHEM 5600 Research Skills and Ethics in Chemistry	3 SH
CHEM 5601 through CHEM 7799	18 SH
CHEM 7730 Advanced Laboratory Methods	4 SH
CHEM 7750 Advanced Problem Solving	3 SH
CHEM 8504 Graduate Seminar	1 SH
CHEM 8984 Master's Research	4 SH
CHEM 9990 Dissertation (taken twice)	0 SH
CHEM 9996 Dissertation Continuation	0 SH

PROGRAM TOTAL CREDITS 33.0 SH

MARINE AND ENVIRONMENTAL SCIENCES

www.northeastern.edu/ees

GEOFFREY C. TRUSSELL, PhD
Professor and Chair

Marine Science Center
781.581.7370
781.581.6076 (fax)
gradeemb@neu.edu

Graduate Coordinator
Steven Vollmer, PhD, *Associate Professor*, s.vollmer@neu.edu

The Department of Marine and Environmental Sciences graduate program offerings include core capacities in marine biology, ecology, and evolution. Students benefit from top-notch research facilities at both the Marine Science Center and the main campus in Boston. The MS in Marine Biology program prepares students for entry- and mid-level careers in marine research. The doctoral program in ecology, evolution, and marine biology prepares graduates for careers in teaching and specialized research.

MS in Marine Biology

YEAR 1, FALL SEMESTER

BIOL 5103 Marine Biology Careers Seminar	1 SH
BIOL 5501 Marine Botany	4 SH
<i>Coreq.</i> BIOL 5502	
BIOL 5502 Lab for BIOL 5501	1 SH
<i>Coreq.</i> BIOL 5501	
BIOL 5503 Marine Invertebrate Zoology	4 SH
<i>Coreq.</i> BIOL 5504	
BIOL 5504 Lab for BIOL 5503	1 SH
<i>Coreq.</i> BIOL 5503	
BIOL 5515 Marine Ecology	4 SH
<i>Coreq.</i> BIOL 5516	
BIOL 5516 Lab for BIOL 5515	1 SH
<i>Coreq.</i> BIOL 5515	
BIOL 5521 Experimental Design Marine Ecology	4 SH
<i>Coreq.</i> BIOL 5522	
BIOL 5522 Lab for BIOL 5521	1 SH
<i>Coreq.</i> BIOL 5521	
BIOL 5589 Diving Research Methods	2 SH

YEAR 1, SPRING SEMESTER

BIOL 5505 Biology of Corals	3 SH
BIOL 5507 Biology and Ecology of Fishes	3 SH
BIOL 5513 Tropical Terrestrial Ecology	1 SH
BIOL 5519 Ocean and Coastal Processes	2 SH
BIOL 5520 Coral Reef Ecology	2 SH
BIOL 5527 Marine Conservation Biology	3 SH

YEAR 1, SUMMER 1 SEMESTER

BIOL 5509 Marine Birds and Mammals	2 SH
<i>Coreq.</i> BIOL 5510	
BIOL 5510 Lab for BIOL 5509	1 SH
<i>Coreq.</i> BIOL 5509	
BIOL 5529 Physiological and Molecular Marine Ecology	3 SH

YEAR 1, SUMMER 2 SEMESTER

BIOL 6964 Co-op Work Experience	0 SH
BIOL 8507 Marine Biology Graduate Co-op Tutorial	1 SH

YEAR 2, FALL SEMESTER

BIOL 6964 Co-op Work Experience	0 SH
BIOL 8507 Marine Biology Graduate Co-op Tutorial	1 SH
BIOL 8674 Marine Biology Research Project	4 SH

PROGRAM TOTAL CREDITS **49.0 SH**

Ecology, Evolution, and Marine Biology PhD Program

The PhD in Ecology, Evolution, and Marine Biology (EEMB) program provides students with advanced course work and training in ecology, evolution, and marine biology. For students entering with a bachelor's degree, EEMB program completion requires 30 semester hours of graduate-level course work, of which 20 semester hours must carry a letter grade. The remaining 10 semester hours may consist of colloquium, doctoral research, and similar courses. Planned course work must be approved by the student's program advisory committee.

Students admitted with a master's degree must take two semesters of colloquium. Transcripts detailing their previous course work will be submitted upon arrival to their program advisory committee and the marine and environmental sciences graduate committee to determine whether additional course work is required. The program advisory committee may require the student to pursue additional course work as needed to provide the necessary background for their program of study. Additional course work may also be required depending on the student's performance on written qualifying and oral examinations.

Students must pass three examinations during the course of their graduate studies: (1) a written examination consisting of questions posed by the student's written examination committee; (2) an oral examination consisting of an oral presentation and defense of the student's dissertation proposal and including questions about the research areas that the student proposes to work in; and (3) a defense of their written dissertation consisting of a public seminar, public question-and-answer period, and private defense of their work to their dissertation committee, which will typically consist of the student's program advisory committee and at least one other member from outside Northeastern University. Dissertation committees typically consist of four Northeastern faculty and one external faculty member.

A cumulative GPA of 3.000 is required for graduation. All PhD students are required to have at least one first-authored publication submitted to or accepted in a peer-reviewed journal

prior to their defense. The PhD will be awarded following submission of a dissertation, approved by the candidate's dissertation committee, to the College of Science.

Students who are admitted to the PhD program, complete the course work component of the curriculum, and prepare and defend a written thesis (as opposed to a more comprehensive dissertation) may, at the discretion of the graduate committee and their dissertation committee, be awarded a master's degree (Master of Science in Ecology, Evolution, and Marine Biology). The MS degree will only be awarded in rare instances where students and/or their dissertation committee, after communication with the graduate committee, determine that the PhD is untenable.

PhD in Ecology, Evolution, and Marine Biology— Bachelor's Degree Entrance

GENERAL REQUIREMENTS

ENVR 5100 (pending approval) (taken twice)	0 SH
Qualifying exam preparation	0 SH
Dissertation (taken twice)	0 SH
Dissertation Continuation	0 SH
Approved graduate-level electives	28 SH

PROGRAM TOTAL CREDITS 28.0 SH

PhD in Ecology, Evolution, and Marine Biology— Advanced Degree Entrance

GENERAL REQUIREMENTS

ENVR 5100 (pending approval) (taken twice)	0 SH
Qualifying exam preparation	0 SH
Dissertation (taken twice)	0 SH
Dissertation continuation	0 SH
Committee-recommended courses	0 SH

PROGRAM TOTAL CREDITS 0.0 SH

MATHEMATICSwww.math.neu.eduCHRISTOPHER K. KING, PHD
*Professor and Interim Chair*567 Lake Hall
617.373.2450
617.373.5658 (fax)
Gordana Todorov, PhD, *Professor*, g.todorov@neu.edu*Graduate Programs Information*
www.math.neu.edu/graduate-programs

The graduate programs offer MS and PhD degrees in mathematics, as well as an MS degree in operations research and an MS degree in applied mathematics. The programs are designed to provide students with a broad overview of current mathematics and a strong command of an area of specialization.

The Master of Science Degree

A total of 32 semester hours, this program offers students with a bachelor's degree in mathematics or a related field an opportunity to broaden their knowledge in the several fields of mathematics and its applications. The program is designed to prepare graduates for careers in business, industry, or government or for the PhD program in mathematics.

AREAS OF SPECIALIZATION

Pure mathematics, discrete mathematics, probability and statistics, applied analysis

COURSE REQUIREMENTS

Eight 4-semester-hour graduate courses are required for the degree. To qualify for degree conferral, students must obtain a minimum cumulative average of 3.000, equivalent to a grade of B. Required courses for different specializations vary.

THESIS OPTION FOR THE MS IN MATHEMATICS PROGRAM

At the end of their first year, students in the master's-level program may choose the option of a master's degree with thesis. A student with the thesis option should register for a master's thesis course with the supervisor during one of the semesters of the final year of the student's master's program. The written thesis may present original research or an original approach to a problem or it can be expository in nature. After the supervisor's approval, the thesis will be reviewed by a referee. The student will make an oral presentation of the thesis before a committee of three faculty members, including the supervisor and the referee. A letter grade (A, B, or F) will be given for the thesis after the presentation. For students enrolled in the Northeastern MS program to be considered for admission to the PhD program, they must pass a series of qualifying exams (see description of the PhD program).

MS in Mathematics—Applied Analysis Track**YEAR 1, FALL SEMESTER**

MATH 5101 Analysis 1: Functions of One Variable	4 SH
MATH 5111 Algebra 1	4 SH
MATH 7202 Partial Differential Equations 1	4 SH

YEAR 1, SPRING SEMESTER

MATH 5102 Analysis 2: Functions of Several Variables	4 SH
MATH 5112 Algebra 2	4 SH

GENERAL REQUIREMENTS

MATH 7201 Ordinary Differential Equations	4 SH
MATH 7203 Numerical Analysis	4 SH
Elective course MATH 5122 or an advanced course in analysis	4 SH

PROGRAM TOTAL CREDITS 32.0 SH**MS in Mathematics—Discrete Track****YEAR 1, FALL SEMESTER**

MATH 5101 Analysis 1: Functions of One Variable	4 SH
MATH 5111 Algebra 1	4 SH
MATH 7241 Probability 1	4 SH

YEAR 1, SPRING SEMESTER

MATH 5112 Algebra 2	4 SH
MATH 7232 Combinatorial Analysis	4 SH

GENERAL REQUIREMENTS

MATH 7231 Discrete and Computational Geometry	4 SH
MATH 7233 Graph Theory	4 SH
Elective course MATH 5121 or 7341	4 SH

PROGRAM TOTAL CREDITS 32.0 SH**MS in Mathematics—Probability/Statistics Track****YEAR 1, FALL SEMESTER**

MATH 5101 Analysis 1: Functions of One Variable	4 SH
MATH 5111 Algebra 1	4 SH
MATH 7241 Probability 1	4 SH

YEAR 1, SPRING SEMESTER

MATH 5102 Analysis 2: Functions of Several Variables	4 SH
MATH 7341 Probability 2	4 SH
MATH 7342 Mathematical Statistics	4 SH

YEAR 2, FALL SEMESTER

MATH 7343 Applied Statistics	4 SH
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GENERAL REQUIREMENTS

Elective course MATH 7344, 7345, 7346, or 7391	4 SH
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PROGRAM TOTAL CREDITS 32.0 SH

MS in Mathematics—Pure Track

YEAR 1, FALL SEMESTER

MATH 5101 Analysis 1: Functions of One Variable 4 SH

MATH 5111 Algebra 1 4 SH

YEAR 1, SPRING SEMESTER

MATH 5102 Analysis 2: Functions of Several Variables 4 SH

MATH 5112 Algebra 2 4 SH

YEAR 2, FALL SEMESTER

MATH 5122, 7232, 7314 or 7364 8 SH

YEAR 2, SPRING SEMESTER

MATH 5121 Topology 1 4 SH

Elective course MATH 7213, 7221, 7222, or an advanced course in analysis 4 SH

PROGRAM TOTAL CREDITS 32.0 SH

The Master of Science Degree in Applied Mathematics

Eight graduate courses (32 semester hours of credit) are required for the degree: three required courses and five elective courses.

The required courses provide a basic training in mathematical methods, and the elective courses include a wide variety of advanced topics. In addition, the program allows up to two of the elective courses to be taken outside the mathematics department.

COURSE REQUIREMENTS

Required Courses

Three core courses: Introduction to Mathematical Methods and Modeling; Applied Statistics or Mathematical Statistics; Analysis 1 or Algebra 1 or Probability 1.

Five Electives

Three must be graduate courses offered by the Department of Mathematics. With approval of the graduate coordinator, two may be graduate courses outside of the department.

MS in Applied Mathematics

YEAR 1, FALL SEMESTER

MATH 5131 Introduction to Mathematical Methods and Modeling 4 SH

GENERAL REQUIREMENTS

MATH 5101, MATH 5111, or MATH 7241 4 SH

MATH 7342 or MATH 7343 4 SH

Three MATH electives 12 SH

Two approved electives 8 SH

PROGRAM TOTAL CREDITS 32.0 SH

The Master of Science Degree in Operations Research

A total of 32 semester hours, this program seeks to train students in the basic techniques and theory of operations research and their applications to real-world problems. Graduates should have developed their analytical skills to attack complex, large-scale optimization problems of both a deterministic and stochastic nature. Eight 4-semester-hour graduate courses are required for this degree. To qualify for degree conferral, a minimum cumulative average of 3.000, equivalent to a grade of B, must be obtained. Some courses listed for this program are offered in the Department of Mechanical, Industrial, and Manufacturing Engineering.

COURSE REQUIREMENTS

Required Courses

Four core courses: Probability 1 or Engineering Probability and Statistics, Probability 2 or Probabilistic Operations Research, Deterministic Operations Research, Optimization.

Four Elective Courses from the Following List

Mathematical Statistics, Enumeration, Data Structures, Stochastic Calculus and No-Arbitrage Finance, Statistical Decisions, Complexity Theory, Economic Decision Making, Multi-Criteria Decision Making, Logistics, Warehousing and Scheduling, Reliability and Risk Assessment.

MSOR—Master of Science in Operations Research

GENERAL REQUIREMENTS

MATH 7234 Optimization and Complexity 4 SH

MATH 7241 or IE 6200 4 SH

MATH 7341 or OR 7230 4 SH

OR 6205 Deterministics Operations Research 4 SH

Elective course EMGT 6225, IE 7290, MATH 7342, 7347, 7349, or OR 7250, 7310 16 SH

PROGRAM TOTAL CREDITS 32.0 SH

The Doctor of Philosophy Degree

AREAS OF SPECIALIZATION

Algebra, geometry/topology, geometric analysis/PDE, probability/statistics, combinatorics

MINOR SPECIALTY

Each PhD student selects a specific mathematical subject of an advanced nature, which must be reasonably unrelated to the topic of the student's dissertation. The student should render work in this area equivalent to 8 semester hours of course work.

QUALIFYING EXAMS

Qualifying exam sessions are given once in late September and once in late January. They cover algebra, analysis, and the student's specialized field. Students will be given an opportunity to practice on a sample test. Students must pass four exams by the end of their second year in the PhD program in order to continue in the program. The student may petition the graduate committee

to have an alternative to a qualifying exam in the field of specialization: The student may write and defend a master's thesis or submit a paper for publication in a recognized journal. The graduate committee will then determine whether this work satisfies the requirements.

TEACHING REQUIREMENT

Some teaching experience is required while in the program. This requirement may be satisfied by teaching an undergraduate course or presenting at least two talks in conferences or departmental seminars.

RESIDENCE REQUIREMENT

The residence requirement is satisfied by one year of full-time graduate work or two years of continuous registration for part-time work.

LANGUAGE REQUIREMENT

The candidate must establish the ability to read and translate mathematical texts and journals in one foreign language. The language may be chosen from French, German, and Russian; any other choice requires special approval. Students should notify the chair of the departmental graduate committee when they are prepared to be examined on a language. The examination is conducted by a member of the faculty of the mathematics department.

COURSE REQUIREMENTS

A total of eight 4-semester-hour courses beyond the MS degree and two PhD dissertation courses leading to a dissertation topic are required. Two of the eight courses must be in a minor specialty, which is different from the thesis area. The two PhD thesis courses must be completed by the third year in the program. PhD students must also satisfy any additional course requirements specified by their thesis advisor. A minimum GPA of 3.000 is required for degree conferral.

PhD in Mathematics—Algebra Track

GENERAL REQUIREMENTS

Four courses from MATH 7213, 7311, 7313, 7314, 7364, or other approved course	16 SH
Two MATH electives	8 SH
Two secondary specialty courses	8 SH
MATH 9990 Dissertation (taken twice)	0 SH
MATH 9996 Dissertation Continuation	0 SH

PROGRAM TOTAL CREDITS 32.0 SH

PhD in Mathematics—Combinatorics Track

YEAR 1, SPRING SEMESTER

MATH 7234 Optimization and Complexity	4 SH
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GENERAL REQUIREMENTS

MATH 7331 Algebraic Combinatorics	4 SH
MATH 7332 Geometric Combinatorics	4 SH
MATH 7381 Topics in Combinatorics	4 SH

Two electives from MATH 7231, 7233, 7731 through 7733	8 SH
Two secondary specialty courses	8 SH
MATH 9990 Dissertation (taken twice)	0 SH
MATH 9996 Dissertation Continuation	0 SH

PROGRAM TOTAL CREDITS 32.0 SH

PhD in Mathematics—Geometric Analysis/PDE Track

GENERAL REQUIREMENTS

MATH 5122 Geometry 1	4 SH
MATH 7202 Partial Differential Equations 1	4 SH
MATH 7204 Complex Analysis	4 SH
MATH 7301 Functional Analysis	4 SH
Two electives from MATH 7201, 7302, 7351 through 7355, or other departmental-approved course	8 SH
Two secondary specialty courses	8 SH
MATH 9990 Dissertation (taken twice)	0 SH
MATH 9996 Dissertation Continuation	0 SH

PROGRAM TOTAL CREDITS 32.0 SH

PhD in Mathematics—Geometry/Topology Track

YEAR 1, FALL SEMESTER

MATH 7221 Topology 2	4 SH
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GENERAL REQUIREMENTS

MATH 7222 Geometry 2	4 SH
MATH 7321 Topology 3	4 SH
MATH 7322 Geometry 3	4 SH
Two electives from MATH 7323, 7324, 7371 through 7376	8 SH
Two secondary specialty courses	8 SH
MATH 9990 Dissertation (taken twice)	0 SH
MATH 9996 Dissertation Continuation	0 SH

PROGRAM TOTAL CREDITS 32.0 SH

PhD in Mathematics—Probability/Statistics Track

GENERAL REQUIREMENTS

MATH 7234 Optimization and Complexity	4 SH
MATH 7344 Regression, ANOVA, and Design	4 SH
MATH 7345 Nonparametric Methods in Statistics	4 SH
MATH 7391 Topics in Statistics	4 SH
Two electives from MATH 7741 or 7346 through 7349	8 SH
Two secondary specialty courses	8 SH
MATH 9990 Dissertation (taken twice)	0 SH
MATH 9996 Dissertation Continuation	0 SH

PROGRAM TOTAL CREDITS 32.0 SH

DOCTORAL CANDIDACY

Doctoral students must complete a minimum of 32 semester hours (eight math courses) beyond the Master of Science degree and pass four qualifying exams by the end of the fourth semester.

DISSERTATION REQUIREMENT

Each candidate must complete a dissertation that embodies the results of extended research and makes an original contribution to the field. This work should give evidence of the candidate's ability to carry out independent investigation and interpret, in a logical manner, the results of the research. There are two stages to this process:

- **Stage 1:** Students in the PhD program must have a thesis supervisor within two years after joining the PhD program. The department views the failure of a student to find a supervisor within two years of joining the PhD program with concern and considers this sufficient cause to review the student's status in the PhD program. The process of obtaining a thesis supervisor always involves two choices—the student chooses the supervisor, and the supervisor chooses the student. For this reason, the department does not guarantee a thesis supervisor for every student, but the department recognizes its responsibility to help the student find a satisfactory match. This aid is usually provided by the student's graduate advisor, who should be familiar with the student's progress in finding a thesis supervisor. The thesis supervisor guides the student's further education as well as directs the student's dissertation. The dissertation itself must represent an original solution of a problem in the chosen area of mathematics that makes a significant contribution to the mathematical knowledge in that area. Students in their fourth or fifth year are required to submit a written report on their thesis to the graduate committee.
- **Stage 2 (Thesis Defense):** The final oral examination on the dissertation is held in accordance with the graduate school regulations and given by a thesis committee of four faculty members (three from the university, including the supervisor, and one from outside Northeastern University). The thesis supervisor should propose this thesis committee to the executive committee for its approval. By the end of the third year in the PhD program, if the student has not succeeded in presenting the PhD thesis, he or she will be required to present the progress made to date and a plan of the remaining work to a committee of three faculty members. The committee evaluates the student's progress up to that point, and its report is placed in the student's file.

PHYSICS

www.northeastern.edu/physics

PAUL M. CHAMPION, PhD

Professor and Chair

110 Dana Research Center

617.373.2902

617.373.2943 (fax)

gradphysics@neu.edu

The Northeastern Department of Physics performs advanced research in condensed matter, fundamental particles and fields, biophysics, and complexity. Students are expected to have demonstrated a graduate-level understanding of basic physics concepts upon completion of the MS degree. The program for the PhD degree consists of the required course work, a qualifying examination, a preliminary research seminar, the completion of a dissertation based upon original research performed by the student, and a dissertation defense upon completion of the dissertation. Based on these measures, students are expected to obtain a graduate-level understanding of basic physics concepts and demonstrate the ability to formulate a research plan, communicate orally a research plan, and conduct and present independent research.

The Master of Science Degree

GRADE REQUIREMENTS

To qualify for the MS degree, a cumulative average of 3.000, equivalent to a grade of B, must be obtained. No more than two courses or 6 semester hours of credit, whichever is greater, may be repeated in order to satisfy the requirements for the MS degree. A student who does not maintain a 3.000 cumulative average for two consecutive semesters, or is otherwise not making satisfactory progress toward the MS degree requirements, may be recommended for termination at the discretion of the graduate committee.

Within the above limitations, a required course for which a grade of F is received must be repeated with a grade of C or better and may be repeated only once. Elective courses in which an F has been received may be repeated once to obtain a C or better.

TRANSFER CREDIT

Students must petition, in writing, through the graduate committee to the director of graduate student services for all transfer credit. An official transcript must be attached to the Request for Transfer Credit form. A maximum of 8 semester hours of credit obtained at another institution may be accepted toward the MS degree provided that the credits transferred consist of a grade of B or better in graduate-level courses, have been earned at an accredited U.S. institution, and have not been used toward any other degree. Grades are not transferred.

CURRENT MS STUDENTS INTERESTED IN THE PhD PROGRAM

MS students interested in applying to the PhD program must complete the internal admission application.

SPECIAL STUDENT STATUS

Special students are allowed to earn credit for a maximum of 12 semester hours. Students interested in taking more than 12 semester hours must make a formal application to the degree program online.

MS DEGREE OPTIONS

- **Option 1** is the standard physics MS with or without an MS thesis. Up to 8 semester hours of courses can be substituted with an MS thesis.
- **Option 2** is the MS with a concentration (up to 12 semester hours of courses) in applied physics, engineering physics, biophysics, chemical physics, material physics, mathematical physics, and computational physics.

Both options require a minimum of 32 semester hours of graduate credit. The 32 semester hours may include up to 8 semester hours of transfer credit as approved by the physics department's graduate committee and the college.

The MS degree options involve a common set of 24 semester hours of required graduate physics courses.

MS in Physics—Nonthesis Option

YEAR 1, FALL SEMESTER

PHYS 7301 Classical Mechanics/Math Methods	4 SH
PHYS 7302 Electromagnetic Theory	4 SH
PHYS 7315 Quantum Theory 1	4 SH

YEAR 1, SPRING SEMESTER

PHYS 7305 Statistical Physics	4 SH
PHYS 7316 Quantum Theory 2	4 SH
College of Science approved elective	4 SH

YEAR 2, FALL SEMESTER

PHYS 7321 Computational Physics	4 SH
College of Science approved elective	4 SH

PROGRAM TOTAL CREDITS **32.0 SH**

MS in Physics—Thesis Option

YEAR 1, FALL SEMESTER

PHYS 7301 Classical Mechanics/Math Methods	4 SH
PHYS 7302 Electromagnetic Theory	4 SH
PHYS 7315 Quantum Theory 1	4 SH

YEAR 1, SPRING SEMESTER

PHYS 7305 Statistical Physics	4 SH
PHYS 7316 Quantum Theory 2	4 SH

YEAR 2, FALL SEMESTER

PHYS 7321 Computational Physics	4 SH
Physics electives and/or master's thesis	8 SH

PROGRAM TOTAL CREDITS **32.0 SH**

MS in Physics—Concentration Option

YEAR 1, FALL SEMESTER

PHYS 7301 Classical Mechanics/Math Methods	4 SH
PHYS 7302 Electromagnetic Theory	4 SH
PHYS 7315 Quantum Theory 1	4 SH

YEAR 1, SPRING SEMESTER

PHYS 7305 Statistical Physics	4 SH
PHYS 7316 Quantum Theory 2	4 SH
College of Science approved elective	4 SH

YEAR 2, FALL SEMESTER

PHYS 7321 Computational Physics	4 SH
College of Science approved elective	4 SH

PROGRAM TOTAL CREDITS **32.0 SH**

PhD in Physics

GRADE REQUIREMENTS

The minimum grade required for the successful completion of the Part 1 courses is a B (3.000) average. Students will only be allowed to take the qualifying exam if they fulfill this requirement. The minimum grade required for the successful completion of Part 2 (excluding advanced research), is at least a B (3.000) average for the Part 2 courses. The Part 2 courses, including any makeup of grade-average deficiencies (see following), must be completed within two calendar years of passing the qualifying exam. The department expects students to complete the bulk of these courses in the first year after the qualifying exam. The cumulative average will be calculated each semester. No more than two courses or 8 semester hours of credit, whichever is greater, may be repeated in order to satisfy the requirement for the PhD degree. A student who does not maintain a 3.000 cumulative average for two consecutive semesters, or is otherwise not making satisfactory progress toward the PhD degree requirements, may be recommended for termination at the discretion of the graduate committee. Within the above limitations, a required course for which a grade of F is received must be repeated with a grade of C or better and may be repeated only once. In calculating the overall cumulative average, all graduate-level course work completed at the time of clearance for graduation will be counted.

QUALIFYING EXAM REQUIREMENT

A student who fails to achieve the required B average for the Part 1 courses must petition the graduate committee in order to remain in the graduate program and be eligible to take the qualifying exam. A student who fails to achieve the required B average for the Part 2 courses must petition the graduate committee in order to remain in the graduate program. All students

registered in the PhD program are required to pass a qualifying exam. The qualifying exam may include both written and oral parts. Any new, entering student with a master's degree may take the qualifying exam upon arriving at Northeastern University. Failure of the exam at this time will not be used to limit the two opportunities to take the examination in the future.

The qualifying exam consists of two parts:

- **Part 1:** Classical physics (based on classical mechanics and mathematical methods), electromagnetic theory, and statistical physics.
- **Part 2:** Quantum physics (based on quantum mechanics and its applications) and statistical physics. The content of the qualifying exam will be based on the content of the first-year courses, excluding Principles of Experimental Physics (PHYS 5318). A syllabus is available and on request will be distributed by the graduate coordinator to any student prior to the exam.

The qualifying exam is given twice yearly: once prior to the start of the fall semester and again within the first two weeks of the start of the second semester. The exam will consist of one day each on Part 1 (classical physics/mathematical methods, electromagnetism, and statistical physics) and Part 2 (quantum physics and statistical physics).

Students who enter with advanced standing (e.g., an MS degree or equivalent completion of all the first-year courses) may take the exam at the first opportunity after entering the program. Students who successfully pass both Part 1 and Part 2 of the qualifying exam on entry are exempted from the first-year courses except for Principles of Experimental Physics (PHYS 5318), which all students must take.

All students enrolled in the PhD program must take the fall qualifying exam after completing their first-year course of study with the required grade-point average. Students taking the exam for the first time must take both Part 1 and Part 2. A student who does not pass the exam on his or her first attempt must pass the exam the next time it is given in order to continue in the PhD program. However, a student who passes one part of the first attempt is not required to repeat that part.

A student who fails the written exam by less than 5 percent of the total possible score will be automatically given an oral exam. A student who fails the written exam by more than 10 percent is excluded from taking an oral exam. These provisions apply separately to Parts 1 and 2 of the exam.

PHD CANDIDACY

Degree candidacy is established when the student has passed the qualifying examination and completed both the Part 1 and Part 2 course requirements. PhD candidacy may be achieved before completion of the advanced elective if the elective in the student's concentration is not offered in a given year. The elective must be taken at the next opportunity. PhD degree candidacy is certified by the college. A maximum of five years after the establishment of doctoral degree candidacy is allowed for the completion of degree requirements.

TRANSFER CREDIT

Students must petition in writing through the graduate committee to the director of graduate student services for all transfer credit. A copy of an official transcript must be attached to the Request for Transfer Credit form. A maximum of 8 semester hours of credit obtained at another institution may be accepted toward the PhD degree provided that the credits transferred consist of a grade of B or better, are graduate-level courses, have been earned at an accredited U.S. institution, and have not been used toward any other degree. Grades are not transferred.

COURSE WAIVERS

Course waivers may be accepted toward the PhD degree course requirements, though they will not change the numbers of credits required for the program. The student must have received a B grade or better in equivalent graduate-level core courses that have been earned at an accredited institution. Students must petition in writing to the graduate committee for all course waivers and provide documentation in the form of official transcripts to support their petition.

RESIDENCE REQUIREMENT

The residence requirement is satisfied by at least one year of full-time graduate work (i.e., enrollment in PhD Dissertation, for two consecutive semesters).

INTERNSHIP OPTION

A PhD candidate may spend one year in a participating high-technology, industrial, or government laboratory immediately after passing the PhD qualifying examination. In this program, the student is expected to remain in touch with the university by taking one course per semester at the university and by frequent contact with a faculty advisor. After the one-year paid internship, the student returns to the university to do the dissertation. Eligibility for this program is contingent on acceptance both by the department and by the external laboratory.

PHD DISSERTATION REQUIREMENT

All PhD students are required to complete a dissertation based upon new and original research in one of the three following options:

- In one of the current theoretical or experimental research programs in the department, under direct supervision of an advisor from the physics department. A dissertation committee will be formed consisting of the advisor, two full-time members of the department, and an additional member, either from within the department or from an outside department or institution.
- In a recognized interdisciplinary field involving another research area of the university, under the direct supervision of a faculty member in that field. In this case, an interdisciplinary committee is formed under the approval of the graduate committee, consisting of the direct supervisor, a departmental advisor, one other member of the department, and an additional member of either the department or the external department.
- In an area of applied research in one of the industrial or high-technology laboratories associated with the department's

industrial PhD program. The direct supervisor is associated with the institution where the research is performed. In this case, a dissertation advisory committee is established by the graduate committee, consisting of the direct supervisor, the departmental advisor, and two other members of the department.

PhD students must select their departmental advisor no later than the end of the spring semester of their second year or their second semester after having passed the qualifying examination, whichever comes first. This process should start as soon as the student has identified a field of research or has passed the qualifying exam.

PhD Dissertation Committee, Dissertation, and Preliminary Research Seminar Proposal

By the end of the spring semester of the third year or the second semester in which the student is enrolled for PhD dissertation, whichever comes first, each PhD student must have an approved dissertation committee and dissertation proposal. The dissertation committee must consist of a minimum of three full-time faculty members, including the advisor, and must be approved by the department's graduate committee. Often, the graduate committee will recommend that a dissertation committee have a membership of four individuals.

The student (with the aid and approval of his or her thesis advisor) will submit a PhD dissertation proposal to the graduate committee clearly outlining a plan to carry out new and original research in the context of previously published research in the scientific literature and also describe the methodologies to be employed. A proposed makeup of the dissertation committee will be submitted at the same time.

The graduate committee will evaluate the merit of the proposal and make recommendations for improvements when necessary, including any changes to the composition of the dissertation committee. No more than two submissions for a particular proposal may be made. In the case where a revised proposal does not meet a minimum academic standard that provides a basis for making such improvements, the graduate committee may instruct the student to select a different thesis topic or advisor.

After approval by the graduate committee, the proposal is circulated to the general faculty for comments. If the graduate coordinator receives any objections, the proposal will be referred back to the graduate committee for final resolution.

After the proposal and thesis committee have been approved, the student will make a public presentation of the material in the PhD proposal before the dissertation committee in a format open to the full department and advertised one week in advance. The dissertation committee will then meet in closed session to evaluate the seminar. The presentation must take place no later than the semester after the preliminary proposal is approved and, normally, in the same semester.

In the event that the thesis advisor is changed, a new committee must be formed, with the approval of the graduate committee, and a new preliminary research seminar given.

PhD DISSERTATION DEFENSE

The dissertation defense consists of a public presentation, followed by a question period conducted by the dissertation committee and limited to them and the department faculty. The date of the dissertation presentation must be publicized and a copy of the thesis deposited with the graduate secretary at least one week prior to the defense. If during this posting period or in the two business days following the defense a written objection to the thesis is lodged with the department chair by a member of the faculty, the chair may appoint an ad hoc postdefense review committee to provide advice on the scientific issues raised by the objection. Students should note that they must be registered for dissertation continuation during the semester in which they defend their dissertation and that they should schedule their defenses well in advance of the end of the semester in order to accommodate the review/waiting period and the time required to deposit the thesis.

The final dissertation defense is held in accordance with the College of Science regulations.

COURSE WORK

The required courses are grouped into two sets, Part 1 and Part 2, having a total of 42 semester hours as a minimum. Part 1 courses (first-year courses) are typically taken prior to the qualifying exam. Students without a master's degree must complete all Part 1 courses in the first year to remain in good academic standing in the graduate program. Part 2 courses (second-year courses) may be taken before or after passing the qualifying exam.

PhD in Physics

YEAR 1, FALL SEMESTER

PHYS 7210 Introduction to Research in Physics	0 SH
PHYS 7301 Classical Mechanics/Math Methods	4 SH
PHYS 7302 Electromagnetic Theory	4 SH
PHYS 7315 Quantum Theory 1	4 SH

YEAR 1, SPRING SEMESTER

PHYS 5318 Principles of Experimental Physics	4 SH
PHYS 7210 Introduction to Research in Physics	0 SH
PHYS 7305 Statistical Physics	4 SH
PHYS 7316 Quantum Theory 2	4 SH

YEAR 2, FALL SEMESTER

PHYS 7321 Computational Physics	4 SH
PHYS 7323, 7324, or 7731	8 SH

YEAR 2, SPRING SEMESTER

PHYS 7733, PHYS 7734, or PHYS 7741 or approved biological physics elective	3 to 5 SH
PHYS 9984 Advanced Research	1 to 6 SH

GENERAL REQUIREMENTS

PHYS 9990 Dissertation (taken twice)	0 SH
PHYS 9996 Dissertation Continuation	0 SH

CREDIT REQUIREMENT 42.0 SH

By approval of the graduate committee, a concentration in biological physics may take 4 credits of graduate courses in biology, physics, or chemistry from an approved course list, instead of PHYS 7741. Additional appropriate courses may also be substituted by approval of the physics graduate committee.

Students who take PHYS 7731 and PHYS 7741 or an approved BIOL or CHEM course will receive a PhD in physics with a biological physics concentration (if it is desired to list a concentration).

Students who take PHYS 7323 and PHYS 7733 will receive a PhD in physics with a particle physics concentration (if it is desired to list a concentration).

Students who take PHYS 7324 and PHYS 7734 will receive a PhD in physics with a condensed matter physics concentration (if it is desired to list a concentration).

All other combinations that meet the criteria for graduation result in a general PhD in physics. Multiple concentrations are allowed if the individual requirements for each concentration are met. Please note that the concentration will not appear on the degree but can be listed as the field of study on CVs and grant proposals.

PSYCHOLOGY

www.northeastern.edu/psychology

JOANNE L. MILLER, PhD

Matthews Distinguished University Professor and Chair

125 Nightingale Hall

617.373.3076

617.373.8714 (fax)

Rebecca Schachter, *Staff Assistant*, r.schachter@neu.edu

The PhD program in the Department of Psychology covers a wide spectrum of contemporary behavioral science within a close-knit community of faculty and students. The program offers four distinct areas of experimental emphasis: behavioral neuroscience, cognition, perception, and social/personality. The program does not offer training in clinical or counseling psychology. The objective of the PhD program is to prepare students to become experts in research and teaching in psychology. To accomplish this goal, the department takes a mentoring approach whereby the graduate students are apprentices in faculty laboratories, working closely with their faculty mentors throughout their time in the program. The basic apprenticeship relationship is supplemented by other activities, such as required courses (concentrated in the first and second years), advanced seminars and/or course work in this as well as other departments or universities, a colloquium series, assignments as teaching assistants, the master's project, and the dissertation and its oral defense. After the first year, the structure of the doctoral program, including course work, is flexible and assumes that the process of learning and scientific discovery must be individualized. Graduate students also have an opportunity to develop their teaching and research skills through close mentoring of undergraduate research assistants. The PhD program is a five-year, 12-month-per-year program. Students earn their master's degree at the end of their second year and progress to PhD candidacy. There is no freestanding master's program.

For students who enter the program with a master's degree, degree candidacy is established through completion of a set of requirements determined on an individual basis. An additional 20 semester hours beyond the master's degree are required for the PhD degree. The dissertation committee must consist of three tenured or tenure-track faculty members—two from the student's interest area and one from another area. The oral defense committee consists of the dissertation committee plus additional tenured and tenure-track faculty members.

As part of the online application process, applicants are asked to indicate their primary area of interest from the set of departmental emphasis areas: behavioral neuroscience, cognition, perception, or social/personality. In addition, they are asked to select the faculty advisors (up to three) they would be most interested in working with. Inquiries made directly to potential faculty advisors via email are welcome, as these aid greatly in establishing the suitability of the applicant's background and the

match between faculty and student interests. Applications should be submitted online. In addition, the following materials should be submitted electronically via the Apply Yourself system: personal statement, transcripts, and three letters of recommendation. Scores from the Graduate Record Examination (GRE General Test) are also submitted electronically.

A typical program of study is as follows.

PhD in Psychology

YEAR 1, FALL SEMESTER

PSYC 5100, 5110, 5120, 5130, 5140, 5150, 5160, 6 SH
or 5170

PSYC 5180 Quantitative Methods 1 3 SH

PSYC 8401 Research Project 3 SH

YEAR 1, SPRING SEMESTER

PSYC 5100, 5110, 5120, 5130, 5140, 5150, 5160, 6 SH
or 5170

PSYC 5181 Quantitative Methods 2 3 SH

PSYC 8401 Research Project 3 SH

YEAR 1, SUMMER FULL SEMESTER

PSYC 8401 Research Project 3 SH

YEAR 2, FALL SEMESTER

PSYC 7990 Thesis 3 SH

YEAR 2, SPRING SEMESTER

PSYC 7301 or PSYC 7302 3 SH

PSYC 7990 Thesis 3 SH

YEAR 2, SUMMER FULL SEMESTER

PSYC 7996 Thesis Continuation 0 SH

YEAR 3, FALL SEMESTER

PSYC 9990 Dissertation 0 SH

YEAR 3, SPRING SEMESTER

PSYC 7301 or PSYC 7302 3 SH

PSYC 9990 Dissertation 0 SH

YEAR 3, SUMMER FULL SEMESTER

PSYC 9996 Dissertation Continuation 0 SH

YEAR 4, FALL SEMESTER

PSYC 9996 Dissertation Continuation 0 SH

YEAR 5, FALL SEMESTER

PSYC 9996 Dissertation Continuation 0 SH

GENERAL REQUIREMENTS

Elective courses for psychology 11 SH

PROGRAM TOTAL CREDITS 50.0 SH

College of Social Sciences and Humanities

www.northeastern.edu/cssh/graduate

UTA G. POIGER, PhD, Dean

Kay Onan, PhD, Associate Dean, Academic Affairs
Amy Killeen, MEd, Director, Graduate Admissions
and Student Services

Sheila Magee Beare, MSCJ, Associate Director,
Graduate Admissions and Student Services

Amber Crowe, BA, Administrative Coordinator,
Graduate Admissions and Student Services

180 Renaissance Park
 617.373.5990
 617.373.7281 (fax)
gradcssh@neu.edu

General Regulations

[www.northeastern.edu/casgraduate/current_students/
 general_regulations](http://www.northeastern.edu/casgraduate/current_students/general_regulations)

Graduate education at Northeastern integrates the highest level of scholarship across disciplinary boundaries with significant research and experiential learning opportunities. This multidimensional learning environment seeks to develop students' critical thinking and creative problem-solving skills while introducing them to new perspectives in their fields. Our doctoral, master's, and professional degree programs seek to produce graduates who are well prepared for the diverse demands of careers in academia, industry, and the professions.

The following are sample curricula that are valid for full-time students matriculating in fall 2013.

SCHOOL OF CRIMINOLOGY AND CRIMINAL JUSTICE

www.northeastern.edu/sccj

CHESTER L. BRITT, PhD
Professor and Dean

NATASHA A. FROST, PhD
Associate Professor and Associate Dean, Academic Programs

435 Churchill Hall
 617.373.2813
 617.373.8998 (fax)
sccj@neu.edu

Graduate Programs Contact
 Laurie Mastone, *Assistant to the Dean*

Graduate Programs Booklet
[www.northeastern.edu/casgraduate/socscience_humanities/
 school_criminology/documents/criminaljustice.pdf](http://www.northeastern.edu/casgraduate/socscience_humanities/school_criminology/documents/criminaljustice.pdf)

The School of Criminology and Criminal Justice at Northeastern University seeks to prepare students for professional and research careers in criminal justice, criminology, and related fields by applying multidisciplinary and comparative social science to understand, predict, and explain crime and contribute to the development of public policy within urban communities. Using an active-learning approach, the school seeks to develop its students intellectually and ethically, while providing them with a keen appreciation for the complexities of crime and public and private efforts to make communities safer and to ensure justice. The school offers a Master of Science degree in criminology and criminal justice and a PhD degree in criminology and justice policy.

DOCTORAL DEGREE CANDIDACY

A student achieves candidacy when he or she has successfully completed all course work, passed all required qualifying examinations, and deposited the final version of their dissertation proposal (approved by their full committee) with the school's graduate program office.

**MSCJ in Criminology and Criminal Justice—
Nonthesis Option****YEAR 1, FALL SEMESTER**

CRIM 7200 Criminology	3 SH
CRIM 7202 The Criminal Justice Process	3 SH
CRIM 7204 Research and Evaluation Methods <i>Coreq.</i> CRIM 7205	3 SH
CRIM 7205 Lab for CRIM 7204 <i>Coreq.</i> CRIM 7204	1 SH

YEAR 1, SPRING SEMESTER

CRIM 7206 Statistical Analysis <i>Coreq.</i> CRIM 7207	3 SH
CRIM 7207 Lab for CRIM 7206 <i>Coreq.</i> CRIM 7206	1 SH
Two CRIM electives	6 SH

YEAR 1, SUMMER FULL SEMESTER

CRIM 7500 or CRIM elective	3 SH
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YEAR 2, FALL SEMESTER

CRIM 7208, 7224, 7232, or 7244	3 SH
CRIM 7400 Capstone	3 SH
CRIM elective	3 SH

PROGRAM TOTAL CREDITS 32.0 SH**MSCJ in Criminology and Criminal Justice—Thesis
Option****YEAR 1, FALL SEMESTER**

CRIM 7200 Criminology	3 SH
CRIM 7202 The Criminal Justice Process	3 SH
CRIM 7204 Research and Evaluation Methods <i>Coreq.</i> CRIM 7205	3 SH
CRIM 7205 Lab for CRIM 7204 <i>Coreq.</i> CRIM 7204	1 SH

YEAR 1, SPRING SEMESTER

CRIM 7206 Statistical Analysis <i>Coreq.</i> CRIM 7207	3 SH
CRIM 7207 Lab for CRIM 7206 <i>Coreq.</i> CRIM 7206	1 SH
Two CRIM electives	6 SH

YEAR 1, SUMMER FULL SEMESTER

CRIM 7500 or CRIM elective	3 SH
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YEAR 2, FALL SEMESTER

CRIM 7208, 7224, 7232, or 7244	3 SH
CRIM 7990 Thesis	6 SH

PROGRAM TOTAL CREDITS 32.0 SH**PhD in Criminology and Justice Policy—Advanced
Degree Entrance****YEAR 1, FALL SEMESTER**

CRIM 7710 Criminology and Public Policy 1	3 SH
CRIM 7715 Multivariate Analysis 1	3 SH
CRIM elective	3 SH

YEAR 1, SPRING SEMESTER

CRIM 7711 Criminology and Public Policy 2	3 SH
CRIM 7713 Advanced Research and Evaluation Methods	3 SH
CRIM 7716 Multivariate Analysis 2	3 SH

YEAR 2, FALL SEMESTER

CRIM 7718 Advanced Data Analysis	3 SH
Two CRIM electives	6 SH

YEAR 2, SPRING SEMESTER

CRIM 7316 or CRIM elective	3 SH
CRIM 7700 or CRIM 7702	1 SH
CRIM 7704 Practicum in Research	1 SH
CRIM 8960 Exam Preparation—Doctoral	0 SH

YEAR 3, FALL SEMESTER

CRIM 8986 Research	0 SH
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YEAR 3, SPRING SEMESTER

CRIM 8986 Research	0 SH
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YEAR 4, FALL SEMESTER

CRIM 9990 Dissertation	0 SH
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YEAR 4, SPRING SEMESTER

CRIM 9996 Dissertation Continuation	0 SH
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GENERAL REQUIREMENTS

Qualifying examinations	0 SH
Doctoral dissertation	0 SH

PROGRAM TOTAL CREDITS 32.0 SH**PhD in Criminology and Justice Policy—Bachelor's
Degree Entrance****YEAR 1, FALL SEMESTER**

CRIM 7200 Criminology	3 SH
CRIM 7202 The Criminal Justice Process	3 SH
CRIM 7204 Research and Evaluation Methods <i>Coreq.</i> CRIM 7205	3 SH
CRIM 7205 Lab for CRIM 7204 <i>Coreq.</i> CRIM 7204	1 SH

YEAR 1, SPRING SEMESTER

CRIM 7206 Statistical Analysis <i>Coreq.</i> CRIM 7207	3 SH
CRIM 7207 Lab for CRIM 7206 <i>Coreq.</i> CRIM 7206	1 SH
CRIM 7208, 7224, 7232, or 7244	3 SH
CRIM elective	3 SH

YEAR 1, SUMMER 1 SEMESTER	
CRIM elective	3 SH
YEAR 1, SUMMER 2 SEMESTER	
CRIM elective	3 SH
YEAR 2, FALL SEMESTER	
CRIM 7710 Criminology and Public Policy 1	3 SH
CRIM 7715 Multivariate Analysis 1	3 SH
CRIM elective	3 SH
YEAR 2, SPRING SEMESTER	
CRIM 7711 Criminology and Public Policy 2	3 SH
CRIM 7713 Advanced Research and Evaluation Methods	3 SH
CRIM 7716 Multivariate Analysis 2	3 SH
YEAR 3, FALL SEMESTER	
CRIM 7718 Advanced Data Analysis	3 SH
Two CRIM electives	6 SH
YEAR 3, SPRING SEMESTER	
CRIM 7316 or CRIM elective	3 SH
CRIM 7700 or CRIM 7702	1 SH
CRIM 7704 Practicum in Research	1 SH
Two CRIM electives	6 SH
YEAR 4, FALL SEMESTER	
CRIM 8960 Exam Preparation—Doctoral	0 SH
YEAR 4, SPRING SEMESTER	
CRIM 8986 Research	0 SH
YEAR 5, FALL SEMESTER	
CRIM 9990 Dissertation	0 SH
YEAR 5, SPRING SEMESTER	
CRIM 9996 Dissertation Continuation	0 SH
GENERAL REQUIREMENTS	
Qualifying examinations	0 SH
Doctoral dissertation	0 SH
PROGRAM TOTAL CREDITS	64.0 SH

ECONOMICS

www.economics.neu.edu

WILLIAM T. DICKENS, PHD

University Distinguished Professor and Interim Chair

GREGORY H. WASSALL, PHD

Graduate Coordinator

301 Lake Hall

617.373.2871

617.373.3640 (fax)

gradecon@neu.edu

Graduate Programs Contact

William Dirtion, Student Services Secretary

Graduate Programs Booklet

www.northeastern.edu/casgraduate/socscience_humanities/economics/documents/economics.pdf

The most distinctive feature of Northeastern University's graduate programs in economics is an emphasis on applied economics, coupled with attention to providing a solid grounding in microeconomic and macroeconomic theory and econometrics. Students come from all over the world, and the curriculum is designed with this in mind, striving for balance in coverage of economies that are rich and poor, large and small, mixed and market. This gives a unique flavor to the course of study, making it well suited to the analysis of the emerging global economy of the twenty-first century.

DOCTORAL DEGREE CANDIDACY

For students entering with a master's degree in economics, degree candidacy is attained when (1) the PhD core curriculum (five required courses and one elective—24 semester hours) is completed; (2) the microeconomics and macroeconomics qualifying examinations are passed; and (3) the field and econometrics comprehensive examination is passed. For students entering without a master's degree, degree candidacy is attained when (1) the above three requirements are completed and (2) six additional courses are completed (four MA core courses plus two elective courses—an additional 24 semester hours for a total of 48 semester hours).

MA in Economics

GENERAL REQUIREMENTS

ECON 5105 Math and Statistics for Economists	4 SH
ECON 5110 Microeconomic Theory	4 SH
ECON 5120 Macroeconomic Theory	4 SH
ECON 5140 Applied Econometrics	4 SH
Four ECON electives in the range ECON 5200 or above	16 SH

PROGRAM TOTAL CREDITS 32.0 SH

PhD in Economics—Advanced Degree Entrance

YEAR 1, FALL SEMESTER

ECON 7710 Microeconomic Theory 2	4 SH
ECON 7740 Applied Econometrics 2	4 SH

YEAR 1, SPRING SEMESTER

ECON 7720 Macroeconomic Theory 2	4 SH
ECON 7763 or ECON 7771	4 SH
Elective course ECON 7200 through ECON 7299, ECON 7976, or ECON 8982	4 SH

YEAR 2, FALL SEMESTER

ECON 7764 or ECON 7772	4 SH
ECON 8960 Exam Preparation—Doctoral	0 SH

YEAR 2, SPRING SEMESTER

ECON 9986 Research	0 SH
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YEAR 3, FALL SEMESTER

ECON 9990 Dissertation	0 SH
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YEAR 3, SPRING SEMESTER

ECON 9990 Dissertation	0 SH
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YEAR 4, FALL SEMESTER

ECON 9996 Dissertation Continuation	0 SH
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YEAR 4, SPRING SEMESTER

ECON 9996 Dissertation Continuation	0 SH
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YEAR 5, FALL SEMESTER

ECON 9996 Dissertation Continuation	0 SH
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YEAR 5, SPRING SEMESTER

ECON 9996 Dissertation Continuation	0 SH
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GENERAL REQUIREMENTS

Qualifying examinations in macroeconomic and microeconomic theory	0 SH
Field examination in industrial organization or labor economics	0 SH
Doctoral dissertation	0 SH
Participation in department field lunches	0 SH
Practical experience in applied economics program	0 SH
Participation in academic seminar series	0 SH

PROGRAM TOTAL CREDITS **24.0 SH**

PhD in Economics—Bachelor's Degree Entrance

YEAR 1, FALL SEMESTER

ECON 5105 Math and Statistics for Economists	4 SH
ECON 5110 Microeconomic Theory	4 SH
Elective course ECON 7200 through 7299, ECON 7976, or ECON 8982	4 SH

YEAR 1, SPRING SEMESTER

ECON 5120 Macroeconomic Theory	4 SH
ECON 5140 Applied Econometrics	4 SH
Elective course ECON 7200 through 7299, ECON 7976, or ECON 8982	4 SH

YEAR 2, FALL SEMESTER

ECON 7710 Microeconomic Theory 2	4 SH
ECON 7740 Applied Econometrics 2	4 SH

YEAR 2, SPRING SEMESTER

ECON 7720 Macroeconomic Theory 2	4 SH
ECON 7763 or ECON 7771	4 SH
Elective course ECON 7200 through 7299, ECON 7976, or ECON 8982	4 SH

YEAR 3, FALL SEMESTER

ECON 7764 or ECON 7772	4 SH
ECON 8960 Exam Preparation—Doctoral	0 SH

YEAR 3, SPRING SEMESTER

ECON 9986 Research	0 SH
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YEAR 4, FALL SEMESTER

ECON 9990 Dissertation	0 SH
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YEAR 4, SPRING SEMESTER

ECON 9990 Dissertation	0 SH
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YEAR 5, FALL SEMESTER

ECON 9996 Dissertation Continuation	0 SH
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YEAR 5, SPRING SEMESTER

ECON 9996 Dissertation Continuation	0 SH
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GENERAL REQUIREMENTS

Qualifying examinations in macroeconomic and microeconomic theory	0 SH
Field examination in industrial organization or labor economics	0 SH
Doctoral dissertation	0 SH
Participation in department field lunches	0 SH
Practical experience in applied economics program	0 SH
Participation in academic seminar series	0 SH

PROGRAM TOTAL CREDITS **48.0 SH**

ENGLISH

www.northeastern.edu/english

LAURA GREEN, PHD

Professor and Chair

STUART S. PETERFREUND, PHD

Graduate Coordinator

405 Lake Hall

617.373.3692

617.373.3640 (fax)

gradenglish@neu.edu

Graduate Programs Contact

Melissa Daigle, *Administrative Assistant*

Graduate Programs Booklet

www.northeastern.edu/casgraduate/socscience_humanities/english/documents/english.pdf

The graduate program in English encompasses the study of British and American literature, literary history and theory, and rhetoric and composition, as well as linguistics. At Northeastern University, graduate study in English takes full advantage of the opportunities that the greater Boston area affords as the site of rich cultural and educational resources.

ACADEMIC STANDING/PROGRESS

Master's students: see "Minimum Cumulative Grade-Point Average" on page 22.

PhD students: must maintain a 3.500 minimum cumulative grade-point average.

DOCTORAL DEGREE CANDIDACY

Students entering with a relevant BA must complete 42 semester hours; students entering with an MA must complete 21 semester hours. The PhD preliminary and comprehensive examinations must be passed.

MA in English**YEAR 1, FALL SEMESTER**

ENGL 5103 Proseminar 3 SH

Course work from the list "Year 1–Year 2 Course Work" below 6 SH

YEAR 1, SPRING SEMESTER

Course work from the list "Year 1–Year 2 Course Work" below 9 SH

YEAR 2, FALL SEMESTER

Course work from the list "Year 1–Year 2 Course Work" below 9 SH

YEAR 2, SPRING SEMESTER

Course work from the list "Year 1–Year 2 Course Work" below 3 SH

ENGL 6960 Exam Preparation—Master's 0 SH

GENERAL REQUIREMENTS

Annual review 0 SH

Language requirements 0 SH

MA comprehensive examination 0 SH

PROGRAM TOTAL CREDITS 30.0 SH

YEAR 1–YEAR 2 COURSE WORK

Two rhetoric and composition courses 6 SH

Two theories and methods courses 6 SH

Medieval/Renaissance course 3 SH

Seventeenth–eighteenth-century course 3 SH

Nineteenth–twentieth-century course 3 SH

Two ENGL electives or approved electives 6 SH

PhD in English—Advanced Degree Entrance**YEAR 1, FALL SEMESTER**

ENGL 5103 Proseminar 3 SH

ENGL 7392 Writing and the Teaching of Writing 3 SH

YEAR 1, SPRING SEMESTER

Two ENGL electives or approved electives 6 SH

YEAR 2, FALL SEMESTER

Two ENGL electives or approved electives 6 SH

YEAR 2, SPRING SEMESTER

ENGL elective or approved elective 3 SH

ENGL 8960 Exam Preparation—Doctoral 0 SH

YEAR 3, FALL SEMESTER

ENGL 9986 Research 0 SH

YEAR 3, SPRING SEMESTER

ENGL 9986 Research 0 SH

YEAR 4, FALL SEMESTER

ENGL 9990 Dissertation 0 SH

YEAR 4, SPRING SEMESTER

ENGL 9990 Dissertation 0 SH

YEAR 5, FALL SEMESTER

ENGL 9996 Dissertation Continuation 0 SH

YEAR 5, SPRING SEMESTER

ENGL 9996 Dissertation Continuation 0 SH

GENERAL REQUIREMENTS

Annual review 0 SH

Language requirements 0 SH

PhD preliminary examination 0 SH

PhD comprehensive examination 0 SH

Doctoral dissertation 0 SH

PROGRAM TOTAL CREDITS 21.0 SH

PhD in English—Bachelor's Degree Entrance

YEAR 1, FALL SEMESTER

ENGL 5103 Proseminar 3 SH

ENGL 7392 Writing and the Teaching of Writing 3 SH

YEAR 1, SPRING SEMESTER

Course work from the list "Year 1–Year 2 Course Work" below 9 SH

YEAR 2, FALL SEMESTER

Course work from the list "Year 1–Year 2 Course Work" below 9 SH

YEAR 2, SPRING SEMESTER

Course work from the list "Year 1–Year 2 Course Work" below 6 SH

YEAR 3, FALL SEMESTER

Two ENGL electives or approved electives 6 SH

YEAR 3, SPRING SEMESTER

Two ENGL electives or approved electives 6 SH

YEAR 4, FALL SEMESTER

ENGL 8960 Exam Preparation—Doctoral 0 SH

YEAR 4, SPRING SEMESTER

ENGL 9986 Research 0 SH

YEAR 5, FALL SEMESTER

ENGL 9990 Dissertation 0 SH

YEAR 5, SPRING SEMESTER

ENGL 9990 Dissertation 0 SH

YEAR 6, FALL SEMESTER

ENGL 9996 Dissertation Continuation 0 SH

YEAR 6, SPRING SEMESTER

ENGL 9996 Dissertation Continuation 0 SH

GENERAL REQUIREMENTS

Annual review 0 SH

Language requirements 0 SH

PhD preliminary examination 0 SH

PhD comprehensive examination 0 SH

Doctoral dissertation 0 SH

PROGRAM TOTAL CREDITS**42.0 SH****YEAR 1–YEAR 2 COURSE WORK**

Two rhetoric and composition courses (ENGL 7392 fulfills one) 6 SH

Two theories and methods courses 6 SH

Medieval/Renaissance course 3 SH

Seventeenth–eighteenth-century course 3 SH

Nineteenth–twentieth-century course 3 SH

Two ENGL electives or approved electives 6 SH

HISTORYwww.northeastern.edu/history

HARLOW L. ROBINSON, PhD

Matthews Distinguished University Professor and Interim Chair

ILHAM KHURI-MAKDISI, PhD

Graduate Coordinator

249 Meserve Hall

617.373.2662

617.373.3661 (fax)

gradhistory@neu.edu

*Graduate Programs Contact*Bonne Knipfer, *Administrative Coordinator**Graduate Programs Booklet*www.northeastern.edu/casgraduate/socscience_humanities/history/documents/history.pdf

Graduate work in history focuses on global and world history, which study the interactions among geographical regions and historical processes around the globe. Students at both the master's and doctoral levels concentrate their work on the history of regions or peoples in Africa, Asia, Europe, Latin America, or the United States, with attention to the intersections and connections between national, regional, and global developments. The Department of History also offers a master's degree with a concentration in public history that emphasizes the study of topics such as material culture, historical exhibits and museums, historical agencies, and archival administration. Recent doctoral students have been the recipients of major fellowships for conducting dissertation research abroad, including Fulbright, Fulbright-Hays, Social Science Research Council, and Chateaubriand fellowships.

ACADEMIC STANDING/PROGRESS

Should the GPA drop below 3.000, the student will be placed on academic probation and will be allowed one more semester to bring his or her GPA to the 3.000 level. If the student is not able to bring his or her GPA to the 3.000 level by the end of the following semester, the student may be asked to leave the program. Funding in the Ph.D. program will further be contingent upon successful completion of the yearly review, based on a report by the student's advisor, with attention to (1) success in setting up a doctoral committee; (2) passing the departmental language examination in the language of their field; (3) successful performance of teaching assistant duties; (4) successful completion of courses in the tiered system (i.e., the required course sequence); (5) successful completion, where appropriate, of other required activities, including construction of the comprehensive examination list and the dissertation proposal and scheduling of comprehensive examinations; (6) a GPA in graduate course work in the department of at least 3.500.

DOCTORAL DEGREE CANDIDACY

Students entering without an MA in history must complete 48 semester hours; students with an MA in history must complete 24 semester hours. Students must pass the qualifying examination by the end of the summer term of the third year in the program.

MA in History**YEAR 1, FALL SEMESTER**

HIST 5101 Theory and Methodology 1 4 SH

GENERAL REQUIREMENTS

One course in the range HIST 7300 through HIST 7700 4 SH

HIST 7976 Directed Study 1 to 4 SH

Four history electives 16 SH

Two open electives 6 to 8 SH

CREDIT REQUIREMENT 32.0 SH

MA in History with Concentration in Public History**YEAR 1, FALL SEMESTER**

HIST 5101 Theory and Methodology 1 4 SH

GENERAL REQUIREMENTS

Three courses in the range HIST 5200 through HIST 5250, or HIST 8674 12 SH

One course in the range HIST 7300 through HIST 7700 4 SH

HIST 7976 Directed Study 1 to 4 SH

Two history electives 8 SH

Open elective course 3 or 4 SH

CREDIT REQUIREMENT 32.0 SH

PhD in History—Advanced Degree Entrance**YEAR 1, FALL SEMESTER**

HIST 5101 Theory and Methodology 1 4 SH

YEAR 1, SPRING SEMESTER

HIST 5102 Theory and Methodology 2 4 SH

GENERAL REQUIREMENTS

Three courses in the range HIST 7300 through HIST 7702 12 SH

HIST 7976 Directed Study 1 to 4 SH

HIST 8409 Practicum in Teaching 4 SH

History elective or open elective 4 SH

HIST 9990 Dissertation 0 SH

HIST 9996 Dissertation Continuation 0 SH

CREDIT REQUIREMENT 24.0 SH

PhD in History—Bachelor's Degree Entrance**YEAR 1, FALL SEMESTER**

HIST 5101 Theory and Methodology 1 4 SH

YEAR 1, SPRING SEMESTER

HIST 5102 Theory and Methodology 2 4 SH

GENERAL REQUIREMENTS

Three courses in the range HIST 7300 through HIST 7702 12 SH

HIST 7976 Directed Study 1 to 4 SH

HIST 8409 Practicum in Teaching 4 SH

Four history electives 16 SH

Two open electives 6 to 8 SH

HIST 9990 Dissertation 0 SH

HIST 9996 Dissertation Continuation 0 SH

CREDIT REQUIREMENT 48.0 SH

POLITICAL SCIENCEwww.northeastern.edu/polisci

MITCHELL A. ORENSTEIN, PhD

Professor and Chair

JOHN H. PORTZ, PhD

Graduate Coordinator, PhD and MA Programs

THOMAS J. VICINO, PhD

Graduate Coordinator, MPA Program

305 Meserve Hall

617.373.4404

617.373.5311 (fax)

gradpolisci@neu.edu

Graduate Programs Bookletwww.northeastern.edu/casgraduate/socscience_humanities/political_science/documents/political.pdf

Graduate training in political science and public administration seeks to prepare students to analyze political and social phenomena in rigorous ways and to pursue a wide array of careers—from government and academia to the nonprofit and private sectors. The graduate programs in political science and public administration at Northeastern explore the theory and the practice of politics, public policy, and public management in the United States and other countries. In teaching and research, faculty members in the department cover a broad range of topics and issues in the field of political science and public administration. Core areas of inquiry within our department include American studies; democracy, development, and international studies; law and legal issues; public policy; and security studies.

ACADEMIC STANDING/PROGRESS

Satisfactory progress is defined as complying with the various procedures and requirements of the respective graduate programs. Among these requirements is grade-point average and, for the PhD program, timely progress in sitting for the comprehensive examination, completing an approved dissertation proposal, and submitting a dissertation. A student who fails to make satisfactory progress is placed on academic probation, which is a warning that the student may not be allowed to continue in the graduate program unless the deficiency is addressed.

As noted, satisfactory progress includes maintaining a specified grade-point average. All master's-level students must maintain an overall cumulative grade-point average of 3.000. All doctoral students must maintain an overall cumulative grade-point average of 3.500. In addition, students are expected to successfully complete a minimum of two-thirds of attempted semester hours. Any student who falls below the applicable standard in one academic semester will be placed on academic probation and must consult with his or her academic advisor. Any student who falls below any applicable standard for two consecutive semesters is subject to dismissal from the graduate program.

Additionally, receipt of financial support administered by the department, college, or university is contingent on satisfactory academic progress toward the degree and specific guidelines as published in the terms of award. Students who have ungraded courses or courses graded as incompletes risk no longer being eligible for financial aid awards.

DOCTORAL DEGREE CANDIDACY

Students entering with a master's degree from outside of Northeastern—minimum 30 semester hours required. Students entering with a Northeastern MA in political science or a Northeastern MPA degree—minimum 12 semester hours required. Students currently in the MA or MPA program and accepted to the PhD before completing the MA or MPA—48 semester hours required. A 3.500 GPA is required. Students also must pass written and oral comprehensive examinations.

MA in Political Science with Concentration in American Government and Politics**GENERAL REQUIREMENTS**

POLS 7202 Quantitative Techniques	3 SH
POLS 7205 Seminar in American Government and Politics	3 SH
Three American government courses in the range POLS 5100 through POLS 7999	9 SH
Five POLS electives in the range POLS 5100 through POLS 7999	15 SH

PROGRAM TOTAL CREDITS 30.0 SH**MA in Political Science with Concentration in Comparative Politics****GENERAL REQUIREMENTS**

POLS 7202 Quantitative Techniques	3 SH
POLS 7206 Seminar in Comparative Politics	3 SH
Three comparative courses in the range POLS 5100 through POLS7999	9 SH
Five POLS electives in the range POLS 5100 through POLS 7999	15 SH

PROGRAM TOTAL CREDITS 30.0 SH**MA in Political Science with Concentration in International Relations****GENERAL REQUIREMENTS**

POLS 7202 Quantitative Techniques	3 SH
POLS 7207 Seminar in International Relations	3 SH
Three international relations courses in the range POLS 5100 through POLS 7999	9 SH
Five POLS electives in the range POLS 5100 through POLS 7999	15 SH

PROGRAM TOTAL CREDITS 30.0 SH

MA in Political Science with Concentration in Public Policy

GENERAL REQUIREMENTS

POLS 7202 Quantitative Techniques	3 SH
POLS 7204 Seminar in Public Policy	3 SH
Three policy courses in the range POLS 5100 through POLS 7999	9 SH
Five POLS electives in the range POLS 5100 through POLS 7999	15 SH

PROGRAM TOTAL CREDITS 30.0 SH

Language proficiency	0 SH
Comprehensive examination	0 SH
Doctoral dissertation	0 SH

PROGRAM TOTAL CREDITS 48.0 SH

Master of Public Administration

GENERAL REQUIREMENTS

POLS 7202 Quantitative Techniques	3 SH
POLS 7203 Techniques of Policy Analysis	3 SH
POLS 7301 Public Personnel Administration	3 SH
POLS 7302 Organizational Theory and Management	3 SH
POLS 7303 Public Budgeting and Financial Management	3 SH
POLS 7304 Economic Institutions and Analysis	3 SH
POLS 7305 Institutional Leadership and the Public Manager	3 SH
POLS 7306 Capstone Seminar in Public Policy and Public Management	3 SH
POLS 7407 Internship (for preservice students) or elective course in the range POLS 7200 through 7999	3 SH
Graduate elective	3 SH
Four elective courses numbered in the range 7200 through 7999	12 SH

PROGRAM TOTAL CREDITS 42.0 SH

PhD in Political Science

GENERAL REQUIREMENTS

POLS 7200 Perspectives on Social Science Inquiry	3 SH
POLS 7201 Methods of Analysis	3 SH
POLS 7202 Quantitative Techniques	3 SH
POLS 7204 Seminar in Public Policy	3 SH
POLS 7205 Seminar in American Government and Politics	3 SH
POLS 7206 Seminar in Comparative Politics	3 SH
POLS 7207 Seminar in International Relations	3 SH
POLS 7215 or another advanced methods course	3 SH
Four primary field electives in the range POLS 7200 or above	12 SH
Two secondary field electives in the range POLS 7200 or above	6 SH
Two POLS electives in the range POLS 7200 or above	6 SH
POLS 9990 Dissertation	0 SH
POLS 9996 Dissertation Continuation	0 SH

SCHOOL OF PUBLIC POLICY AND URBAN AFFAIRS

www.northeastern.edu/policyschool

JOAN FITZGERALD, PhD

Professor, Interim Dean, and Program Director, LPP Program

THOMAS J. VICINO, PhD

Program Director, MPA Program

GAVIN SHATKIN, PhD

Program Director, MURP Program

310 Renaissance Park

617.373.7905 (fax)

Graduate Programs Contacts

Laurie Dopkins, PhD, *Director of Academic Programs,*

617.373.2889, l.dopkins@neu.edu

Louis DaRos, *Administrative Assistant,* 617.373.5913,

sppua@neu.edu

Kathleen Simmons, *Administrative Assistant,* 617.373.2891,

sppua@neu.edu

Graduate Programs Booklet

www.northeastern.edu/casgraduate/socscience_humanities/school_urban/documents/murp.pdf

The School of Public Policy and Urban Affairs at Northeastern University offers programs that prepare students to use sophisticated analytical skills to conduct policy analysis to understand the policy-making process. The master's degree programs provide experiential learning opportunities through internships and capstone projects. The interdisciplinary Law and Public Policy program offers the PhD, MS, and JD/MS degrees. It seeks to prepare students for careers in academia, research, government, nonprofit, or legal institutions. LPP examines law, legal institutions, and public policy from an interdisciplinary social science perspective using both quantitative and qualitative research methodologies. Students have an opportunity to engage in policy analysis and applied research in several fields, including sustainability, climate change, and environmental policy; health policy; urban policy; and crime, law, and justice.

The school, in affiliation with the Department of Political Science, offers a Master of Public Administration (MPA) degree. This accredited graduate program in public administration explores the theory and the practice of politics, public policy, and public management in the United States and other countries. The degree prepares students for a wide array of careers, from those in government to those in the nonprofit and private sectors.

The school also offers an interdisciplinary Master of Science in Urban and Regional Policy (MURP) that has students combine sophisticated analytical skills with a thorough understanding of how cities and regions work. Students prepare for careers in research and policy-making positions in an array of urban-focused public, nonprofit, and private-sector institutions. This program

seeks to produce graduates who will be leaders with the ability to analyze global economic, technological, and social trends; develop policy responses designed to enable their respective cities and regions to adapt to those trends; and move those policies toward implementation.

ACADEMIC STANDING/PROGRESS FOR MASTER'S STUDENTS

Students in the Master of Public Administration, the MS in Law and Public Policy, and the MS in Urban and Regional Policy programs are monitored for academic progress. Those students whose GPA falls below a 3.000 are notified by and meet with the director of academic programs. They are warned that if their GPA does not rise to a 3.000 or higher, they run the risk of not graduating and are advised on strategies for improvement.

ACADEMIC STANDING/PROGRESS FOR LPP PHD STUDENTS

A 3.333 grade-point average (GPA) or better in all core courses (LPSC 7305, 7308, 7310, 7311) and maintain an overall 3.33 average.

DOCTORAL DEGREE CANDIDACY FOR LPP PHD STUDENTS

Complete all required course work with a minimum 3.500 GPA in the core courses and pass the comprehensive exams. Students entering with a bachelor's degree must complete 42 semester hours, and students entering with a JD or master's degree must complete 36 semester hours.

Master of Public Administration

GENERAL REQUIREMENTS

POLS 7202 Quantitative Techniques	3 SH
POLS 7203 Techniques of Policy Analysis	3 SH
POLS 7301 Public Personnel Administration	3 SH
POLS 7302 Organizational Theory and Management	3 SH
POLS 7303 Public Budgeting and Financial Management	3 SH
POLS 7304 Economic Institutions and Analysis	3 SH
POLS 7305 Institutional Leadership and the Public Manager	3 SH
POLS 7306 Capstone Seminar in Public Policy and Public Management	3 SH
POLS 7407 Internship (for preservice students) or elective course in the range POLS 7200 through 7999	3 SH
Graduate elective	3 SH
Four electives in the range 7200 through 7999	12 SH

PROGRAM TOTAL CREDITS 42.0 SH

MS in Urban and Regional Policy

Part-time students go at their own pace.

GENERAL REQUIREMENTS

LPSC 6313 Economic Analysis for Law, Policy, and Planning	3 SH
LPSC 7311 Strategizing Public Policy	3 SH
POLS 7202 Quantitative Techniques	3 SH
POLS 7315 Urban Development and Politics	3 SH
POLS 7318 Techniques of Program Evaluation	3 SH
PPUA 6201 The Twenty-First Century City: Urban Opportunities and Challenges in a Global Context	3 SH
PPUA 6205 Research Design and Methodology in Urban and Regional Policy	3 SH
Three research toolkit courses in the range PPUA 6206 through PPUA 6212	3 SH
PPUA 6407 Internship in Urban and Regional Policy	3 SH
PPUA 7673 Capstone Project in Urban and Regional Policy	3 SH
Four graduate electives	12 SH

PROGRAM TOTAL CREDITS 42.0 SH**MS in Law and Public Policy****GENERAL REQUIREMENTS**

LPSC 6313 Economic Analysis for Law, Policy, and Planning	3 SH
LPSC 7305 Research and Statistical Methods	3 SH
LPSC 7308 Law and Legal Reasoning	3 SH
LPSC 7311 Strategizing Public Policy	3 SH
PHIL 7240 Ethics and Public Policy	4 SH
POLS 7318 Techniques of Program Evaluation	3 SH
PPUA 7673 Capstone Project in Urban and Regional Policy	3 SH
Research toolkit course in the range PPUA 6206 through PPUA 6213	1 SH
Law elective	2 SH
Four graduate electives	12 SH

PROGRAM TOTAL CREDITS 37.0 SH**Juris Doctor/MS in Law and Public Policy****GENERAL REQUIREMENTS**

LPSC 6313 Economic Analysis for Law, Policy, and Planning	3 SH
LPSC 7305 Research and Statistical Methods	3 SH
LPSC 7308 Law and Legal Reasoning	3 SH
PHIL 7240 Ethics and Public Policy	4 SH
POLS 7318 Techniques of Program Evaluation	3 SH
PPUA 7673 Capstone Project in Urban and Regional Policy	3 SH
Research toolkit courses in the range PPUA 6206 through PPUA 6213	3 SH
Graduate elective	3 SH

JD/MS COURSE WORK

The following courses count toward both the JD degree and the MS degree:

LPSC 7311 Strategizing Public Policy	3 SH
12 quarter hours (equivalent to 9 semester hours) taken in the School of Law	9 SH

PROGRAM TOTAL CREDITS 37.0 SH**PhD in Law and Public Policy****CREDIT REQUIREMENT**

Students entering without an advanced degree must complete 42 semester hours, as specified in the advising process.

GENERAL REQUIREMENTS

ECON 7270 Economics of Law and Regulation	4 SH
LPSC 7305 Research and Statistical Methods	3 SH
LPSC 7308 Law and Legal Reasoning	3 SH
LPSC 7310 Research Design and Analysis	3 SH
LPSC 7311 Strategizing Public Policy	3 SH
LW 7561 Strategic Litigation	2 SH
PHIL 7240 Ethics and Public Policy	4 SH
Public policy elective	3 SH
Advance methodology elective	3 SH
Law elective	2 SH
Graduate elective	3 SH
Graduate economic elective in focus area	3 SH
LPSC 9990 Dissertation	0 SH
LPSC 9996 Dissertation Continuation	0 SH
Comprehensive examination	0 SH
Research seminar	0 SH
Dissertation proposal defense	0 SH
Doctoral dissertation	0 SH

PROGRAM TOTAL CREDITS 36.0 SH

SOCIOLOGY

www.northeastern.edu/socant/

STEVEN P. VALLAS, PhD

Professor and Chair

MATTHEW O. HUNT, PhD

Graduate Coordinator

500 Holmes Hall

617.373.4940

617.373.2688 (fax)

gradsoc@neu.edu

Graduate Programs Contact

Joan Collins, *Administrative Coordinator*

Graduate Programs Booklet

www.northeastern.edu/casgraduate/socscience_humanities/sociology/documents/sociology.pdf

The Department of Sociology and Anthropology at Northeastern University offers MA and PhD degrees in sociology within a flexible program attractive to students interested in both academic and nonacademic careers. The program seeks to provide students with the theoretical foundation and research skills needed to engage in a career in teaching and research, in the public sector, or in industry. Thirty-two faculty members bring a wide range of substantive interests, organized around four concentration areas: the sociology of gender; globalization; inequality; and urban sociology. Apart from these formal areas of concentration, the department has extraordinary strengths in environmental sociology, the sociology of health, and social movements.

The Department of Sociology and Anthropology is a founding unit of Northeastern's School of Public Policy and Urban Affairs, which is dedicated to providing advanced research opportunities in a multidisciplinary environment. The department also maintains strong ties with the Brudnick Center for the Study of Conflict and Violence; the Women's, Gender, and Sexuality Studies program; the Kitty and Michael Dukakis Center for Urban and Regional Policy; the Northeastern Environmental Justice Research Collaborative; and the Law and Public Policy program.

ACADEMIC STANDING/PROGRESS

Evaluation of student progress is an essential feature of our graduate program. The fundamental purpose of the evaluation is to ensure that students complete the program in the most rewarding and successful way possible, by achieving the highest standards of excellence in their development as scholars. Such evaluation offers students substantive guidance about their projects and reminders to be timely in the completion of their work. In short, faculty members are committed to periodic evaluation as a constructive process.

The primary instrument for periodic evaluation is the annual Graduate Student Academic Progress (GSAP) process, which occurs annually at the end of the spring semester. The GSAP process considers the student's entire record—especially GPA, the quality of written work, and performance in core courses. After the GSAP meeting, the Committee on Graduate Studies (COGS) will either approve a graduate student's progress or, in rare cases when the record supports it, make a recommendation that the student be withdrawn from the program (see below).

Students are advised to periodically meet with their advisor to discuss their progress, accomplishments, and goals and plans for the next year.

The following specific criteria are used for evaluation:

1. Course grades. Attention is given to both the student's distribution of grades and the overall GPA.
2. Performance (and progress) on qualifying exam, comprehensive exams, and on the dissertation. The department will consider the quality of these aspects of the student's work and the timeliness with which they are completed.
3. Incompletes. Carrying Incompletes, and/or a recurrent failure to complete course work on time, will be considered a cause for concern.
4. Other factors. The faculty may also consider additional factors, including: a student's performance in core seminars, his or her ability to respond thoughtfully to faculty commentary on written work, the breadth of a student's course of study, and compliance with the university's code of ethics.

Ideally, the faculty will reach a consensus evaluation of each student and, particularly, of those who are having difficulties. The faculty may vote to initiate a set of procedures designed to steer a student who is having problems back toward satisfactory progress and/or toward a clear assessment of his or her fit with the program. If, after a careful review, the student's progress is deemed unsatisfactory, COGS may be compelled to recommend that he or she be withdrawn from the graduate program.

DOCTORAL DEGREE CANDIDACY

Students must have an MA degree either outside of Northeastern or at Northeastern; completion of 24 semester hours of required course work beyond the MA, including Advanced Research Methods (or equivalent as determined by the graduate committee); and pass the qualifying examination (taken by the end of the first year in the program) and pass the candidacy examination (two comprehensive exams, taken after completion of the PhD course work).

MA in Sociology**YEAR 1, FALL SEMESTER**

SOCL 7200 Foundations of Social Theory 1	3 SH
SOCL 7211 Research Methods	3 SH
Graduate elective	3 SH

YEAR 1, SPRING SEMESTER

SOCL 7201 Foundations of Social Theory 2	3 SH
SOCL 7210 Statistical Methods of Sociology	3 SH
Graduate elective	3 SH

YEAR 2, FALL SEMESTER

Graduate elective	3 SH
Graduate elective	3 SH

YEAR 2, SPRING SEMESTER

Two graduate electives	6 SH
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PROGRAM TOTAL CREDITS 30.0 SH

PhD in Sociology**YEAR 1, FALL SEMESTER**

Advanced methods course	3 SH
Graduate elective	3 SH
Graduate elective	3 SH

YEAR 1, SPRING SEMESTER

Advanced methods course	3 SH
Two graduate electives	6 SH

YEAR 2, FALL SEMESTER

Two graduate electives	6 SH
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YEAR 2, SPRING SEMESTER

SOCL 8960 Exam Preparation—Doctoral	0 SH
Comprehensive examination	0 SH

YEAR 3, FALL SEMESTER

SOCL 9986 Research	0 SH
Comprehensive examination	0 SH

YEAR 3, SPRING SEMESTER

SOCL 9990 Dissertation	0 SH
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YEAR 4, FALL SEMESTER

SOCL 9990 Dissertation	0 SH
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YEAR 4, SPRING SEMESTER

SOCL 9996 Dissertation Continuation	0 SH
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GENERAL REQUIREMENTS

Two comprehensive exams	0 SH
Dissertation proposal defense	0 SH
Doctoral dissertation	0 SH

PROGRAM TOTAL CREDITS 24.0 SH

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Professor, Biology; Moscow
State University (Russia), PhD

Randall Erb

Assistant Professor,
Mechanical and Industrial
Engineering; Duke University,
PhD

Deniz Erdogmus

Associate Professor, Electrical
and Computer Engineering;
University of Florida, PhD

Devon Erickson

Assistant Professor,
Accounting; Indiana University,
PhD

Cuneyt Eroglu

Assistant Professor, Supply
Chain and Information
Management; Ohio State
University, PhD

Rhea T. Eskew

Professor, Psychology; Georgia
Institute of Technology, PhD

Neenah Estrella-Luna

Assistant Academic Specialist,
College of Professional Studies;
Northeastern University, PhD

Sara Ewell

Assistant Academic Specialist,
College of Professional Studies;
University of North Carolina,
Chapel Hill, EdD

Daniel R. Faber

Professor, Sociology and
Anthropology; University of
California, Santa Cruz, PhD

Olubunmi Faleye

Associate Professor and Trahan
Family Faculty Fellow,
Finance; University of Alberta
(Canada), PhD

David Fannon

Assistant Professor,
Architecture and Civil and
Environmental Engineering;
University of California,
Berkeley, MS Arch

Nasser S. Fard

Associate Professor,
Mechanical and Industrial
Engineering; University of
Arizona, PhD

Karen Farnum

Assistant Clinical Professor,
Nursing; Northeastern
University, DNP

Yunsi Fei

Associate Professor, Electrical
and Computer Engineering;
Princeton University, PhD

Adrian Feiguin

Assistant Professor, Physics;
Universidad Nacional de
Rosario (Argentina), PhD

Nathan I. Felde

Professor, Art + Design;
Massachusetts Institute of
Technology, MS

Lisa Feldman Barrett

University Distinguished
Professor, Psychology;
University of Waterloo
(Canada), PhD

Hicham Fenniri

Professor, Chemical
Engineering; Université de
Strasbourg (France), PhD

Loretta A. Fernandez

Assistant Professor, Civil and
Environmental Engineering and
Marine and Environmental
Sciences; Massachusetts
Institute of Technology, PhD

Craig F. Ferris

Professor, Psychology and
Pharmaceutical Sciences; New
York Medical College, PhD

Joan Fitzgerald

Professor, Law and Public
Policy and School of Public
Policy and Urban Affairs;
Pennsylvania State University,
PhD

Diane F. Fitzpatrick

Associate Clinical Professor,
Physical Therapy; Northeastern
University, DPT

Julia H. Flanders

Professor of Practice, English
and University Libraries;
Brown University, PhD

Mary Florentine

Matthews Distinguished
University Professor, Speech-
Language Pathology and
Audiology; Northeastern
University, PhD

Ann Marie Flores

Assistant Professor, Physical
Therapy; Ohio State University,
PhD

Paul Fombelle

Assistant Professor and
Riesman Research Professor,
Marketing; Arizona State
University, PhD

Murray Forman

Associate Professor, Media and
Screen Studies; McGill
University (Canada), PhD

Brooke Foucault Welles

Assistant Professor,
Communication Studies;
Northwestern University, PhD

Charles F. Fountain

Associate Professor,
Journalism; Columbia
University, MS

William M. Fowler Jr.

Distinguished Professor,
History; University of Notre
Dame, PhD

James Alan Fox

Lipman Family Professor,
Criminology and Criminal
Justice and Law and Public
Policy; University of
Pennsylvania, PhD

Laura L. Frader

Professor, History; University
of Rochester, PhD

Debra L. Franko

Professor, Counseling and
Applied Educational
Psychology; McGill University
(Canada), PhD

Natasha Frost

Associate Professor,
Criminology and Criminal
Justice; City University of New
York, PhD

Yun (Raymond) Fu

Assistant Professor, Electrical
and Computer Engineering and
Information Science; University
of Illinois, Urbana-Champaign,
PhD

Kari Furtek

Assistant Clinical Professor,
Pharmacy Practice; University
of the Pacific, PharmD

Peter G. Furth

Professor, Civil and
Environmental Engineering;
Massachusetts Institute of
Technology, PhD

Terence J. Gaffney

Professor, Mathematics;
Brandeis University, PhD

Chris W. Gallagher

Professor, English; University
of New York, Albany, PhD

Ronen Gal-Or

Assistant Professor,
Accounting; University of
Arizona, PhD

Auroop Ganguly

Associate Professor, Civil and
Environmental Engineering;
Massachusetts Institute of
Technology, PhD

Denise Garcia

Associate Professor, Political
Science and International
Affairs; University of Geneva
(Switzerland), PhD

Roseanna Garcia

Associate Professor,
Marketing; Michigan State
University, PhD

Samuel John Gately

Professor, Pharmaceutical
Sciences; University of
Newcastle upon Tyne (United
Kingdom), PhD

Susan (Leigh) Geiger

Assistant Academic Specialist,
College of Professional Studies;
Virginia Polytechnic Institute
and State University, PhD

Walter M. Gershuny

Associate Professor,
Languages, Literatures, and
Cultures; Harvard University,
PhD

Carleton Gholz

Postdoctoral Teaching
Associate, Communication
Studies; University of
Pittsburgh, PhD

Roger W. Giese

Professor, Pharmaceutical
Sciences; Massachusetts
Institute of Technology, PhD

Adam Gilbert

Assistant Academic Specialist,
College of Professional Studies;
University of Rhode Island,
PhD

Richard Gilbert

Research Professor, Chemistry
and Chemical Biology; New
Jersey Medical School, PhD

Robert E. Gilbert

Professor, Political Science;
University of Massachusetts,
Amherst, PhD

Thomas R. Gilbert

Associate Professor, Chemistry
and Chemical Biology;
Massachusetts Institute of
Technology, PhD

Danielle M. Gingras

Assistant Clinical Professor,
Pharmacy Practice;
Northeastern University,
PharmD

Veronica Godoy-Carter

Associate Professor, Biology;
Tufts University, PhD

Gerson Goldberg

Assistant Academic Specialist,
College of Professional Studies;
University of Connecticut, DBA

Haim Goldberg

Professor, Physics;
Massachusetts Institute of
Technology, PhD

Ann C. Golub-Victor

Associate Clinical Professor,
Physical Therapy; Northeastern
University, DPT

Edgar D. Goluch

Assistant Professor, Chemical
Engineering; University of
Illinois, Urbana-Champaign,
PhD

Oscar Goncalves

Professor, Counseling and
Applied Educational
Psychology; University of
Massachusetts, Amherst, PhD

Michael J. Gonyeau

Clinical Professor, Pharmacy
Practice; Albany College of
Pharmacy, PharmD

Gregory Goodale

Assistant Professor,
Communication Studies;
University of Illinois, Urbana-
Champaign, PhD

Teresa Goode

Assistant Academic Specialist,
College of Professional Studies;
Columbia University, EdD

Matthew Goodwin

Assistant Professor, Health
Sciences and Health
Informatics; University of
Rhode Island, PhD

Gary Goshgarian

Professor, English; University
of Wisconsin, Madison, PhD

Tarik Gouhier

Assistant Professor, Marine
and Environmental Sciences;
McGill University (Canada),
PhD

Andrew Gouldstone

Associate Professor,
Mechanical and Industrial
Engineering; Massachusetts
Institute of Technology, PhD

Eugene H. Gover

Associate Professor,
Mathematics; Brandeis
University, PhD

Jonathan Grabowski

Assistant Professor, Marine
and Environmental Sciences;
University of North Carolina,
Chapel Hill, PhD

Matthew Gray

Assistant Professor, Theatre;
London Academy of Music and
Dramatic Arts (United
Kingdom), MFA

Harvey Green

Professor, History; Rutgers
University, PhD

Laura Green

Professor, English; University
of California, Berkeley, PhD

Jack R. Greene

Professor, Criminology and
Criminal Justice; Michigan
State University, PhD

Deborah F. Greenwald

Associate Professor,
Counseling and Applied
Educational Psychology;
University of Michigan, PhD

Kristin C. Greenwood

Assistant Clinical Professor,
Physical Therapy; Northeastern
University, DPT

Jacqueline Griffin

Assistant Professor,
Mechanical and Industrial
Engineering; Georgia Institute
of Technology, PhD

Joseph Griffin

Assistant Academic Specialist,
College of Professional Studies;
Lenoir Rhyne University, MBA

John Griffith

Clinical Professor, Counseling
and Applied Educational
Psychology; Boston University,
PhD

Francesca Grippa

Assistant Academic Specialist,
College of Professional Studies;
University of Salento (Italy),
PhD

April Gu

Associate Professor, Civil and
Environmental Engineering;
University of Washington, PhD

Tiantian Gu

Assistant Professor, Finance;
University of Wisconsin,
Madison, PhD

Surendra M. Gupta

Professor, Mechanical and
Industrial Engineering; Purdue
University, PhD

Arshag B. Hajian

Professor, Mathematics; Yale
University, PhD

Jerome F. Hajjar

Professor, Civil and
Environmental Engineering;
Cornell University, PhD

Judith A. Hall

University Distinguished
Professor, Psychology;
Harvard University, PhD

Robert L. Hall

Associate Professor, African-
American Studies and History;
Florida State University, PhD

Pauline Hamel

Associate Professor, Health
Sciences; Boston University,
EdD

William S. Hancock

Raymond and Claire Bradstreet
Chair, Chemistry and Chemical
Biology; University of Adelaide
(Australia), PhD

Michael J. Handel

Associate Professor, Sociology
and Anthropology; Harvard
University, PhD

Robert N. Hanson

Mathews Distinguished
University Professor, Chemistry
and Chemical Biology;
University of California,
Berkeley, PhD

Kirsten Hardy

Assistant Professor, Political
Science; University of
California, Berkeley, PhD

Stephen G. Harkins

Professor, Psychology;
University of Missouri, PhD

Shaunna Harrington

Assistant Academic Specialist,
College of Professional Studies;
Boston University, MAT

Vincent Harris

William Lincoln Smith
Professor of Electrical and
Computer Engineering,
Electrical and Computer
Engineering; Northeastern
University, PhD

Casper Hartevelde

Assistant Professor, Game
Design; Delft University of
Technology (Netherlands), PhD

Christopher Hasson

Assistant Professor, Physical
Therapy; University of
Massachusetts, Amherst, PhD

Thomas Havens

Professor, History; University
of California, Berkeley, PhD

Lorna Hayward

Associate Professor, Physical
Therapy; Boston University,
EdD

Ni He

Associate Professor,
Criminology and Criminal
Justice; University of Nebraska,
Omaha, PhD

Inez Hedges

Professor, Languages,
Literatures, and Cultures;
University of Wisconsin,
Madison, PhD

Ronald D. Hedlund

Professor, Political Science;
University of Iowa, PhD

Gretchen A. Heefner

Assistant Professor, History;
Yale University, PhD

Donald E. Heiman

Professor, Physics; University
of California, Irvine, PhD

Ferdinand L. Hellweger

Associate Professor, Civil and
Environmental Engineering;
Columbia University, EngScD

Brian Helmuth

Professor, Marine and Environmental Sciences and School of Public Policy and Urban Affairs; University of Washington, PhD

Sheila S. Hemami

Professor, Electrical and Computer Engineering; Stanford University, PhD

Dale Herbeck

Professor, Communication Studies; University of Iowa, PhD

Gerald H. Herman

Assistant Professor, History; Northeastern University, MA

Julie Hertenstein

Associate Professor, Accounting; Harvard University, DBA

Mary J. Hickey

Associate Clinical Professor, Physical Therapy; Northeastern University, DPT

Carlos Hidrovo

Assistant Professor, Mechanical and Industrial Engineering; Massachusetts Institute of Technology, PhD

Krista Hill

Visiting Assistant Professor, Marketing; Northeastern University, PhD

Malcolm D. Hill

Associate Professor, Marine and Environmental Sciences; University of California, Santa Cruz, PhD

Elizabeth Hirsch

Assistant Professor, Pharmacy Practice; Creighton University, PharmD

Leslie Hitch

Assistant Academic Specialist, College of Professional Studies; University of Massachusetts, Boston, EdD

Lynda Hodgson

Assistant Academic Specialist, College of Professional Studies; Virginia Commonwealth University, PhD

Timothy J. Hoff

Associate Professor, Management and Organizational Development and School of Public Policy and Urban Affairs; Rockefeller College, PhD

Jessica Hoffman

Associate Professor, Counseling and Applied Educational Psychology; Lehigh University, PhD

Udi Hoitash

Assistant Professor and Denise and Robert DiCenso Term Fellow and Riesman Research Professor, Accounting; Rutgers University, PhD

Maureen Holden

Associate Professor, Physical Therapy; Brandeis University, PhD

Denise M. Horn

Assistant Professor, Political Science and International Affairs; Rutgers University, PhD

Elizabeth M. Howard

Associate Professor, Nursing; Boston College, PhD

Jeffrey P. Howe

Assistant Professor, Journalism; Boston University, MFA

Anne Randall Hughes

Assistant Professor, Marine and Environmental Sciences; University of California, Davis, PhD

Matthew O. Hunt

Associate Professor, Sociology and Anthropology; Indiana University, PhD

Roxana Iacob

Research Assistant Professor, Barnett Institute; Konstanz University (Germany), PhD

Anthony Iarrobino

Professor, Mathematics; Massachusetts Institute of Technology, PhD

Patricia M. L. Illingworth

Professor, Philosophy and Religion; University of California, San Diego, PhD; Boston University, JD

Vinay K. Ingle

Associate Professor, Electrical and Computer Engineering; Rensselaer Polytechnic Institute, PhD

Stephen S. Intille

Associate Professor, Computer and Information Science and Health Sciences; Massachusetts Institute of Technology, PhD

Roderick L. Ireland

Adjunct Associate Professor, Criminology and Criminal Justice; Harvard University, LL.M.; Northeastern University, PhD

Derek Isaacowitz

Associate Professor, Psychology; University of Pennsylvania, PhD

Jacqueline A. Isaacs

Professor, Mechanical and Industrial Engineering; Massachusetts Institute of Technology, PhD

Nathan Israeloff

Associate Professor, Physics; University of Illinois, Urbana-Champaign, PhD

Alexander Ivanov

Research Associate Professor, Barnett Institute; Russian Academy of Science, Institute of Bioorganic Chemistry (Moscow), PhD

Maura Daly Iversen

Professor, Physical Therapy; Harvard University, SD; Massachusetts General Hospital Institute of Health Professions, DPT

Julia Ivy

Assistant Academic Specialist, College of Professional Studies; Belarusian State University (Belarus), PhD

Arun Iyer

Research Assistant Professor, Pharmaceutical Sciences; Sojo University (Japan), PhD

Cynthia M. Jackson

Associate Professor, Accounting; University of South Carolina, PhD

Denise Jackson

Associate Professor, Psychology; University of Pittsburgh, PhD

Osborne Jackson

Assistant Professor, Economics; University of Michigan, PhD

Sarah Jackson

Postdoctoral Teaching Associate, Communication Studies; University of Minnesota, PhD

Michelle Jacobs

Assistant Clinical Professor, Pharmacy Practice; University of California, San Francisco, PharmD

Joshua R. Jacobson

Professor, Music; University of Cincinnati, DMA

Nader Jalili

Professor, Mechanical and Industrial Engineering; University of Connecticut, PhD

Leon C. Janikian

Associate Professor, Music; University of Massachusetts, Amherst, MM

Torbjorn Jarbe

Research Professor, Pharmaceutical Sciences; University of Uppsala (Sweden), PhD

Solomon M. Jekel

Associate Professor, Mathematics; Dartmouth College, PhD

Benedict S. Jimenez

Assistant Professor, Political Science; University of Illinois, Chicago, PhD

Rita Jimenez Rolland

Postdoctoral Teaching Associate, Mathematics; University of Chicago, PhD

Holly Jimison

Professor of Practice, Nursing and Computer and Information Science; Stanford University, PhD

Dinesh John

Assistant Professor, Health Sciences; University of Tennessee, PhD

Vanessa D. Johnson

Associate Professor, Counseling and Applied Educational Psychology; Western Michigan University, EdD

Graham B. Jones

Professor, Chemistry and Chemical Biology; Imperial College of Science, Technology, and Medicine (United Kingdom), PhD

Rachel Jones

Associate Professor, Nursing; New York University, PhD

T. Anthony Jones

Associate Professor, Sociology and Anthropology; Princeton University, PhD

Yung Joon Jung

Associate Professor, Mechanical and Industrial Engineering; Rensselaer Polytechnic Institute, PhD

Jeffrey S. Juris

Associate Professor, Sociology and Anthropology; University of California, Berkeley, PhD

David R. Kaeli

Professor, Electrical and Computer Engineering; Rutgers University, PhD

William Kaizen

Assistant Professor, Art + Design; Columbia University, PhD

Sagar V. Kamarthi

Associate Professor, Mechanical and Industrial Engineering; Pennsylvania State University, PhD

Carla Kaplan

Davis Distinguished Professor of American Literature, English and Women's, Gender, and Sexuality Studies; Northwestern University, PhD

Swastik Kar

Assistant Professor, Physics; Indian Institute of Physics (India), PhD

Barry L. Karger

James A. Waters Professor of Analytical Chemistry, Chemistry and Chemical Biology; Cornell University, PhD

Alain S. Karma

College of Arts and Sciences Distinguished Professor, Physics; University of California, Santa Barbara, PhD

Ralph Katz

Professor, Entrepreneurship and Innovation; University of Pennsylvania, PhD

William D. Kay

Associate Professor, Political Science; Indiana University, PhD

Maureen Kelleher

Associate Professor, Sociology and Anthropology; University of Missouri, Columbia, PhD

Kathleen Kelly

Professor, English; University of North Carolina, Chapel Hill, PhD

M. Whitney Kelting

Associate Professor, Philosophy and Religion; University of Wisconsin, Madison, PhD

Daniel D. Kennedy

Assistant Professor, Journalism; Boston University, MLA

Carole A. Kenner

Professor, Nursing; Indiana University, PhD

Heidi Kevoe Feldman

Assistant Professor, Communication Studies; Rutgers University, PhD

Ban-An Khaw

Professor, Pharmaceutical Sciences; Boston College, PhD

Serguey Khovansky

Visiting Assistant Professor, Finance; University of Virginia, PhD

Ilham Khuri-Makdisi

Associate Professor, History; Harvard University, PhD

Sheri Kiami

Assistant Clinical Professor, Physical Therapy; Simmons College, DPT

Daniel Kim

Assistant Professor, Health Sciences; University of Toronto (Canada), MD; Harvard University, PhD

Jonghan Kim

Assistant Professor, Pharmaceutical Sciences; Ohio State University, PhD

Nancy S. Kim

Associate Professor, Psychology; Yale University, PhD

Sungwoo Kim

Professor, Economics; University of California, Berkeley, PhD

Tiffany Kim

Assistant Professor, Nursing; University of Pennsylvania, PhD

Yong-Bin Kim

Associate Professor, Electrical and Computer Engineering; Colorado State University, PhD

David Kimbro

Assistant Professor, Marine and Environmental Sciences; University of California, Davis, PhD

Shelley A. Kimelberg

Assistant Professor, Sociology and Anthropology; Harvard University, PhD

Nancy Kindelan

Associate Professor, Theatre; University of Wisconsin, Madison, PhD

Christopher K. King

Professor, Mathematics; Harvard University, PhD

Donald R. King

Associate Professor, Mathematics; Massachusetts Institute of Technology, PhD

Raymond M. Kinnunen

Associate Professor, International Business and Strategy; Louisiana State University, DBA

Ryan Kinser

Postdoctoral Teaching Associate, Mathematics; University of Michigan, PhD

Engin Kirda

Sy and Laurie Sternberg Interdisciplinary Associate Professor, Computer and Information Science and Electrical and Computer Engineering; Technical University of Vienna (Austria), PhD

Rein U. Kirss

Associate Professor, Chemistry and Chemical Biology; University of Wisconsin, Madison, PhD

William Kirtz

Associate Professor, Journalism; Columbia University, MS

Jennifer L. Kirwin

Associate Clinical Professor, Pharmacy Practice; Northeastern University, PharmD

Alan M. Klein

Professor, Sociology and Anthropology; State University of New York, Buffalo, PhD

Thomas H. Koenig

Professor, Sociology and Anthropology; University of California, Santa Barbara, PhD

Mieczyslaw M. Kokar

Professor, Electrical and Computer Engineering; University of Wrocław (Poland), PhD

Ying-Yee Kong

Associate Professor, Speech-Language Pathology and Audiology; University of California, PhD

Tania Konry

Assistant Professor, Pharmaceutical Sciences; Ben Gurion University (Israel), PhD

Christopher Kottke

Postdoctoral Teaching Associate, Mathematics; Massachusetts Institute of Technology, PhD

Gregory J. Kowalski

Associate Professor, Mechanical and Industrial Engineering; University of Wisconsin, Madison, PhD

Sergey Kravchenko

Professor, Physics; Institute of Solid State Physics (Russia), PhD

Dmitri Krioukov

Associate Professor, Physics; Old Dominion University, PhD

Ganesh Krishnamoorthy

Professor, Accounting; University of Southern California, PhD

Karthik Krishnan

Assistant Professor and Thomas Moore Faculty Fellow, Finance; Boston College, PhD

Louis J. Kruger

Associate Professor, Counseling and Applied Educational Psychology; Rutgers University, PsyD

Eric Kupferberg

Assistant Academic Specialist, College of Professional Studies; Massachusetts Institute of Technology, PhD

Ahmet Kurt

Visiting Assistant Professor, Finance; University of Pittsburgh, PhD

John E. Kwoka Jr.

Neal F. Finnegan Chair, Economics; University of Pennsylvania, PhD

Jamie Ladge

Assistant Professor, Management and Organizational Development; Boston College, PhD

Venkatraman Lakshmi

Professor, Mathematics; Tata University (India), PhD

Arthur LaMan

Assistant Academic Specialist, College of Professional Studies; Northeastern University, MS

Anna Lamin

Associate Professor and Matthew Eagan Faculty Fellow, International Business and Strategy; University of Minnesota, PhD

Jason Lancaster

Associate Clinical Professor, Pharmacy Practice; Massachusetts College of Pharmacy, PharmD

Henry W. Lane

Professor, International Business and Strategy; Harvard University, DBA

Amy Lantinga

Assistant Academic Specialist, College of Professional Studies; University of Tennessee, Knoxville, EdD

Philip Larese-Casanova

Assistant Professor, Civil and Environmental Engineering; University of Iowa, PhD

Barbara Larson

Visiting Assistant Professor, Management and Organizational Development; Harvard Business School, DBA

Felicia G. Lask

Associate Professor, Marketing; University of South Florida, PhD

Amanda Reeser Lawrence

Assistant Professor, Architecture; Harvard University, PhD

David M. Lazer

Professor, Political Science and Computer and Information Science; University of Michigan, Ann Arbor, PhD

Christina Lee

Assistant Professor, Counseling and Applied Educational Psychology; New York University, PhD

Cynthia Lee

Professor, Management and Organizational Development; University of Maryland, PhD

Doreen Lee

Assistant Professor, Sociology and Anthropology; Cornell University, PhD

HeaYeon Lee

Research Associate Professor, Mechanical and Industrial Engineering; Osaka University (Japan), PhD

Jung H. Lee

Assistant Professor, Philosophy and Religion; Brown University, PhD

Yang W. Lee

Associate Professor, Supply Chain and Information Management; Massachusetts Institute of Technology, PhD

Carolyn W. T. Lee-Parsons

Associate Professor, Chemical Engineering and Chemistry and Chemical Biology; Cornell University, PhD

Miriam E. Leeser

Professor, Electrical and Computer Engineering; Cambridge University (United Kingdom), PhD

Laurel Leff

Associate Professor and Stotsky Professor of Jewish and Cultural Studies, Journalism; Yale University, MA

Lori H. Lefkowitz

Ruderman Professor, Jewish Studies and English; Brown University, PhD

Bradley M. Lehman

Professor, Electrical and Computer Engineering; Georgia Institute of Technology, PhD

Steven Leonard

Assistant Professor, Pharmacy Practice; Purdue University, PharmD

Neal Lerner

Associate Professor, English; Boston University, EdD

Marina Leslie

Associate Professor, English; Yale University, PhD

Hanoch Lev-Ari

Professor, Electrical and Computer Engineering; Stanford University, PhD

Tatyana Levchenko

Research Assistant Professor, Pharmaceutical Sciences; Academy of Medical Sciences Moscow (Russia), PhD

Yiannis A. Levendis

College of Engineering Distinguished Professor, Mechanical and Industrial Engineering; California Institute of Technology, PhD

Jack Levin

Irving S. and Betty Brudnick Distinguished Professor, Sociology and Anthropology; Boston University, PhD

Kim Lewis

University Distinguished Professor, Biology; Moscow University (Russia), PhD

Laura H. Lewis

Cabot Professor, Chemical Engineering; University of Texas, Austin, PhD

Chieh Li

Associate Professor, Counseling and Applied Educational Psychology; University of Massachusetts, Amherst, EdD

Rui Li

Assistant Clinical Professor, Health Sciences; Baylor University, PhD

Robert Lieb

Professor, Supply Chain and Information Management; University of Maryland, DBA

Karl J. Lieberherr

Professor, Computer and Information Science; Eidgenössische Technische Hochschule Zürich (Switzerland), PhD

Karin N. Lifter

Professor, Counseling and Applied Educational Psychology; Columbia University, PhD

Hsin Lin

Research Assistant Professor, Physics; Northeastern University, PhD

Yingzi Lin

Associate Professor, Mechanical and Industrial Engineering; University of Saskatchewan (Canada), PhD

Alisa K. Lincoln

Associate Professor, Health Sciences and Sociology and Anthropology; Columbia University, PhD

Kelvin Liu

Assistant Professor, Accounting; University of South Carolina, PhD

Yongmin Liu

Assistant Professor, Mechanical and Industrial Engineering and Electrical and Computer Engineering; University of California, Berkeley, PhD

Grigorios Livanis

Assistant Professor, International Business and Strategy; University of Florida, PhD

Carol Livermore

Associate Professor, Mechanical and Industrial Engineering; Harvard University, PhD

Mary Loeffelholz

Professor, English; Yale University, PhD

Martha Loftus

Assistant Academic Specialist, College of Professional Studies; Harvard University, EdD

Jane Lohmann

Assistant Academic Specialist, College of Professional Studies; Harvard University, PhD

Fabrizio Lombardi

International Test Conference Professor, Electrical and Computer Engineering; University of London (United Kingdom), PhD

Guido Lopez

Associate Academic Specialist, College of Professional Studies; Northeastern University, PhD

Ralph H. Loring

Associate Professor, Pharmaceutical Sciences; Cornell University, PhD

Ivan Loseu

Associate Professor, Mathematics; Moscow State University (Russia), PhD

Timothy Love

Associate Professor, Architecture; Harvard University, MArch

Susan Lowe

Associate Clinical Professor, Physical Therapy; Northeastern University, DPT

Robert P. Lowndes

Professor, Physics; Queen Mary College, University of London (United Kingdom), PhD

Maria José Luengo-Prado

Associate Professor, Economics; Brown University, PhD

Katherine A. Luongo

Associate Professor, History; University of Michigan, Ann Arbor, PhD

David E. Luzzi

Professor, Mechanical and Industrial Engineering; Northwestern University, PhD

Mervin D. Lynch

Professor, Education; University of Wisconsin, Madison, PhD

Spencer Lynn

Research Assistant Professor, Psychology; University of Arizona, PhD

Linlin Ma

Assistant Professor, Finance; Georgia State University, PhD

Patricia A. Mabrouk

Professor, Chemistry and Chemical Biology; Massachusetts Institute of Technology, PhD

Kristin Madison

Professor, Health Sciences and School of Law; Stanford University, PhD

Lee Makowski

Professor, Electrical and Computer Engineering and Chemistry and Chemical Biology; Massachusetts Institute of Technology, PhD

Alexandros Makriyannis

Behrakis Trustee Chair in Pharmaceutical Biotechnology and Professor, Pharmaceutical Sciences, and Professor, Chemistry and Chemical Biology; University of Kansas, PhD

Mario J. Maletta

Professor and Cowan Research Professor, Accounting; University of Massachusetts, Amherst, PhD

Mikhail Malioutov

Professor, Mathematics; Moscow State University (Russia), PhD

Linda Malone

Assistant Clinical Professor, Nursing; Northeastern University, DNP

Justin Manjourides

Assistant Professor, Health Sciences; Harvard University, PhD

James M. Manning

Professor, Biology; Tufts University, PhD

Peter K. Manning

Elmer V. H. and Eileen M. Brooks Trustee Professor, Criminology and Criminal Justice; Duke University, PhD

Peter Manolios

Professor, Computer and Information Science; University of Texas, Austin, PhD

Carol Marchetti

Assistant Professor, Nursing; Boston College, PhD

Edwin Marengo

Associate Professor, Electrical and Computer Engineering; Northeastern University, PhD

Donald G. Margotta

Associate Professor, Finance; University of North Carolina, Chapel Hill, PhD

Alina Marian

Associate Professor, Mathematics; Harvard University, PhD

Tucker Marion

Associate Professor and Altschuler Research Fellow, Technological Entrepreneurship; Pennsylvania State University, PhD

Robert S. Markiewicz

Professor, Physics; University of California, Berkeley, PhD

Alycia Markowski

Associate Clinical Professor, Physical Therapy; Northeastern University, DPT

Richard L. Marsh

Professor, Biology; University of Michigan, PhD

Ineke Haen Marshall

Professor, Sociology and Anthropology and Criminology and Criminal Justice; Bowling Green State University, PhD

Ramiro Martinez Jr.

Professor, Criminology and Criminal Justice and Sociology and Anthropology; Ohio State University, PhD

José Angel Martínez-Lorenzo

Assistant Professor, Mechanical and Industrial Engineering and Electrical and Computer Engineering; Universidad de Vigo (Spain), PhD

Mauro Martino

Research Assistant Professor, Art + Design; Politecnico di Milano (Italy), PhD

Alex Martsinkovsky

Associate Professor, Mathematics; Brandeis University, PhD

Emanuel J. Mason

Professor, Counseling and Applied Educational Psychology; Temple University, EdD

David Massey

Professor, Mathematics; Duke University, PhD

Thomas M. Matta

Assistant Clinical Professor, Pharmacy Practice; Xavier University of Louisiana, PharmD

Samuel J. Matthews

Associate Professor, Pharmacy Practice; University of Minnesota, PharmD

Gail Matthews-Denatale

Assistant Academic Specialist, College of Professional Studies; Indiana University, PhD

Carla Mattos

Professor, Chemistry and Chemical Biology; Massachusetts Institute of Technology, PhD

Patricia Mauceri

Assistant Clinical Professor, Speech-Language Pathology and Audiology; Pennsylvania College of Optometry, AuD

Lucy Maulsby

Assistant Professor, Architecture; Columbia University, PhD

Constantinos Mavroidis

College of Engineering Distinguished Professor, Mechanical and Industrial Engineering; University of Paris VI (France), PhD

William G. Mayer

Professor, Political Science; Harvard University, PhD

Mary Mayville

Visiting Assistant Clinical Professor, Nursing; Northeastern University, DNP

Daniel J. McCarthy

McKim and D'Amore Distinguished Professor of Global Management and Innovation, Entrepreneurship and Innovation; Harvard University, DBA

Rebekah McCarty

Assistant Professor, Accounting; University of Tennessee, PhD

Jane McCool

Assistant Clinical Professor, Nursing; University of Rhode Island, PhD

Eileen L. McDonagh

Professor, Political Science; Harvard University, PhD

Ann McDonald

Associate Professor, Art + Design; Yale University, MFA

Matthew McDonald

Assistant Professor, Music; Yale University, PhD

Edward F. McDonough III

Professor, International Business and Strategy; University of Massachusetts, Amherst, PhD

Nicol E. McGruer

Professor, Electrical and Computer Engineering; Michigan State University, PhD

Jean McGuire

Professor of Practice, Health Sciences; Brandeis University, PhD

Stephen W. McKnight

Professor, Electrical and Computer Engineering; University of Maryland, PhD

Brendan McLellan

Postdoctoral Teaching Associate, Mathematics; University of Toronto (Canada), PhD

Joseph McNabb

Assistant Academic Specialist, College of Professional Studies; Northeastern University, PhD

Robert C. McOwen

Professor, Mathematics; University of California, Berkeley, PhD

Maureen McQueeney

Assistant Clinical Professor, Pharmacy Practice; Northeastern University, PharmD

Isabel Meirelles

Associate Professor, Art + Design; Massachusetts College of Art, MFA

Emanuel S. Melachrinoudis

Associate Professor, Mechanical and Industrial Engineering; University of Massachusetts, Amherst, PhD

Waleed Meleis

Associate Professor, Electrical and Computer Engineering; University of Michigan, PhD

Richard H. Melloni Jr.

Professor, Psychology; University of Massachusetts Medical Center, PhD

Latika Menon

Associate Professor, Physics; Tata Institute of Fundamental Research, Bombay (India), PhD

Hameed Metghalchi

Professor, Mechanical and Industrial Engineering; Massachusetts Institute of Technology, ScD

Marc H. Meyer

Robert J. Shillman Professor of Entrepreneurship and Matthews Distinguished University Professor, Entrepreneurship and Innovation; Massachusetts Institute of Technology, PhD

Ningfang Mi

Assistant Professor, Electrical and Computer Engineering; University of Texas, Dallas, MS

Srboljub Mijailovich

Research Associate Professor, Chemistry and Chemical Biology; Massachusetts Institute of Technology, PhD

William F. S. Miles

Professor, Political Science; Tufts University, PhD

Dennis H. Miller

Professor, Music; Columbia University, DMA

Joanne L. Miller

Matthews Distinguished University Professor, Psychology; University of Minnesota, PhD

Ennio Mingolla

Professor, Speech-Language Pathology and Audiology; University of Connecticut, PhD

Marilyn L. Minus

Assistant Professor, Mechanical and Industrial Engineering; Georgia Institute of Technology, PhD

Alan Mislove

Assistant Professor, Computer and Information Science; Rice University, PhD

Cheryl Mitteness

Assistant Professor, Entrepreneurship and Innovation; University of Louisville, PhD

Anahit Mkrtchyan

Assistant Professor, Finance; Pennsylvania State University, PhD

Vallentine Moghadam

Professor, Sociology and Anthropology and International Affairs; American University, PhD

Shan Mohammed

Associate Professor, Health Sciences; Case Western Reserve University, MD

Beth Molnar

Associate Professor, Health Sciences; Harvard University, ScD

James Monaghan

Assistant Professor, Biology; University of Kentucky, PhD

Robert M. Mooradian

Professor, Finance; University of Pennsylvania, PhD

Kimberly Moreno

Associate Professor, Accounting; University of Massachusetts, Amherst, PhD

Joanne Morreale

Associate Professor, Media and Screen Studies; Temple University, PhD

Steven A. Morrison

Professor, Economics; University of California, Berkeley, PhD

Michaele Morrow

Assistant Professor,
Accounting; Texas Tech
University, PhD

Hossein Mosallaei

Associate Professor, Electrical
and Computer Engineering;
University of California, Los
Angeles, PhD

Jeanine K. Mount

Professor of Practice,
Pharmacy Practice; Purdue
University, PhD

Ramis Movassagh

Postdoctoral Teaching
Associate, Mathematics;
Massachusetts Institute of
Technology, PhD

Sinan Muftu

Professor, Mechanical and
Industrial Engineering;
University of Rochester, PhD

Sanjeev Mukerjee

Professor, Chemistry and
Chemical Biology; Texas A&M
University, PhD

Jay Mulki

Associate Professor,
Marketing; University of South
Florida, PhD

Patrick R. Mullen

Associate Professor, English;
University of Pittsburgh, PhD

Thomas Mullikin

Assistant Academic Specialist,
College of Professional Studies;
University of South Carolina,
JD

Mark A. Murcko

Visiting Professor of Practice,
Pharmaceutical Sciences; Yale
University, PhD

Shashi K. Murthy

Associate Professor, Chemical
Engineering; Massachusetts
Institute of Technology, PhD

Andrew Myers

Assistant Professor, Civil and
Environmental Engineering;
Stanford University, PhD

Laura Mylott

Clinical Professor, Nursing;
Boston College, PhD

Franklin Naarendorp

Associate Professor,
Psychology; City University of
New York, PhD

Thomas K. Nakayama

Professor, Communication
Studies; University of Iowa,
PhD

Uichiro Narusawa

Associate Professor,
Mechanical and Industrial
Engineering; University of
Michigan, PhD

Ala Nassar

Research Associate Professor,
Chemistry and Chemical
Biology; University of
Connecticut, PhD

Pran Nath

Matthews Distinguished
University Professor, Physics;
Stanford University, PhD

Stephen L. Nathanson

Professor, Philosophy and
Religion; Johns Hopkins
University, PhD

Hamid Nayeb-Hashemi

Professor, Mechanical and
Industrial Engineering;
Massachusetts Institute of
Technology, PhD

Brent Nelson

Associate Professor, Physics;
University of California,
Berkeley, PhD

Carl W. Nelson

Associate Professor,
International Business and
Strategy; University of
Manchester (United Kingdom),
PhD

Sandy Nickel

Assistant Academic Specialist,
College of Professional Studies;
University of Iowa, PhD

Mark J. Niedre

Assistant Professor, Electrical
and Computer Engineering;
University of Toronto
(Canada), PhD

Matthew Nippins

Associate Clinical Professor,
Physical Therapy;
Massachusetts General
Hospital Institute of Health
Professions, DPT

Daniel R. Noemi Voionmaa

Associate Professor, History;
Yale University, PhD

David Nolan

Associate Clinical Professor,
Physical Therapy;
Massachusetts General
Hospital Institute of Health
Professions, DPT

Carey Noland

Associate Professor,
Communication Studies; Ohio
University, PhD

Guevara Noubir

Professor, Computer and
Information Science; Swiss
Federal Institute of Technology,
Lausanne (Switzerland), PhD

Welville B. Nowak

Senior Research Scientist,
Mechanical and Industrial
Engineering; Massachusetts
Institute of Technology, PhD

Gilbert Nyaga

Associate Professor and Joe
Dichiacchio Faculty Fellow,
Supply Chain and Information
Management; Michigan State
University, PhD

Carla B. Oblas

Clinical Assistant Professor of
Mathematical Practice,
Mathematics; University of
California, Davis, MS

Antonio Ocampo-Guzman

Associate Professor, Theatre;
York University (Canada),
MFA

Sean O'Connell

Assistant Academic Specialist,
College of Professional Studies;
University of Massachusetts,
Boston, MA

George A. O'Doherty

Professor, Chemistry and
Chemical Biology; Ohio State
University, PhD

Dietmar Offenhuber

Assistant Professor,
Art + Design; Massachusetts
Institute of Technology, PhD

Suzanne P. Ogden

Professor, Political Science;
Brown University, PhD

Barbara F. Okun

Professor, Counseling and
Applied Educational
Psychology; Northwestern
University, PhD

Tom Olson

Clinical Professor, Nursing;
University of Minnesota,
Minneapolis, PhD

Donald M. O'Malley

Associate Professor, Biology;
Harvard University, PhD

Marvin Onabajo

Assistant Professor, Electrical
and Computer Engineering;
Texas A&M University, PhD

Mary Jo Ondrechen

Professor, Chemistry and
Chemical Biology;
Northwestern University, PhD

Therese M. O'Neil-Pirozzi

Associate Professor, Speech-
Language Pathology and
Audiology; Boston University,
ScD

Mitchell A. Orenstein

Professor, Political Science;
Yale University, PhD

Toyoko Orimoto

Assistant Professor, Physics;
University of California,
Berkeley, PhD

Kwamina Panford

Associate Professor, African-
American Studies; Northeastern
University, PhD

Coleen C. Pantalone

Associate Professor, Finance;
Iowa State University, PhD

Serena Parekh McGushin

Assistant Professor, Philosophy
and Religion; Boston College,
PhD

Andrea Parker

Assistant Professor, Computer and Information Science and Health Sciences; Georgia Institute of Technology, PhD

Carol Paronis

Assistant Professor, Pharmaceutical Sciences; Emory University, PhD

Christopher M. Parsons

Assistant Professor, History; University of Toronto (Canada), PhD

Nikos Passas

Professor, Criminology and Criminal Justice; University of Edinburgh (Scotland), PhD

Rupal Patel

Associate Professor, Speech-Language Pathology and Audiology and Computer and Information Science; University of Toronto (Canada), PhD

Mark Patterson

Professor, Marine and Environmental Sciences and Civil and Environmental Engineering; Harvard University, PhD

Misha Pavel

Professor of Practice, Computer and Information Science and Health Sciences; New York University, PhD

Neal Pearlmutter

Associate Professor, Psychology; Massachusetts Institute of Technology, PhD

Russell Pensyl

Professor, Art + Design; Western Michigan University, MFA

Stuart S. Peterfreund

Professor, English; University of Washington, PhD

Leonid Petrov

Postdoctoral Teaching Associate, Mathematics; Institute for Information Transmission Problems (Russia), PhD

Karen Petruska

Postdoctoral Teaching Associate, Media and Screen Studies; Georgia State University, PhD

Pegaret Pichler

Assistant Professor, Finance; Stanford University, PhD

Richard Pietsch

Visiting Assistant Academic Specialist, College of Professional Studies; Nova Southeastern University, EdD

Jacqueline M. Piret

Associate Professor, Biology; Massachusetts Institute of Technology, PhD

Steven D. Pizer

Associate Professor, Pharmacy Practice; Boston College, PhD

Harlan D. Platt

Professor, Finance; University of Michigan, PhD

Marjorie Platt

Professor, Accounting; University of Michigan, PhD

Robert Platt Jr.

Assistant Professor, Computer and Information Science; University of Massachusetts, Amherst, PhD

Peter Plourde

Assistant Academic Specialist, College of Professional Studies; University of Massachusetts, MS

Patrick F. Plunkett

Associate Professor, Health Sciences; Northeastern University, EdD

Elizabeth J. Podlaha-Murphy

Professor, Chemical Engineering; Columbia University, PhD

Mya Poe

Assistant Professor, English; University of Massachusetts, Amherst, PhD

Uta G. Poiger

Professor, History; Brown University, PhD

Ann Polcari

Assistant Professor, Nursing; Boston College, PhD

Michael Pollastri

Associate Professor, Chemistry and Chemical Biology; Brown University, PhD

Hilary Poriss

Associate Professor, Music; University of Chicago, PhD

Richard D. Porter

Professor, Mathematics; Yale University, PhD

John H. Portz

Professor, Political Science; University of Wisconsin, Madison, PhD

Karen Pounds

Assistant Clinical Professor, Nursing; University of Rhode Island, PhD

Susan Powers-Lee

Professor, Biology; University of California, Berkeley, PhD

Emmett G. Price III

Associate Professor, Music; University of Pittsburgh, PhD

Robert Prior

Assistant Academic Specialist, College of Professional Studies; Nova Southeastern University, EdD

Robert Pritchard

Assistant Academic Specialist, College of Professional Studies; Northeastern University, PhD

Viera K. Proulx

Professor, Computer and Information Science; Columbia University, PhD

Sheila M. Puffer

Professor and University Distinguished Professor, International Business and Strategy; University of California, Berkeley, PhD

Karen Quigley

Research Associate Professor, Psychology; Ohio State University, PhD

William G. Quill

Associate Professor, Counseling and Applied Educational Psychology; University of Massachusetts, Amherst, PhD

Samuel Rabino

Professor, Marketing; New York University, PhD

Gordana Rabrenovic

Associate Professor, Sociology and Anthropology; State University of New York, Albany, PhD

Joseph A. Raelin

Professor and Asa S. Knowles Chair of Practice-Oriented Education, Management and Organizational Development; State University of New York, Buffalo, PhD

Nicole N. Rafter

Professor, Criminology and Criminal Justice; State University of New York, Albany, PhD

Rajmohan Rajaraman

Professor, Computer and Information Science; University of Texas, Austin, PhD

Ravi Ramamurti

Distinguished Chair Professor, International Business and Strategy; Harvard University, DBA

Mark B. Ramras

Associate Professor, Mathematics; Brandeis University, PhD

Janet H. Randall

Professor, English; University of Massachusetts, Amherst, PhD

Carey M. Rappaport

College of Engineering Distinguished Professor, Electrical and Computer Engineering; Massachusetts Institute of Technology, ScD

Richard A. Rasala

Professor, Computer and Information Science; Harvard University, PhD

Purnima Ratilal

Associate Professor, Electrical and Computer Engineering; Massachusetts Institute of Technology, PhD

Joseph Reagle

Assistant Professor, Communication Studies; New York University, PhD

Adam J. Reeves

Professor, Psychology; City University of New York, PhD

Colin Reid

Assistant Professor, Accounting; University of Tennessee, PhD

Debra J. Reid

Assistant Clinical Professor, Pharmacy Practice; Northeastern University, PharmD

Kevin J. Reilly

Assistant Professor, Speech-Language Pathology and Audiology; University of Washington, PhD

Karen Reiss Medwed

Assistant Academic Specialist, College of Professional Studies; New York University, PhD

Alessandra Renzi

Assistant Professor, Art + Design; University of Toronto (Canada), PhD

John R. Reynolds

Professor, Pharmacy Practice; Duquesne University, PharmD

Billye Rhodes

Assistant Academic Specialist, College of Professional Studies; University of North Carolina, Chapel Hill, PhD

Nathaniel Rickles

Associate Professor, Pharmacy Practice; Philadelphia College of Pharmacy, PharmD; University of Wisconsin, Madison, PhD

Mirek Riedewald

Associate Professor, Computer and Information Science; University of California, Santa Barbara, PhD

Christoph Riedl

Assistant Professor, Supply Chain and Information Management and College of Computer and Information Science; Technische Universität München (Germany), PhD

Justin Ries

Associate Professor, Marine and Environmental Sciences; Johns Hopkins University, PhD

Matteo Rinaldi

Assistant Professor, Electrical and Computer Engineering; University of Pennsylvania, PhD

Susan J. Roberts

Professor, Nursing; Boston University, DNSc

Christopher J. Robertson

Professor, International Business and Strategy; Florida State University, PhD

Craig M. Robertson

Assistant Professor, Media and Screen Studies; University of Illinois, Urbana-Champaign, PhD

William Robertson

Assistant Professor, Computer and Information Science and Electrical and Computer Engineering; University of California, Santa Barbara, PhD

Cordula Robinson

Assistant Academic Specialist, College of Professional Studies; University College London (United Kingdom), PhD

Harlow L. Robinson

Matthews Distinguished University Professor, History; University of California, Berkeley, PhD

Holbrook C. Robinson

Associate Professor, Languages, Literatures, and Cultures; Harvard University, PhD

Walter V. Robinson

Distinguished Professor, Journalism; Northeastern University, BA

Tracy L. Robinson Wood

Professor, Counseling and Applied Educational Psychology; Harvard University, EdD

David A. Rochefort

College of Arts and Sciences Distinguished Professor, Political Science; Brown University, PhD

Rachel Rodgers

Visiting Assistant Professor, Counseling and Applied Educational Psychology; Université de Toulouse-Le Mirail (France), PhD

Bruce Ronkin

Professor, Music; University of Maryland, DMA

Peter S. Rosen

Associate Professor, Marine and Environmental Sciences; College of William and Mary, PhD

Rebeca B. Rosengaus

Associate Professor, Marine and Environmental Sciences; Boston University, PhD

James R. Ross

Associate Professor, Journalism and Jewish Studies; American University, MA

Martin E. Ross

Associate Professor, Marine and Environmental Sciences; University of Idaho, PhD

Jeffrey W. Ruberti

Associate Professor, Mechanical and Industrial Engineering; Tulane University, PhD

Dylan Rupel

Postdoctoral Teaching Associate, Mathematics; University of Oregon, PhD

Timothy J. Rupert

Professor, Accounting; Pennsylvania State University, PhD

Ivan Rupnik

Assistant Professor, Architecture; Harvard University, MArch

Matthais Ruth

Professor, School of Public Policy and Urban Affairs and Civil and Environmental Engineering; University of Illinois, Urbana-Champaign, PhD

Stephen A. Sadow

Professor, Languages, Literatures, and Cultures; Harvard University, PhD

J. Timothy Sage

Associate Professor, Physics; University of Illinois, Urbana-Champaign, PhD

Vinod Sahney

Professor, Mechanical and Industrial Engineering; University of Wisconsin, Madison, PhD

Masoud Salehi

Associate Professor, Electrical and Computer Engineering; Stanford University, PhD

Ryan Salvas

Assistant Professor, Architecture; Rensselaer Polytechnic Institute, MS

William Sanchez

Associate Professor, Counseling and Applied Educational Psychology; Boston University, PhD

Tova Sanders

Assistant Academic Specialist, College of Professional Studies; George Washington University, EdD

Ronald L. Sandler

Associate Professor, Philosophy and Religion; University of Wisconsin, Madison, PhD

Ravi Sarathy

Professor, International Business and Strategy; University of Michigan, PhD

Mehrdad Sasani-Kolori

Associate Professor, Civil and Environmental Engineering; University of California, Berkeley, PhD

Carmen Sceppa

Associate Professor, Health Sciences; *Francisco Marroquin University (Guatemala), MD; Tufts University, PhD*

Gunar Schirner

Assistant Professor, Electrical and Computer Engineering; *University of California, Irvine, PhD*

Ralf W. Schlosser

Professor, Speech-Language Pathology and Audiology; *Purdue University, PhD*

Benjamin M. Schmidt

Assistant Professor, History; *Princeton University, PhD*

David E. Schmitt

Professor, Political Science; *University of Texas, Austin, PhD*

Alan Schroeder

Professor, Journalism; *Harvard University, MPA*

Egon Schulte

Professor, Mathematics; *University of Dortmund (Germany), PhD*

Martin Schwarz

Associate Professor, Mathematics; *Courant Institute, PhD*

Victor Seidel

Visiting Assistant Professor, Entrepreneurship and Innovation; *Stanford University, PhD*

Magy Seif El-Nasz

Associate Professor, Game Design; *Northwestern University, PhD*

Amee L. Seitz

Assistant Professor, Physical Therapy; *Massachusetts General Hospital Institute of Health Professions, DPT; Virginia Commonwealth University, PhD*

Laura Senier

Assistant Professor, Sociology and Anthropology and Health Sciences; *Brown University, PhD*

Philip E. Serafim

Professor, Electrical and Computer Engineering; *Massachusetts Institute of Technology, ScD*

Susan M. Setta

Associate Professor, Philosophy and Religion; *Pennsylvania State University, PhD*

Bahram Shafai

Professor, Electrical and Computer Engineering; *George Washington University, ScD*

Jayant M. Shah

Professor, Mathematics; *Massachusetts Institute of Technology, PhD*

Rebecca Shansky

Assistant Professor, Psychology; *Yale University, PhD*

Harvey D. Shapiro

Associate Professor, Education; *Hebrew Union College, PhD*

Nancy H. Sharby

Associate Clinical Professor, Physical Therapy; *Northeastern University, DPT*

Gavin M. Shatkin

Associate Professor, School of Public Policy and Urban Affairs and Architecture; *Rutgers University, PhD*

Thomas C. Sheahan

Professor, Civil and Environmental Engineering; *Massachusetts Institute of Technology, ScD*

Sandra Shefelbine

Associate Professor, Mechanical and Industrial Engineering; *Stanford University, PhD*

Reza H. Sheikhi

Assistant Professor, Mechanical and Industrial Engineering; *University of Pittsburgh, PhD*

H. David Sherman

Professor, Accounting; *Harvard University, DBA*

Olin Shivers

Associate Professor, Computer and Information Science; *Carnegie Mellon University, PhD*

Mariya Shiyko

Assistant Professor, Counseling and Applied Educational Psychology; *City University of New York, PhD*

Robert Sikes

Associate Professor, Physical Therapy; *University of Texas, Houston, PhD*

Michael B. Silevitch

Robert Black Professor of Engineering and College of Engineering Distinguished Professor, Electrical and Computer Engineering; *Northeastern University, PhD*

Simon I. Singer

Professor, Criminology and Criminal Justice; *University of Pennsylvania, PhD*

Rifat Sipahi

Associate Professor, Mechanical and Industrial Engineering; *University of Connecticut, PhD*

Nancy Sirianni

Assistant Professor, Marketing; *Arizona State University, PhD*

Michail V. Sitkovsky

Eleanor W. Black Chair in Immunophysiology and Pharmaceutical Biotechnology and Professor, Pharmaceutical Sciences, and Professor, Biology; *Moscow State University (Russia), PhD*

Andrew Skirvin

Associate Clinical Professor, Pharmacy Practice; *University of Texas, Austin, PharmD*

Amy Sliva

Assistant Professor, Computer and Information Science and Political Science; *University of Maryland, College Park, PhD*

Rory Smead

Assistant Professor, Philosophy and Religion; *University of California, Irvine, PhD*

David A. Smith

Assistant Professor, Computer and Information Science; *Johns Hopkins University, PhD*

Gillian Smith

Assistant Professor, Computer and Information Science and Game Design; *University of California, Santa Cruz, PhD*

Ronald Bruce Smith

Associate Professor, Music; *University of California, Berkeley, PhD*

Wendy A. Smith

College of Arts and Sciences Distinguished Associate Professor, Biology; *Duke University, PhD*

Eugene Smotkin

Professor, Chemistry and Chemical Biology; *University of Texas, Austin, PhD*

Jeffrey B. Sokoloff

Professor, Physics; *Massachusetts Institute of Technology, PhD*

Marius M. Solomon

Professor, Information, Operations, and Analysis; *University of Pennsylvania, PhD*

Chaoming Song

Research Assistant Professor, Physics; *City University of New York, PhD*

Allen L. Soyster

Professor, Mechanical and Industrial Engineering; *Carnegie Mellon University, PhD*

Bert A. Spector

Associate Professor, International Business and Strategy; *University of Missouri, PhD*

Jessica Speed

Postdoctoral Teaching Associate, Communication Studies; *University of North Carolina, PhD*

Srinivas Sridhar

College of Arts and Sciences Distinguished Professor, Physics; *California Institute of Technology, PhD*

Thomas Starr

Professor, Art + Design; Yale University, MFA

Erica Steckler

Visiting Assistant Professor, Management and Organizational Development; Boston College, PhD

L. Christina Steiger

Assistant Professor, Economics; University of Oregon, PhD

Armen Stepanyants

Associate Professor, Physics; University of Rhode Island, PhD

Dagmar Sternad

Professor, Biology and Electrical and Computer Engineering; University of Connecticut, PhD

Ann Steuernagel

Assistant Professor, Art + Design; Massachusetts College of Art, MFA

Milica Stojanovic

Professor, Electrical and Computer Engineering; Northeastern University, PhD

Jacob I. Stowell

Associate Professor, Criminology and Criminal Justice; State University of New York, Albany, PhD

Nena Stracuzzi

Assistant Academic Specialist, College of Professional Studies; University of New Hampshire, PhD

Richard Strasser

Associate Professor, Music; Manhattan School of Music, DMA

Amy Stratman

Assistant Academic Specialist, College of Professional Studies; Simmons College, MAT

Phyllis R. Strauss

Matthews Distinguished University Professor, Biology; Rockefeller University, PhD

Heather Streets

Associate Professor, History; Duke University, PhD

Alexandru I. Suci

Professor, Mathematics; Columbia University, PhD

Helen Suh

Associate Professor, Health Sciences; Harvard University, ScD

Denis J. Sullivan

Professor, Political Science and International Affairs; University of Michigan, PhD

Fareena Sultan

Professor, Marketing; Columbia University, PhD

Andrew M. Sum

Professor, Economics; Massachusetts Institute of Technology, MA

Nian-Xiang Sun

Associate Professor, Electrical and Computer Engineering; Stanford University, PhD

Yihou Sun

Assistant Professor, Computer and Information Science; University of Illinois, Urbana-Champaign, PhD

Ravi Sundaram

Associate Professor, Computer and Information Science; Massachusetts Institute of Technology, PhD

Gloria Sutton

Assistant Professor, Art + Design; University of California, Los Angeles, PhD

John D. Swain

Associate Professor, Physics; University of Toronto (Canada), PhD

Nina Sylvanus

Assistant Professor, Sociology and Anthropology; Ecole des Hautes Etudes en Sciences Sociales, Paris (France), PhD

Lynne Sylvia

Clinical Professor, Pharmacy Practice; Duquesne University, PharmD

Mario Sznajder

Dennis Picard Trustee Professor, Electrical and Computer Engineering; University of Washington, PhD

Gilead Tadmor

Professor, Electrical and Computer Engineering; Weizmann Institute of Science (Israel), PhD

Mary Suzanne Tarmina

Associate Clinical Professor, Nursing; University of Utah, PhD

Mohammad E. Taslim

Professor, Mechanical and Industrial Engineering; University of Arizona, PhD

Tomasz Taylor

Professor, Physics; University of Warsaw (Poland), PhD

Philip Thai

Assistant Professor, History; Stanford University, PhD

Ganesh Thakur

Assistant Professor, Pharmaceutical Sciences; Institute of Chemical Technology (India), PhD

Adam Thomas

Assistant Clinical Professor, Physical Therapy; Northeastern University, DPT

Mary Thompson-Jones

Assistant Academic Specialist, College of Professional Studies; University of Pennsylvania, EdD

George Thrush

Professor, Architecture; Harvard University, MArch

Gordana G. Todorov

Professor, Mathematics; Brandeis University, PhD

Irina Todorova

Associate Clinical Professor, Health Sciences; Sofia University and Bulgarian Academy of Sciences (Bulgaria), PhD

Valerio Toledano Laredo

Professor, Mathematics; University of Cambridge (United Kingdom), PhD

Michael C. Tolley

Associate Professor, Political Science; Johns Hopkins University, PhD

Peter Topalov

Associate Professor, Mathematics; Moscow State University (Russia), PhD

Vladimir P. Torchilin

University Distinguished Professor, Pharmaceutical Sciences; Moscow State University (Russia), PhD, DSc

Ali Touran

Professor, Civil and Environmental Engineering; Stanford University, PhD

Emery A. Trahan

Professor, Finance; State University of New York, Albany, PhD

Andrew Trotman

Assistant Professor, Accounting; Bond University, PhD

Rachel V. Trousdale

Visiting Associate Professor, English; Yale University, PhD

Geoffrey C. Trussell

Professor, Marine and Environmental Sciences; College of William and Mary, PhD

Berna Turam

Associate Professor, International Affairs and Sociology and Anthropology; McGill University (Canada), PhD

Ayten Turkcan

Assistant Professor, Mechanical and Industrial Engineering; Bilkent University, Ankara (Turkey), PhD

Bonnie TuSmith

Associate Professor, English; Washington State University, PhD

Esther Tutella

Assistant Academic Specialist, College of Professional Studies; Vanderbilt University, MEd

Annique Un

Associate Professor, International Business and Strategy; Massachusetts Institute of Technology, PhD

Christopher Unger

Assistant Academic Specialist,
College of Professional Studies;
Harvard University, PhD

Moneesh Upmanyu

Associate Professor,
Mechanical and Industrial
Engineering; University of
Michigan, PhD

Daniel Urman

Assistant Academic Specialist,
College of Professional Studies;
Harvard University, JD

Steven P. Vallas

Professor, Sociology and
Anthropology; Rutgers
University, PhD

Jenny A. Van Amburgh

Clinical Professor, Pharmacy
Practice; Albany College of
Pharmacy, PharmD

Ashkan Vaziri

Associate Professor,
Mechanical and Industrial
Engineering; Northeastern
University, PhD

Elaine Vejar

Assistant Academic Specialist,
College of Professional Studies;
University of Massachusetts,
Lowell, MS

Anand Venkateswaran

Associate Professor and Chase
Research Fellow, Finance;
Georgia State University, PhD

Susan H. Ventura

Associate Clinical Professor,
Physical Therapy; Northeastern
University, PhD

Alessandro Vespignani

Distinguished Professor and
Sternberg Family Endowed
Chair, Physics and Health
Sciences and Computer and
Information Science; University
of Rome La Sapienza (Italy),
PhD

Thomas J. Vicino

Associate Professor, Political
Science; University of
Maryland, PhD

Emanuele Viola

Assistant Professor, Computer
and Information Science;
Harvard University, PhD

Carmine Vittoria

College of Engineering
Distinguished Professor,
Electrical and Computer
Engineering; Yale University,
PhD

Steven Vollmer

Associate Professor, Marine
and Environmental Sciences;
Harvard University, PhD

Robert J. Volpe

Associate Professor,
Counseling and Applied
Educational Psychology;
Lehigh University, PhD

Marsette A. Vona

Assistant Professor, Computer
and Information Science;
Massachusetts Institute of
Technology, PhD

Paul Vouros

Professor, Chemistry and
Chemical Biology;
Massachusetts Institute of
Technology, PhD

Sara Wadia-Fascetti

Professor, Civil and
Environmental Engineering;
Stanford University, PhD

Thomas Wahl

Assistant Professor, Computer
and Information Science;
University of Texas, Austin,
PhD

Thomas Wales

Research Assistant Professor,
Chemistry and Chemical
Biology; Duke University, PhD

Louise E. Walker

Assistant Professor, History;
Yale University, PhD

Suzanna Danuta Walters

Professor, Sociology and
Anthropology and Women's,
Gender, and Sexuality Studies;
City University of New York,
PhD

Richard G. Wamai

Visiting Assistant Professor,
African-American Studies;
University of Helsinki
(Finland), PhD

Kai-tak Wan

Associate Professor,
Mechanical and Industrial
Engineering; University of
Maryland, College Park, PhD

Mitchell Wand

Professor, Computer and
Information Science;
Massachusetts Institute of
Technology, PhD

Ming Wang

College of Engineering
Distinguished Professor, Civil
and Environmental
Engineering; University of New
Mexico, PhD

Meni Wanunu

Assistant Professor, Physics;
Weizmann Institute of Science
(Israel), PhD

Gregory H. Wassall

Associate Professor,
Economics; Rutgers University,
PhD

Barbara L. Waszczak

Professor, Pharmaceutical
Sciences; University of
Michigan, PhD

Mark D. Watanabe

Assistant Clinical Professor,
Pharmacy Practice; University
of California, San Francisco,
PharmD, PhD

Maureen Watkins

Assistant Clinical Professor,
Physical Therapy; Northeastern
University, DPT

Mary E. Watson

Associate Professor, Health
Sciences; Boston University,
EdD

Benjamin Webster

Assistant Professor,
Mathematics; University of
California, Berkeley, PhD

Thomas J. Webster

Professor, Chemical
Engineering; Rensselaer
Polytechnic Institute, PhD

Liza Weinstein

Assistant Professor, Sociology
and Anthropology; University
of Chicago, PhD

Jonathan Weitsman

Robert G. Stone Professor,
Mathematics; Harvard
University, PhD

Brandon C. Welsh

Professor, Criminology and
Criminal Justice; University of
Cambridge (United Kingdom),
PhD

Edward G. Wertheim

Associate Professor,
Management and
Organizational Development;
Yeshiva University (Israel),
PhD

Richard West

Assistant Professor, Chemical
Engineering; University of
Cambridge (United Kingdom),
PhD

Alan West-Durán

Associate Professor,
Languages, Literatures, and
Cultures; New York University,
PhD

Jerzy M. Weyman

Professor, Mathematics;
Brandeis University, PhD

Paul Whitford

Assistant Professor, Physics;
University of California, San
Diego, PhD

Daniel Wicks

Assistant Professor, Computer
and Information Science; New
York University, PhD

Allan Widom

Professor, Physics; Cornell
University, PhD

Peter H. Wiederspahn

Associate Professor,
Architecture; Harvard
University, MArch

Ronald J. Willey

Professor, Chemical
Engineering; University of
Massachusetts, Amherst, PhD

Mark C. Williams

Professor, Physics; University
of Minnesota, PhD

Christo Wilson

Assistant Professor, Computer and Information Science; University of California, Santa Barbara, PhD

Frederick Wiseman

Professor, Supply Chain and Information Management; Cornell University, PhD

John Wolfe

Associate Academic Specialist, College of Professional Studies; Columbia University, EdD

Darien Wood

Professor, Physics; University of California, Berkeley, PhD

Adam Woolley

Assistant Clinical Professor, Pharmacy Practice; Massachusetts College of Pharmacy, PharmD

Arnold Wright

Golemme Research Professor of Accounting, Accounting; University of Southern California, PhD

Sara A. Wylie

Assistant Professor, Sociology and Anthropology and Health Sciences; Massachusetts Institute of Technology, PhD

Yu (Amy) Xia

Associate Professor, Information, Operations, and Analysis; Washington State University, PhD

Shiawee X. Yang

Associate Professor, Finance; Pennsylvania State University, PhD

Mishac K. Yegian

College of Engineering Distinguished Professor, Civil and Environmental Engineering; Massachusetts Institute of Technology, PhD

Edmund Yeh

Associate Professor, Electrical and Computer Engineering; Massachusetts Institute of Technology, PhD

Cheng-Che Yen

Assistant Professor, Physical Therapy; New York University, PhD

Gary Young

Professor, International Business and Strategy and Health Sciences; State University of New York, Buffalo, PhD

Lydia Young

Assistant Academic Specialist, College of Professional Studies; Boston College, MED

Robert F. Young

Associate Professor, Marketing; Harvard University, DBA

Shuishan Yu

Associate Professor, Architecture; University of Washington, PhD

Jennifer Yule

Visiting Assistant Professor, Marketing; Glasgow Caledonian University (Scotland), PhD

Michael H. Zack

Professor, Supply Chain and Information Management; Harvard University, DBA

Christos Zahopoulos

Associate Professor, Engineering and Education; Northeastern University, PhD

Carl Zangerl

Assistant Academic Specialist, College of Professional Studies; University of Illinois, PhD

Alan J. Zaremba

Associate Professor, Communication Studies; State University of New York, Buffalo, PhD

Ibrahim Zeid

Professor, Mechanical and Industrial Engineering; University of Akron, PhD

Edward David Zepeda

Assistant Professor, Supply Chain and Information Management; University of Minnesota, PhD

David P. Zgarrick

Professor, Pharmacy Practice; Ohio State University, PhD

Ke Zhang

Assistant Professor, Chemistry and Chemical Biology; Washington University, St. Louis, PhD

Yue May Zhang

Associate Professor and Harold A. Mock Professor, Accounting; University of Pittsburgh, PhD

Zhaohui Zhou

Associate Professor, Chemistry and Chemical Biology and Barnett Institute; Scripps Research Institute, PhD

Katherine S. Ziemer

Associate Professor, Chemical Engineering; West Virginia University, PhD

Emily Zimmerman

Assistant Professor, Speech-Language Pathology and Audiology; University of Kansas, PhD

Gregory M. Zimmerman

Assistant Professor, Criminology and Criminal Justice; State University of New York, Albany, PhD

Kathrin Zippel

Associate Professor, Sociology and Anthropology; University of Wisconsin, Madison, PhD

Günther K. H. Zupanc

Professor, Biology; University of California, San Diego, PhD; University of Tübingen (Germany), Dr. rer. nat. habil.

Code of Student Conduct

www.osccr.neu.edu

Adopted November 12, 1971; last revised in March 2013.

The purpose of the Code of Student Conduct is to set forth the university's expectations of behavior that promote the safety and welfare of the Northeastern University community. The university seeks to provide a supportive environment that is conducive to learning, the pursuit of truth, the exchange of knowledge, the intellectual development of students, and the general good of society. In those instances where violations of the behavioral expectations occur, Northeastern University has developed policies and procedures to protect the interests of members of the university community, individually and collectively.

APPLICABILITY OF THE CODE ON AND OFF CAMPUS/ JURISDICTION OF THE CODE

The Code of Student Conduct applies to all registered Northeastern University students at all levels of study, in all colleges and programs, locally or abroad, who are enrolled at Northeastern University, as well as all student groups and organizations.

The Code of Student Conduct applies on campus as well as off campus. The university sets guidelines for the behavior of its students. The guidelines are established to promote student conduct that does not adversely affect the educational mission of the university or its relationship with the surrounding community, sister institutions, or members of the university community. Student behavior occurring off campus in violation of the Code or local, state, federal, or host country laws and that could affect the educational mission of the university or its relationship with the surrounding community may subject students to discipline as noted in the Code of Student Conduct.

Violations of the Code of Student Conduct are handled through the Office of Student Conduct and Conflict Resolution. When a student withdraws or takes a leave of absence from the university after engaging in conduct that may violate any of the university's policies, rules, regulations, or standards of conduct, but before the alleged violation has been adjudicated through the conduct process, a hold will be placed on the student's record and the student will be banned from campus. The hold will prevent a student from reenrolling at the university until the alleged violations have been resolved.

GENERAL EXPECTATIONS

As citizens and as members of an academic community, students enjoy the same basic privileges and are bound by the same responsibilities as all citizens. The campus cannot be considered a sanctuary from the general law. Northeastern University assumes that all students will abide by the policies, rules, and regulations of the university and by state, local, federal, and host country laws. The university reserves the right to inform police or other appropriate authorities when student behavior appears to violate criminal laws.

It is recognized that all members of an academic community, individually and collectively, have a right to express their views publicly on any issue; however, the university insists that all such expressions be peaceful and orderly; conducted in a manner consistent with the Code and university policies; and in such a way that university business and respectful academic discourse are not unduly disrupted. Moreover, students must clearly indicate that they are speaking as individuals and not for or on behalf of the university community.

Students are expected to display proper respect for the rights and privileges of other members of the university community and their guests. The atmosphere in classes, laboratories, and residence halls must be free from any sort of undue disruption. Furthermore, students must follow the reasonable directions of university personnel.

Students are expected to be honest and forthright in their course of dealings with the university. Falsification, distortion, or misrepresentation of information to the university or university officials will result in being charged with the appropriate violation of the Northeastern University Code of Student Conduct.

The Code of Student Conduct has been developed with the assistance of students, faculty, and staff of the university.

STUDENT EXPECTATIONS

Each Northeastern student can expect:

1. Written notification of any and all alleged Code of Student Conduct violations within a reasonable (as determined by the OSCCR) period of time from the filing of the complaint or incident report pertinent to those allegations. This notification will state the date, time, and place of the administrative hearing or prehearing meeting, in the case of a Student Conduct Board hearing. The date, place of incident, and the name of the complainant will also be included.

2. The opportunity to reschedule a hearing date up to one (1) business day prior to the hearing, due to academic or other reasonable (as determined by the OSCCR) conflicts.
3. To request that an administrative hearing be suspended after the presentation of evidence should he or she desire to reevaluate his or her responsibility for the charges.
4. To choose not to attend his or her hearing. The hearing will, however, proceed without the respondent's presence.
5. To receive the decision letter within a reasonable (as determined by the OSCCR) period of time from the conclusion of all hearings pertinent to the case.

In cases where a Student Conduct Board hearing is scheduled, the following procedural rights apply, as outlined in the Code of Student Conduct:

1. To review, in writing, all written information pertinent to his or her case a minimum of one (1) business day prior to his or her designated Student Conduct Board hearing date and to rebut unfavorable inferences that might be drawn from such statements during the Student Conduct Board hearing.
2. To a hearing with no fewer than five (5) Student Conduct Board members present. A student may waive this right if he or she wishes to have a hearing convened with no fewer than three (3) Student Conduct Board members.
3. To request the removal of any number of names from the list of prospective conduct board members, with proper notification and explanation.
4. To question witnesses, to produce witnesses on his or her own behalf, and to present substantiating information and written personal statements on his or her own behalf. Witnesses are defined as individuals who were at the incident in question and/or have information pertinent to the incident in question.
5. To choose an advisor, as outlined within the Structure and Procedure section of the Code of Student Conduct, to serve as a guide throughout the Student Conduct Board process.
6. To choose to appeal any decision within five (5) business days of the date of the decision letter on the basis of: procedural error, new information that has arisen that was not available at the time of the hearing, or review of the imposed sanctions based on extraordinary circumstances.

Each Northeastern student has the responsibility:

1. To review and abide by the University's Code of Student Conduct and University Policies and Procedures.
2. To maintain their university email address and respond to any Northeastern University notifications sent directly to the individual student. *Note:* Northeastern considers and assumes any communications sent to a student's official Northeastern email account to be received by the student.
3. To maintain their local address information and update it at the beginning of each semester when they are an active student.

4. To represent the University appropriately both on and off campus.
5. To respect the differences of individuals and treat others in a civil and respectful fashion.
6. To carry their University ID with them at all times and present it to officials when requested.

DECISION-MAKING AUTHORITY

1. The vice president for student affairs is responsible for the overall administration of the Code of Student Conduct as well as the Student Conduct Process. Under the oversight of the vice president for student affairs, the director in the Office of Student Conduct and Conflict Resolution has been charged with the day-to-day responsibility for administering the Code of Student Conduct and the Student Conduct Process.
2. The Student Conduct Board and designated hearing administrators are authorized to take official disciplinary actions in accordance with the policies, regulations, and sanctions contained in the Code of Student Conduct and elsewhere in the *Undergraduate Student Handbook*.
3. The policies and procedures outlined in the Northeastern University Code of Student Conduct will at all times govern the adjudication of matters relating to the Code.

STANDARDS OF CONDUCT

What follows is a listing of the university policies, rules, and regulations that prescribe the standards of conduct the university requires of students. Students are required to become familiar with these policies and must comply with them. Violations of any of these policies will be handled in accordance with the appropriate university procedure.

The use and/or abuse of alcohol and/or drugs will not be considered a mitigating circumstance for any violation of the Code of Student Conduct. Rather, individuals may be additionally charged with the appropriate alcohol or drug violation.

Violations are listed in alphabetical order; the order of violations is not indicative of the seriousness of each violation. All violations are assigned a level representing the degree of seriousness of the violation. That level is listed next to each violation. It should be noted that while the level represents the degree of seriousness of the violation, other factors might be taken into consideration in applying sanctions. Such factors include, but are not limited to, the nature of the violation; severity of the damage, harm, or injury; or the student's past conduct history.

Experience demonstrates that inappropriate behavior will often involve violations of more than one standard of conduct listed in this Code. Repeated violations, multiple violations, or the severity of the misconduct may heighten the university's response and may yield sanctions beyond those discussed in this Code or beyond the suggested seriousness listed in level definitions. Such

heightened response could include suspension or expulsion from the university and/or cancellation of the Residence Hall and Dining License Agreement. In addition, students may incur monetary fines of up to \$200. Information regarding specific sanctions can be found beginning on page 255.

The university reserves the right to notify parents when a student has been referred to the OSCCR.

The definition of each level follows:

LEVEL I

Sanctions for the first violation of Level I are up to and including expulsion.

LEVEL II

Sanctions for the first violation of Level II are up to and including deferred suspension.

LEVEL III

Sanctions for the first violation of Level III are up to and including probation.

LEVEL IV

Sanctions for the first violation of Level IV may be a written warning but can be up to and including probation.

VIOLATIONS

Abuse of Others

1. Verbal, written, graphic, or electronic abuse. (Level II or III*)
2. Harassment (defined as repeated and/or continuing unwanted behavior), coercion, or intimidation of an individual or group, either directly and/or indirectly or on the basis of race, color, religion, religious creed, genetics, sex, sexual orientation, age, national origin, ancestry, disability, or veteran status. (Level II or III*)
3. Bullying, defined as the repeated use of written, verbal, or electronic expression and/or communication and/or a verbal, electronic, or physical act or gesture or any combination thereof, directed at a member of the university community that (i) causes physical, psychological, and/or emotional harm to a university community member or damage to his or her property; (ii) places a university community member in reasonable fear of harm to him- or herself or damage to his or her property; or (iii) creates a hostile, threatening, intimidating, humiliating, or abusive environment (at the university) for a university community member or substantially interferes with his or her educational performance, opportunities, or benefits. For purposes of this section, bullying may include, but is not limited to: social exclusion or isolation, humiliation or degradation, threats, intimidation, harassment, stalking, theft and/or damage/destruction of property, or the perpetuation of any of the conduct listed in this section by inciting, soliciting, or coercing others to demean, embarrass, humiliate, or cause

emotional, psychological, or physical harm to a member of the university community. (Level II or III*)

*The level of sanctioning will be dependent upon the nature of the incident with respect to the above description.

Academic Integrity

As defined in the Academic Integrity Policy (page 29). (Level II)

Aiding and Abetting

Aiding, abetting, or cooperating in an act or action that violates the Code of Student Conduct. A student may be held responsible as though he or she was a direct participant in the violation, even if information indicates he or she was not directly involved in the perpetration of the violation. (Level I through IV*)

*The level of the sanctioning for the student present may depend upon the actual violation committed.

Alcohol Policy

The university expects that all of its students, whether on or off campus, abide by the law and abide by university regulations concerning alcohol and drug use. Where a student engages in conduct off campus that violates university regulations concerning alcohol and drug use and such violation results in behavior that, in the university's sole judgment, is destructive, abusive, or detrimental to the university's interests, the university's conduct process shall apply and such matters will be processed accordingly.

1. A person under the age of twenty-one is prohibited from being in the presence of alcoholic beverages in the residence halls, with the following exception: an individual under the age of twenty-one who has a roommate of legal drinking age may be in the presence of an open container of alcohol in his or her room only if his or her roommate of legal drinking age is also present. Non-roommates who are under the age of twenty-one may not be in the room when alcohol is being consumed by the of-age roommate. (Level IV)
2. A person under the age of twenty-one is prohibited from possessing empty alcohol containers. (Level IV)
3. No postings, announcements, promotions, or ticket sales may be made, placed, or distributed on Northeastern University-owned or -leased property for non-university-sponsored events at which alcohol will be served or consumed. (Level IV)
4. On-campus possession of a keg, beer ball, alcohol by the case, other central sources of alcoholic beverages, or other unauthorized quantities of alcohol is not permitted. Personal possession of alcoholic beverages is limited to one 12-pack of beer (144 ounces/4.26 liters) OR one-half gallon (64 ounces/1.89 liters) of wine OR one pint (16 ounces/470 milliliters) of hard liquor. (Level III)

5. Possession or consumption of alcoholic beverages in locations or under conditions prohibited by university policy or by law. (Level III)
 - a. A person must be of legal drinking age to possess or consume alcoholic beverages. In the United States, the legal drinking age is twenty-one.
 - b. An individual twenty-one years of age or older may possess and/or consume alcohol only in his or her residence hall room or in the residence hall room of another resident who is twenty-one years of age or older and present in the room, provided alcohol is permitted in that residence hall for students of legal age.
 - c. Any person under twenty-one years of age may not transport or carry alcohol on his or her person.
 - d. Prohibited locations include, but are not limited to: university hallways, lobbies, lounges, stairwells, classrooms, studios, technical facilities, auditoriums, bathrooms, outdoor areas, vehicles, or any other public areas without authorization.
6. The possession or use of items that encourage heavy alcohol consumption is prohibited (examples could include alcohol funnel, AWOL [Alcohol Without Liquid] generators or vaporizers, etc.), regardless of age. (Level III)
7. Providing alcohol to anyone under the legal drinking age and/or allowing anyone under the legal drinking age to consume alcohol in on- or off-campus residences. (Level II)
8. Requiring the consumption of alcohol by someone under the legal drinking age as a condition of initiation or admission into, affiliation with, or continued membership or participation in any group or organization.
9. Distribution, sale, or manufacture of alcohol.* (Level I)
 - a. Manufacturing alcohol on Northeastern University–owned or -leased property.
 - b. Selling alcohol without a liquor license, including, but not limited to, the sale of cups and/or any other form of container for the distribution of alcohol.
 - c. Distributing alcohol includes providing a central source or large quantity of alcohol.

SANCTION GUIDELINES FOR VIOLATING THE ALCOHOL POLICY

The sanctions set forth below provide hearing administrators with a starting point for sanctioning cases involving alcohol. Depending on the information obtained through the hearing and the severity of the harm, the imposed sanctions may be enhanced or lessened. Please be advised that students found responsible for violating these regulations risk the cancellation of their Residence Hall License and Dining Agreement.

First Violation

- Disciplinary probation
- Mandatory completion of an alcohol education program
- Fine of \$100

Second Violation

- Deferred suspension from the university
- Mandatory attendance at an alcohol/other drug education program
- Fine of \$200

Third Violation

- Suspension from the university
- Mandatory alcohol counseling to be completed off campus
- Permanent notation to student transcript

*Distribution or sale of alcohol could result in a sanction of at least suspension from the university.

A letter may be sent home to a parent/legal guardian in all cases where there has been a violation of the Alcohol Policy.

Bias-Related Incidents

Conduct prohibited by this Code, including, but not limited to, harassment, bullying, abuse of others, disorderly conduct, and vandalism, which is motivated in whole or part by prejudice toward an individual's or group's real or perceived race, color, religion, religious creed, genetics, sex, sexual orientation, gender identity, age, national origin, ancestry, disability, or veteran status. (Level I)

Breaking and Entering and/or Theft

1. The unauthorized use of ATM, phone, or credit cards; checks; Northeastern University ID cards; or computer systems (this may include any violation of the university's Appropriate Use of Computer and Network Resources Policy on page 30).
2. Forcible access to property.
3. Possession of stolen property.
4. Attempted or actual theft of property, identity, or services. (Level I)

Dangerous Weapons

Possession or use of items that could be used or are used to threaten another individual with physical harm. Those items include, but are not limited to, nunchaku (karate sticks), pepper spray or mace, switchblades, knives, fake guns, tazers, BB guns, fireworks, ammunition, explosive devices, or firearms, except under official supervision as part of a recognized student activity. (Level I)

Disorderly Conduct

Inappropriate, disorderly, or disruptive conduct. Examples include, but are not limited to, disruptive behavior in the classroom, public urination, yelling, or use of profanity. (Level III)

Disruptive Gatherings

Hosting a disruptive gathering, whether on or off campus. Examples include, but are not limited to, gatherings that result in a noise complaint and/or police response, those that are disruptive to

neighbors in any way, excessive attendance beyond what is safe and/or reasonable. (Level II or III*)

*The level of sanctioning will be dependent upon the nature of the incident with respect to the above description.)

Drug Policy

1. Knowingly being in the company of anyone who is using illegal drugs. (Level IV)
2. Possession or consumption of illegal drugs; salvia divinorum; prescription medications belonging to another individual; or over-the-counter substances, nitrous oxide, or other available substances to “get high” or induce a mind-altering state. (Level II)
3. Possession, use, manufacture, distribution, or sale of drug paraphernalia or other items used in preparing or consuming illegal drugs. (Level II)
4. Promotion of illegal drugs. (Level IV)
5. Distribution, sale, or manufacture of drugs (marijuana, mushrooms, prescription drugs, and so on).* This includes the sharing of drugs, cultivation of drugs, and any other form of distribution or intention of distribution. (Level I)

SANCTION GUIDELINES FOR VIOLATING THE DRUG POLICY

The sanctions set forth below provide hearing administrators with a starting point for sanctioning cases involving drugs. Depending on the information obtained through the hearing and the severity of the harm, the imposed sanctions may be enhanced or lessened. Please be advised that students found responsible for violating these regulations risk the cancellation of their Residence Hall License and Dining Agreement.

First Violation

- Deferred suspension from the university
- Mandatory attendance at a drug education program
- Fine of \$200

Second Violation

- Suspension from the university
- Mandatory drug counseling to be completed off campus
- Permanent notation to student transcript

*Distribution, sale, or manufacture of illegal drugs could result in a sanction of expulsion from the university.

A letter may be sent home to a parent/legal guardian in all cases where there has been a violation of the Drug Policy.

Endangering Behavior

Conduct demonstrating that the student constitutes a threat to self or others or to the proper functioning of the university, including, but not limited to, threats, excessive consumption, bypassing security measures, dropping items from a window, and using any item to cause fear and intimidation and/or injury to another. (Level II)

Excessive Consumption

Excessive consumption of alcohol is prohibited regardless of age. Being under the influence of and/or the abuse of drugs is prohibited. Behavioral symptoms frequently associated with excessive consumption or intoxication may include, but are not limited to, impaired motor-skill coordination, difficulty communicating, vomiting, glazed/red eyes, the smell of alcohol on one’s breath, verbal and/or physical aggressiveness, destructive and/or disruptive behavior, and engaging in any behavior that may endanger oneself or others. (Level III alcohol and/or drug)

Failure to Comply

1. Failure to comply with or violation of the terms of an imposed disciplinary sanction.
2. Failure to follow the reasonable directions of university officials (including public safety officers and faculty and staff at Northeastern), law enforcement agents, cooperative work assignment employers, or officials at other colleges and universities that are necessary for the proper conduct of the university and university community. (Level III)

Fire Safety

Breaching campus fire safety or security through:

1. Setting a fire (including charring, burning, lighting of papers, or any other act that could cause a fire), making a bomb threat, causing or creating a false alarm, or other such intentional or reckless conduct that causes harm or reasonable fear of harm to persons or property. (Level I)
2. Misusing, tampering with, or damaging fire safety equipment (including alarm systems, alarmed fire safety doors, smoke detectors, or fire extinguishers). (Level II)
3. Failure to vacate university buildings during or after a fire alarm. (Level III)
4. Entering or reentering a building during a fire alarm. (Level III)

Forgery

Forgery, alteration, or misuse of documents or records (including, but not limited to, parking permits, software and computer databases and/or systems, and/or email). (Level I)

Gambling

On-campus gambling (the unlawful engaging in, playing, operating, or assisting in operating a game of chance for money or some other stake) or the sale of lottery or raffle tickets. (Level IV)

Hazing

Hazing, as defined by Chapter 269 of the Massachusetts General Laws, or defined as follows: any action taken or situation created, whether voluntary or involuntary, for the purpose of initiation, admission into, affiliation with, or as a condition for continued membership in a group or organization that endangers the mental or physical health or safety of a student; creates risk of injury; or

causes mental or physical fatigue or distress, discomfort, embarrassment, harassment, ridicule, or intimidation; causes damage to or destruction of property; or that is a violation of law, university policy, or the Code of Student Conduct. Such activities include, but are not limited to, the following: striking another student by hand or with any instrument; requiring or advocating alcohol or other drug use; late sessions/meetings that interfere with academic activities; tattooing, branding, or piercing; physical or psychological shocks; wearing of apparel in public that is embarrassing, humiliating, or degrading; or games/activities causing or resulting in fatigue, sleep deprivation, mental distress, panic, embarrassment, or humiliation. Activities that would not be considered hazing and therefore acceptable would include agreeing to maintain a specific GPA, comply with a dress code for a team/organizational function, participate in volunteer community service, participate in a team/organizational trip, take an oath, or sign a contract of standards. (Level II)

Inappropriate Sexual Behavior/Sexual Violence

1. Sexual Assault (Level I)

- a. With penetration, defined as the oral, anal, or vaginal penetration by an inanimate object, penis, or other bodily part without consent, as defined below.
- b. Without penetration, defined as the unwanted touching of the intimate body parts of another (for example, breasts, buttocks, groin, genitals, or the clothing covering them).

2. Sexual Misconduct (Level II)

Sexual misconduct is any unwanted act that is intended in a sexual manner or any unwanted touching of a body part not usually considered intimate. Examples include, but are not limited to, providing a back massage to another person, exposing one's genitals or other intimate body parts to a particular person or to the general public; repeated sexually charged verbal abuse related to one's gender; repeated obscene phone calls or mail; or the viewing, filming, photographing and/or recording in any manner or by any means, transmitting, and/or disseminating any recording of any type of sexual acts, partial or full nudity, inappropriate materials, sounds, or images of another person without the knowledge and explicit permission of all parties involved.

CONSENT: Appropriate sexual behavior requires consent from all parties involved. Consent means a voluntary agreement to engage in sexual activity proposed by another and requires mutually understandable and communicated words and/or actions demonstrating agreement by both parties to participate in all sexual activities.

Consent may never be given by minors (in Massachusetts, those not yet 16 years of age); mentally disabled persons; or those who are incapacitated as a result of alcohol or other drug consumption (voluntary or involuntary) or those who are unconscious, unaware, or otherwise physically helpless. Physical force, threats, intimidating behavior, duress, or coercion cannot be used to gain consent. A person who knows or should reasonably have known that another person is incapacitated may

not engage in sexual activity with that person. Incapacitation is a state where one cannot make a rational, reasonable decision because they lack the ability to understand the who, what, when, where, why, or how of their sexual activities.

“Without consent” may be communicated by words and/or actions demonstrating unwillingness to engage in proposed sexual activity.

Additional clarifying notes for consent:

- Consent is mutually understandable when a reasonable person would consider the words and/or actions of the parties to have expressed a mutually understandable agreement between them to do the same thing, in the same way, at the same time, with one another.
- In the absence of mutually understandable words and/or actions, it is the responsibility of the initiator, or the person who wants to engage in the specific sexual activity, to make sure that he or she has consent from his or her partner(s).
- Consent to sexual activity may be withdrawn at any time, as long as the withdrawal is communicated clearly (as set forth by the consent definition) and all sexual activity must cease.
- The person who is the object of sexual advances is not required to physically or otherwise resist.
- Silence, previous sexual relationships or experiences, and/or a current relationship may not, in themselves, be taken to imply consent.
- Use of alcohol or other drugs by the charged student does not mitigate a violation of the Inappropriate Sexual Behavior Policy.
- Coercion is pressure for unwanted sexual activity. When someone makes clear that they do not want to go past a certain point of sexual activity, continued pressure beyond that point may be considered coercive.

Inappropriate Identification

1. The manufacturing, production, and/or distribution of any fake identification. (Level I)
2. Use of identification other than your own or possession of a false or altered ID. (Level III)
3. Representing yourself as someone other than who you are. (Level III)
4. Impersonating a university official. (Level III)

Misrepresentation of Information

Falsification, distortion, or misrepresentation of information to the university or its officials (including public safety officers and faculty and staff at Northeastern), law enforcement agents, cooperative work assignment employers, or officials at other colleges and universities that is intended to mislead in investigations or administrative processes or could adversely affect the mission of the university. (Level III)

Misuse of Electronic Resources

Misuse of electronic systems or methods (for example, email, “hacking,” and so on) to steal, misrepresent, threaten, harass, or bully (including online aggression or cyberbullying) or violations of the Appropriate Use of Computer and Network Resources Policy (page 30) and/or any other computer or system use. (Level III)

Noise

Noise disturbances in residence halls, campus, or neighborhood. (Level IV)

Physical Abuse

Physical abuse of others, including, but not limited to, fights and/or injury caused by endangering behavior. (Level I)

Rioting

Rioting, defined as inciting, participating in, or encouraging any disturbance for purposes of committing any action that presents a clear and present danger to self or others, causes physical harm to persons, or vandalism to or destruction of property. (Level I)

Unauthorized Access

Unauthorized access or entry to, into, or onto any property owned or operated by the university or any private or restricted property. (Level II)

Unauthorized Use/Possession of Other’s Property

Unauthorized use or possession of another’s property. (Level IV)

Unauthorized Use of University Identification Marks

Unauthorized use of the university’s name or other identifying mark including, but not limited to, postings, letterhead, websites, pamphlets, etc. (Level II)

University Guest Policy

Failure to control guests on campus or at university-sponsored events. Refer to the Residence Hall and Dining License Agreement and/or *A Guide to Residence Hall Living* for specific regulations regarding guests in residence halls. (Level I through IV—If a guest violates university policy, the host may be held accountable for actions of the guest. The level of sanctioning for the host may be dependent upon the nature of the incident(s).)

Vandalism

Destruction or defacement of public or private property. (Level III)

Violation of *Guide to Residence Hall Living*

Failure to abide by the rules and regulations set forth for all on-campus students and stated in *A Guide to Residence Hall Living*. (Level IV)

Violation of University Policies

Violation of any university policy, rule, or regulation published in hard copy or available electronically on the university website. (Level IV)

SANCTIONS

Sanctions imposed for a responsible finding will be based on a consideration of the following factors:

1. Nature of the violation(s).
2. Severity of the damage, injury, or harm resulting therefrom.
3. Student’s past disciplinary record.
4. Mitigating circumstances.
5. Aggravating circumstances, which may include bias-motivation.

The following list of sanctions is meant to be illustrative rather than exhaustive. The university reserves the right to create other sanctions as well as choose more than one sanction based on the nature of the misconduct. The university’s sanctions include:

1. Expulsion, which is the permanent separation of the student from the university. Students are permanently banned from entering all university property and prohibited from participating in any university-sponsored activities. A permanent notation, “Withdrawn Expelled (WE),” will appear on the student’s transcript.
2. Suspension, which is the separation of the student from the university for a specified period of time, after which the student is eligible to return. Conditions for readmission may be specified. During the period of suspension, students are banned from entering all university property, may not live in university housing, and are prohibited from participating in any university-sponsored activities. Students are expected to adhere to all university policies while on suspension and will be held accountable for any violations during the period of suspension. Students will not be granted credit for any academic work during the period of suspension (including a cooperative work assignment). A permanent notation, “Withdrawn Disciplinary Action (WDA),” will appear on the student’s transcript.
3. Deferred suspension, which is the most serious formal warning for violation of university rules/regulations that affects the student’s good standing with the university. Students on deferred suspension may be limited in their ability to attend university programs, including those outside the country, during the period of deferred suspension. Deferred suspension is for a designated period of time. If the student is found responsible for violating any additional university rule/regulation during the period of deferred suspension, suspension may become effective and the student may be subject to additional sanctions for the additional violation. Restrictions and/or conditions regarding participation in university-sponsored activities may be

imposed. Students on deferred suspension may be members of organizations but may not hold any elected or appointed position in any recognized student organization or group, represent the student body on any university committee, or serve the university in other leadership positions. A student will continue on disciplinary probation for a specified period of time following the completion of deferred suspension.

4. Disciplinary probation, which is a formal warning for violation of university rules/regulations, affects the student's good standing with the university. Probation is for a designated period of time and includes the probability of more severe sanctions to be imposed if the student is found in violation of any university rules/regulations during the period of probation. Students on probation may be members of organizations but may not hold any elected or appointed position in any recognized student organization or group, represent the student body on any university committee, or serve the university in other leadership positions. Students may run for office while on probation, but they may not take office while still on probation.
5. Letter of warning, which is a formal warning for violation of university rules/regulations, including a statement that continuation or repetition of prohibited conduct may result in more serious sanctions.
6. Cancellation of the Residence Hall and Dining License Agreement, which results in the separation of the student from university residence facilities either permanently or for a definite period of time. Upon the cancellation of the agreement, the student is banned from entering all university residence facilities during the specified period of separation.
7. Loss of ability to hold any office or position, either by election, petition, or appointment, in any recognized student organization or group for a specified amount of time.
8. Loss of membership in teams, clubs, and/or officially recognized organizations.
9. Loss of access to university buildings, facilities, or resources for a specified period of time or permanently.
10. Sanctioned service.
11. Restitution, which requires the student to make payment to the university or to specified individuals, groups, or organizations for costs incurred as a result of violation of university rules/regulations.
12. Loss of guest privileges on campus or in residence halls.
13. Submittal of letter of apology to complainant/victim.
14. Educational sanction, which may include attending a program, counseling, developing a program, writing a paper, or other educational sanction. Students may be charged a fee to attend an educational program.
15. Fines as outlined in the Code of Student Conduct.

The university also reserves the right to sanction any student found responsible, who pleads no contest, or is found responsible in a court of law for a violation of law. In these instances, disciplinary action will be administered through the Office of

Student Conduct and Conflict Resolution and will not be processed by the Student Conduct Board.

Students who are suspended, expelled, or have their Residence Hall and Dining License Agreement canceled are subject to refund policies found in this catalog and the Residence Hall and Dining License Agreement refund policy found in *A Guide to Residence Hall Living*. In addition, students should review their financial aid and scholarship information to get clarification on those policies.

Medical Amnesty Policy

In cases of a drug or alcohol emergency, the primary concern is the health and safety of the individual(s) involved. Students/organizations are strongly encouraged to call for medical assistance (617.373.3333) for themselves or for another student who they observe to be or feel is dangerously intoxicated/under the influence of drugs. If a student/organization calls on behalf of another student, that student/organization is required to remain with the student experiencing the emergency until medical assistance arrives. Neither the caller nor the student requiring medical assistance for an alcohol or other drug-related emergency will be subject to university disciplinary action for the violation of possession or consumption of alcohol or drugs. This policy shall extend to the referring student/organization who called for medical assistance.

The student requiring medical assistance (and possibly the referring student(s)/organization) will receive medical amnesty and will have a confidential "check-in" meeting with a staff member from the Office of Prevention and Education at Northeastern. As long as the student(s)/organization complies with all directives, there will be no disciplinary action taken related to the violation of possession or consumption of alcohol or drugs and no disciplinary record of the incident kept in the Office of Student Conduct and Conflict Resolution. This policy applies only to those students or organizations who seek emergency medical assistance in connection with an alcohol- or drug-related medical emergency and does not apply to individuals experiencing an alcohol- or drug-related medical emergency who are found by university employees (e.g., Northeastern University police, faculty, administrative staff, or residence hall staff) or where the reporting student(s)/organization did not stay with them.

The Medical Amnesty Policy is not intended to shield or protect those students or organizations that repeatedly violate the Code of Student Conduct. When repeated instances of drug or alcohol emergencies occur, the university reserves the right to take disciplinary action on a case-by-case basis regardless of the manner in which the incident was reported.

Medical amnesty applies only to alcohol- or other drug-related emergencies but does not apply to other conduct violations such as, but not limited to, assault, property damage, or distribution of illicit substances. If other violations occur, then a student will face disciplinary charges for those violations. The use or abuse of alcohol or drugs is not considered a mitigating

circumstance for any other violations of the Code of Student Conduct.

Medical amnesty applies only to the university response to a medical emergency. Criminal/police action may still occur separately from the Office of Student Conduct and Conflict Resolution.

Temporary Measures Administrative Directive

If a student or student organization is acting in such a way that may prove to be a violation of the Code of Student Conduct, the vice president for student affairs, or a designee, may issue an administrative directive prohibiting the continuation of such behavior. It is not necessary for there to be current ongoing proceedings or even charges against the student or student organization when an administrative directive is issued. A designated university administrator may issue an administrative directive, according to the guidelines listed, when harm is deemed to be occurring and immediate action is deemed necessary. The Office of Student Conduct and Conflict Resolution will enforce the injunction.

1. A designated university administrator may issue an administrative directive:
 - a. to prevent a student from acting in specified ways that may result in violations of the Code of Student Conduct. The designated university administrator may also prevent a student or student organization from committing an act that would negatively impact or interfere with the Office of Student Conduct and Conflict Resolution proceedings or any other similar proceedings.
 - b. to restrain a student or student organization from assuming or exercising privileges granted to them by the university, pending action, until a final judgment can be rendered.
2. In order to receive an administrative directive, the prohibited action must be within the jurisdiction of the designated administrator issuing such an order or such administrator's designee.
3. The designated administrator sets the date that the administrative directive expires, a period that initially will not exceed 10 days. The 10-day period may be extended for cause or if the restrained party consents to an extension.
4. All administrative directives will specify the reasons for the directive, the act or acts that are prohibited, and the parties bound by such directive.

Interim Suspension

The vice president for student affairs or his or her designee may remove or impose an interim suspension to a student if sufficient facts indicate the student presents a threat to the university community. In most instances, a student who has been intermily suspended from the university will be immediately banned from the university community. Interim suspension may include restrictions on class attendance, access into residence halls,

and/or access to or use of university-owned or -operated property.

Students who have been intermily suspended from the university will have a hold placed on their record and will need to make advance arrangements with the Office of Student Conduct and Conflict Resolution for approval any time they may need to be on campus to take care of university-related business during the period of the interim suspension.

In cases involving interim suspension, every effort will be made to conclude the hearing and obtain a decision from the hearing board within 10 business days after the interim suspension was imposed.

Examples of Violations Typically Heard by the Office of Student Conduct and Conflict Resolution

- Violations while on probation or deferred suspension (that may lead to separation from the university)
- On- or off-campus alcohol distribution
- Second and third alcohol violations
- Second drug violations (and sometimes first when involving numerous violations)
- Violence and sexual assault
- Harassment (defined as repeated and/or continuing unwanted behavior), coercion, or intimidation of an individual or group, either directly and/or indirectly, or on the basis of race, color, religion, religious creed, genetics, sex, sexual orientation, age, national origin, ancestry, disability, or veteran status
- Theft
- Academic integrity
- Off-campus student violations

STRUCTURE AND PROCEDURE OF THE CONDUCT PROCESS

Any academic or administrative official, university staff member, faculty member, law enforcement agency, aggrieved member of the community, or student may file a complaint against any student or student organization for misconduct. The role of the Office of Student Conduct and Conflict Resolution is to provide resolution to incidents where a violation of the university Code of Student Conduct may have occurred; it does not represent either party. The office does not investigate incidents. Therefore, some incidents may not be referred to the Office of Student Conduct and Conflict Resolution to act on until they are fully investigated.

Initiating a Complaint

Any person* wishing to initiate a complaint regarding any Northeastern student may do so by submitting the following information, in writing, to the Office of Student Conduct and Conflict Resolution, if available:

1. Name(s) of the student(s) alleged to have violated the Code of Student Conduct.
2. Description of the incident.
3. Names and contact information of witnesses.
4. Names and contact information of those filing the complaint.

*In general, the person who submits a complaint will serve as the complainant in the conduct process.

Reviewing a Complaint

Once received, the director of the Office of Student Conduct and Conflict Resolution reviews the complaint to determine if a violation of the Code of Student Conduct allegedly occurred. If so, the case is assigned to a staff member. Once a case is assigned and necessary documentation is received, the staff member will determine the appropriate type of hearing to which the student will be assigned (administrative or Student Conduct Board). The student will receive notification via email identifying the incident, charge(s), complainant, and meeting time to discuss the resolution of the case.

Hearing Options

The Residential Life staff will typically process incidents occurring in the residence halls or involving resident students. Hearings heard in Residential Life typically result in sanctions less than suspension.

The Office of Student Conduct and Conflict Resolution typically hears incidents occurring off campus, involving off-campus students, or alleging Academic Integrity violations. The Student Conduct Board hears most cases that can result in suspension or expulsion from the university.

The staff member reserves the right to determine if the incident can be disposed of by alternative means of resolution by mutual consent of the parties involved, on a basis acceptable to the staff member. Such disposition shall be final and there shall be no subsequent proceedings.

Please note: The university reserves the right to resolve cases involving illegal use and/or distribution of drugs, or cases where the safety of the university community is judged to be at risk, administratively rather than through the Student Conduct Board, if necessary, to expediently respond to such violations.

ADMINISTRATIVE HEARING

When the severity of the incident would not result in suspension or expulsion from the university, the student(s) involved attend an administrative hearing with a hearing administrator from either the Office of Student Conduct and Conflict Resolution or Residential Life.

1. Notification: The charged student is emailed an administrative hearing notice to the student's university email account, which notifies the student of the alleged violation(s), the date of the incident, the location of the incident, and the name of the complainant. The email also notifies the student of the date and location of the hearing. If the student is unable

to attend the hearing due to an academic or other reasonable conflict, he or she must contact the hearing administrator no later than one (1) business day prior to the hearing date to request that the hearing be rescheduled.

2. Hearing: In an administrative hearing, the hearing administrator and student meet one-on-one to discuss the incident resulting in the student's attendance at the hearing. The hearing administrator reviews the documentation concerning the incident with the student and the student provides his or her account of the incident. Third parties, including, but not limited to, witnesses, lawyers, parents, guardians, and advisors are not permitted to attend an administrative hearing. The student can present written statements from witnesses, however. The student may request that the administrative hearing be suspended for a brief and agreed-upon amount of time after the presentation of evidence should he or she desire to reevaluate his or her responsibility for the charges. Based on a review of the information available (which may be delayed if continued review of the incident is required for a decision), the hearing administrator determines if the student is responsible for the alleged violation(s) by using a preponderance of the information or a "more likely than not" standard of proof. If the student is found responsible, the hearing administrator renders a sanction(s).
3. Failure to appear: If a student fails to appear for the scheduled meeting, then the hearing administrator has the option to dismiss the action with or without prejudice to either party, set a new hearing date, or make a decision based on the information available.
4. The decision letter: After the hearing administrator makes a determination and applies necessary sanctions, the student will receive a decision letter via email to the student's university email account. The letter will include the rationale for the finding(s), sanctions (if applicable), and information on the appeal process (if applicable). Unless otherwise noted in a student's records, the university reserves the right to notify parents in the outcome of all cases.

STUDENT CONDUCT BOARD HEARINGS

When the severity of the incident would result in suspension or expulsion from the university, or if the facts of the incident are so complex that an administrative hearing is not appropriate, the student(s) involved participate in a Student Conduct Board hearing.

Composition of the Student Conduct Board Hearing

1. The Student Conduct Board shall hear cases involving undergraduate, graduate, online, law, and professional studies students and shall consist of student board members (resident and nonresident students). In cases involving graduate and professional studies students, a simple majority of the board members will be graduate and/or professional studies

students. A hearing may go forward with less than a simple majority of graduate/professional studies students if the charged student(s) give written agreement to move forward.

2. The chair will be a student. His or her responsibilities during the hearing will be to act as presiding officer at hearings and in all voting procedures.
3. A hearing administrator from the Office of Student Conduct and Conflict Resolution will be present during the hearing and all deliberations. The hearing administrator's role is to ensure the procedures are followed during the hearing of all cases. He or she does not vote or represent either party.
4. The board will consist of five student members. A hearing may go forward with a board of three student members provided the charged student(s) give written agreement to move forward.

Prehearing Meeting

The Student Conduct Board hearing begins with a prehearing meeting between the student and hearing administrator.

1. Notification: The charged student is emailed a prehearing meeting notice to the student's university email account, which notifies the student of the alleged violation(s), the date of the incident, the location of the incident, and the name of the complainant. The email also notifies the student of the date and location of the prehearing meeting. If the student is unable to attend the prehearing meeting due to an academic or other reasonable conflict, he or she must contact the hearing administrator no later than one (1) business day prior to the prehearing meeting date to request that the prehearing meeting be rescheduled.
2. In the prehearing meeting, the hearing administrator reviews the incident and the charges against the student and shares the written documentation that forms the basis of the complaint. Third parties, including, but not limited to, witnesses, lawyers, parents, guardians, and advisors are not permitted to attend a prehearing meeting. During the prehearing meeting, the hearing administrator explains the process for resolving the case to the student. The student can either elect to accept responsibility for the charges or contest responsibility for the charges and have the Student Conduct Board hearing scheduled. Upon request, a student can delay this decision for no more than two (2) business days after the prehearing meeting.

During the prehearing meeting, the hearing administrator will share a list of current Student Conduct Board members. The charged student can request the elimination of an unlimited number of potential Student Conduct Board members from his or her hearing. An explanation for this request must be supplied and will be approved at the discretion of the hearing administrator.

- a. Accept responsibility: Students who accept responsibility for the charges are scheduled for an admitted responsibility meeting. At this meeting, a hearing administrator presents

the student's acceptance of responsibility, along with the written documentation, to at least two members of the Student Conduct Board. The student may provide a verbal statement as well as additional written documentation to the board. The members of the Student Conduct Board then determine the sanctions.

- b. Contest responsibility: Students who contest responsibility for the charges are scheduled for a Student Conduct Board hearing at the next available hearing date by an administrator in the Office of Student Conduct and Conflict Resolution (see "Student Conduct Board Hearing Procedures" on page 260). A student's request for an extension must be supplemented by written documentation. An extension will be granted only under extreme circumstances and at the discretion of the Office of Student Conduct and Conflict Resolution.
3. Hearing advisors: Each party may have any one member of the university community serve as a hearing advisor. During the prehearing meeting, the hearing administrator will provide a list of members from the university community who have volunteered to serve as a hearing advisor and have been trained in the conduct process. Staff or faculty who are hired as a student's legal counsel outside the conduct process may not also act as a student's advisor in the university process. The charged student or complainant may act without an advisor if he or she wishes.
 - The role of the advisor is:
 - a. to provide the advisee with assistance in understanding how the hearing will proceed.
 - b. to provide assistance with understanding the resolution process.
 - c. to provide emotional support before, during, and after a hearing. At no time is the advisor permitted to address the board directly.
4. The Office of Student Conduct and Conflict Resolution (OSCCR) reserves the right to refer all students from the same incident to a Student Conduct Board hearing for a resolution, regardless of an individual student's preference regarding acceptance or contesting of responsibility.
5. Should more than one student be involved in an incident going before a Student Conduct Board, then all students involved may be assigned to the same hearing.

End-of-Semester Prehearing Meetings

Students scheduled for a prehearing meeting during the last two weeks of classes or finals week have the option of electing to:

1. choose an administrative hearing to be held prior to leaving for the semester or
2. postpone the hearing and return the following semester for a full Student Conduct Board hearing. This option may involve a financial loss depending on the student's circumstance regarding classes and housing.

Preparing for the Student Conduct Board Hearing

1. Attendance at hearings is limited to parties involved and university officials as deemed necessary by the board and/or by the Office of Student Conduct and Conflict Resolution. Attorneys, parents, or guardians are not permitted in Student Conduct Board hearings. The hearing administrator has the right to adjust this timeline should the case warrant such a change.
2. Written documentation: All parties involved have the opportunity to submit written documentation no later than two (2) business days prior to the hearing.
3. Witnesses may be presented by the complainant or the charged student provided that a witness list is submitted to the Office of Student Conduct and Conflict Resolution two (2) business days prior to the hearing. Live character statements are not permitted. A written request requiring the appearance of an individual before the Student Conduct Board may be issued by a staff member of the Office of Student Conduct and Conflict Resolution if it is determined that the person's appearance is necessary in providing information for the board to make a decision regarding a student's case.

Failure to Appear

If either party fails to appear when the case is called for a hearing, the Student Conduct Board or hearing administrator, in their sole discretion, may dismiss the action with or without prejudice to either party, set a new hearing date, or continue the hearing without that party present and/or represented. In the last instance, the board or hearing administrator may make decisions regarding responsibility and sanction the charged student as appropriate.

Off-campus legal proceedings will not be grounds for delay.

STUDENT CONDUCT BOARD HEARING PROCEDURES

1. Presentation of information shall generally proceed as follows:
 - a. Complainant's (complainant is the individual or the office that initiated a complaint to the Office of Student Conduct and Conflict Resolution) opening statement and perspective.
 - Questioning of complainant (charged student and conduct board members)
 - b. Charged student's (a charged student is the individual(s) charged with a violation of the Code of Student Conduct) opening statement and perspective.
 - Questioning of charged student (complainant and conduct board members)
 - c. Statements from complainant's witnesses.
 - Questioning of complainant's witnesses (complainant, charged student, and conduct board members)

- d. Statements from charged student's witnesses.
 - Questioning of charged student's witnesses (charged student, complainant, and conduct board members)
 - e. Final questions from the Student Conduct Board.
 - f. Complainant's closing statement.
 - g. Charged student's closing statement, including any statement as to mitigating circumstances.
 - h. The board may ask questions at any time during the hearing.
2. During the course of a hearing, all points of clarification shall be determined by the hearing administrator or a majority vote of the Student Conduct Board members.
 3. Student Conduct Board proceedings are audio-recorded for the purpose of appeals only. Students who appeal may request to listen to the recording of the hearing in the Office of Student Conduct and Conflict Resolution. Recordings are not to be removed from the Office of Student Conduct and Conflict Resolution. Recordings are destroyed upon expiration of the appeal period.
 4. Determinations of responsibility are made based on a preponderance of information or a "more likely than not" determination and a simple majority vote by the board.
 5. All records of the case will be confidential.
 6. Members of the Northeastern University police department may be requested to be present at hearings when the case warrants it.
 7. Determinations to impose a Level I sanction for any violation other than a Level I violation shall require a simple majority vote.
 8. Determinations made by a Student Conduct Board or an administrator for all hearings will be recommended to the director/vice president for student affairs, or designee, for final approval.
 9. The decision letter: After the Student Conduct Board makes a determination and applies necessary sanctions, the student will receive a decision letter via email to the student's university email account. The letter will include the rationale for the finding(s), sanctions (if applicable), and information on the appeal process (if applicable). Unless otherwise noted in the student's record, the university reserves the right to notify parents of the outcome of all cases, consistent with applicable law.

In cases involving sexual violence, abuse of others, physical abuse, and academic integrity, the administrator will notify both parties of the decision of the hearing via written communication. The letter to the charged student will include the rationale for the finding, sanctions (if applicable), and information on the appeal process (if applicable). Unless otherwise noted in a student's records, the university reserves the right to notify parents of the outcome of all cases. The letter to the complainant will include the finding(s), the sanctions that directly relate to the complainant, and information on the appeal process (if applicable).

PROCEDURES FOR STUDENT APPEALS

Students may appeal disciplinary actions based on the following:

- a. The student asserts a procedural error that impaired his or her right to a fair opportunity to be heard.
- b. Information has arisen that could not reasonably have been made available during the original hearing and may be sufficient to alter the original Student Conduct Board/officer's decision.
- c. The student requests a review of the sanction(s) because of extraordinary circumstances.

Students may appeal disciplinary actions as follows:

1. Appeals of Student Conduct Board or administrative hearings must be made in writing, by the charged student, and received by the Office of Student Conduct and Conflict Resolution no more than five (5) business days after the receipt date of the decision letter. It is the student's responsibility to obtain a copy of the decision letter. The student must fill out the appeal form that was included with the decision letter, as well as submit a rationale for the appeal letter that specifically addresses the reason for the appeal. The appeals process is primarily a paper process and will not typically involve a meeting with the charged student or other persons unless requested by the Appeals Board. The appropriate appeals body will review the paper appeal submitted by the charged student, the documentation from the original case, and any other information deemed necessary by the Office of Student Conduct and Conflict Resolution and will make a decision. The audio recording of the original hearing (in the case of Student Conduct Board hearings) will be made available to the Appeals Board as well.
2. Appeals of hearings heard by Residential Life staff will be reviewed by the director of the Office of Student Conduct and Conflict Resolution or his or her designee.
3. Appeals of hearings heard by an administrator in the Office of Student Conduct and Conflict Resolution and appeals of Student Conduct Board cases will be heard by the Appeals Board. Appeals Board members are individuals who were not involved in the original hearing. The Appeals Board will consist of three voting members (one of whom will be the chair). The board will be comprised of two representatives from Academic Affairs and Enrollment Management and Student Affairs and a Student Conduct Board member. The director of the Office of Student Conduct and Conflict Resolution or designee will serve as an ex-officio member of the Appeals Board.
4. The Appeals Board will take one of the following actions:
 - a. Concur with original action.
 - b. Refer the matter to the appropriate hearing body if based on a procedural error. In this case, the entire case may be reheard, as if it had not been heard before.
 - c. Refer the matter back to the original hearing board if based on the grounds of new information. The original board;

complainant; charged students; and if required, witnesses, will be reconvened to review only the new information. The board will then render a decision based on the new information.

- d. Mitigate the sanctions. Students should understand that this option would be exercised only in rare circumstances. The university reserves the right to take any action necessary to corroborate the student's statements.
5. All decisions of the Appeals Board are final.

MAINTENANCE OF DISCIPLINARY RECORDS

1. The university will permanently maintain the conduct records of those students separated from Northeastern by suspension or expulsion. The comment "Withdrawn, Expulsion" will be printed on the student's transcript if the student is expelled. The comment "Withdrawn, University Action" will be printed on the student's transcript if the student is suspended.
2. The university will expunge the conduct records of those students who received sanctions other than suspension or expulsion three (3) years after the student's withdrawal or immediately upon their graduation date from Northeastern.
3. Students have the right to submit any documentation in their conduct file to amend a record they believe to be inaccurate or misleading.

INTERPRETATION AND APPLICATION

1. Any question of interpretation or application of the Code of Student Conduct shall be referred to the director of the Office of Student Conduct and Conflict Resolution.
2. The Code of Student Conduct and its related procedures do not preempt or supplant any similar rules and regulations maintained by individual colleges, programs, departments, or offices. For example, student-athletes and members of student organizations must abide by the policies of the athletics department and Office of Campus Activities, respectively. Any proceedings under such policies may run concurrently with those described herein.

Statements of Accreditation

ACCREDITATION

Northeastern University has maintained its status as a member in good standing of the New England Association of Schools and Colleges (NEASC) Commission on Institutions of Higher Education (CIHE) since it was awarded its initial accreditation in 1940. The university was last reviewed by NEASC in 2008 and will be reviewed again in fall 2018.

Northeastern University possesses degree-granting authority in Massachusetts, under the auspices of the Massachusetts Board of Higher Education.

Program	Accrediting Agency
Northeastern University	New England Association of Schools and Colleges (NEASC)

Bouvé College of Health Sciences

BS in Athletic Training	Commission on Accreditation of Athletic Training Education (CAATE)
MS in Speech-Language Pathology and Audiology	Council on Academic Accreditation in Audiology and Speech-Language Pathology (CAA) of the American Speech-Language-Hearing Association (ASHA), Massachusetts Board of Education*
BS in Nursing	Commission on Collegiate Nursing Education (CCNE) and Massachusetts Board of Registration in Nursing**
MS in Physician Assistant Studies	Accreditation Review Commission on Education for the Physician Assistant, Inc. (ARC-PA)
MS in Nursing	Commission on Collegiate Nursing Education (CCNE) and Massachusetts Board of Registration in Nursing**
MS in Nursing in Anesthesia	Council on Accreditation of Nurse Anesthesia Educational Programs (COA); Commission on Collegiate Nursing Education (CCNE) and Massachusetts Board of Registration in Nursing**
Registered Nurse/BSN***	Commission on Collegiate Nursing Education (CCNE) and Massachusetts Board of Registration in Nursing**

Program	Accrediting Agency
Post BS Doctor of Nursing Practice US Army Program in Anesthesia Nursing (USAGPAN)	Council on Accreditation of Nurse Anesthesia Educational Programs (COA)
DPT in Physical Therapy	Commission on Accreditation of Physical Therapy Education (CAPTE)
MS/MBA (two-year program)	Commission on Collegiate Nursing Education (CCNE) and Massachusetts Board of Registration in Nursing**; Commission on Collegiate Nursing Education (CCNE) and the Association to Advance Collegiate Schools of Business (AACSB International)
MS and CAGS in Applied Educational Psychology—School Psychology	Massachusetts Department of Education (DOE) and National Association of School Psychologists (NASP)
MS in Applied Educational Psychology—School Counseling	Massachusetts Department of Education (DOE)
AuD in Audiology	Council on Academic Accreditation in Audiology and Speech-Language Pathology (CAA) of the American Speech-Language-Hearing Association (ASHA), Massachusetts Board of Education*
MPH Master of Public Health in Urban Health	Council on Education for Public Health
PharmD	Accreditation Council for Pharmacy Education (ACPE)
PhD in Counseling and School Psychology	American Psychology Association (APA)
College of Arts, Media and Design	
Master of Architecture (Urban Architecture)	National Architectural Accreditation Board (NAAB)

Program	Accrediting Agency
D'Amore-McKim School of Business	
BS in Business Administration	AACSB International—The Association to Advance Collegiate Schools of Business
BS and MS in International Business	AACSB International—The Association to Advance Collegiate Schools of Business
MBA	AACSB International—The Association to Advance Collegiate Schools of Business
MS in Finance	AACSB International—The Association to Advance Collegiate Schools of Business
MS in Taxation	AACSB International—The Association to Advance Collegiate Schools of Business
MS in Accounting	AACSB International—The Association to Advance Collegiate Schools of Business
MS in Accounting/MBA	AACSB International—The Association to Advance Collegiate Schools of Business
MS in Finance/MBA	AACSB International—The Association to Advance Collegiate Schools of Business
MS in Technological Entrepreneurship	AACSB International—The Association to Advance Collegiate Schools of Business
College of Computer and Information Science	
BS in Computer Science	Computing Accreditation Commission of ABET (Accreditation Board for Engineering & Technology)
College of Engineering	
BS in Computer Engineering	Engineering Accreditation Commission of ABET
BS in Chemical Engineering	Engineering Accreditation Commission of ABET
BS in Civil Engineering	Engineering Accreditation Commission of ABET
BS in Electrical Engineering	Engineering Accreditation Commission of ABET
BS in Industrial Engineering	Engineering Accreditation Commission of ABET
BS in Mechanical Engineering	Engineering Accreditation Commission of ABET

Program	Accrediting Agency
College of Professional Studies	
AS and Certificate in Paramedic Technology	Massachusetts Department of Public Health, Office of Emergency Medical Services
BS in Finance and Accounting Management***	AACSB International—The Association to Advance Collegiate Schools of Business
BS in Management***	AACSB International—The Association to Advance Collegiate Schools of Business
BS and AS in Computer Engineering Technology	Accredited by the Technology Accreditation Commission of ABET, 111 Market Place Suite 1050 Baltimore, MD 21202-4012 Telephone: 410.347.7700
BS and AS in Electrical Engineering Technology	Accredited by the Technology Accreditation Commission of ABET, 111 Market Place Suite 1050 Baltimore, MD 21202-4012 Telephone: 410.347.7700
BS and AS in Mechanical Engineering Technology	Accredited by the Technology Accreditation Commission of ABET, 111 Market Place Suite 1050 Baltimore, MD 21202-4012 Telephone: 410.347.7700
Education Programs in:	
Teacher of Biology, 8–12	Massachusetts Department of Elementary and Secondary Education
Teacher of Chemistry, 8–12	Massachusetts Department of Elementary and Secondary Education
Teacher of Earth Science, 5–8, 8–12	Massachusetts Department of Elementary and Secondary Education
Teacher of Mathematics, 5–8, 8–12	Massachusetts Department of Elementary and Secondary Education
Teacher of Physics, 8–12	Massachusetts Department of Elementary and Secondary Education
Elementary Education, 1–6	Massachusetts Department of Elementary and Secondary Education
Teacher of English, 8–12	Massachusetts Department of Elementary and Secondary Education

Program	Accrediting Agency
Teacher of Foreign Language: Spanish, 5–12	Massachusetts Department of Elementary and Secondary Education
Teacher of History, 8–12	Massachusetts Department of Elementary and Secondary Education
Teacher of Political Science/Political Philosophy, 8–12	Massachusetts Department of Elementary and Secondary Education
Teacher of Students with Moderate Disabilities Pre-K–8, 5–12	Massachusetts Department of Elementary and Secondary Education
MS in Leadership with Project Management	Project Management Institute’s Global-Accreditation-Center
MS in Technology Commercialization	AACSB International—The Association to Advance Collegiate Schools
College of Social Sciences and Humanities	
BS in Criminal Justice	Massachusetts Board of Education*
MS in Criminal Justice	Massachusetts Board of Education*
PhD in Criminal Justice	Massachusetts Board of Education*
Master of Public Administration	National Association of Schools of Public Affairs and Administration
School of Law	
JD	American Bar Association Association of American Law Schools****

*The Massachusetts Board of Education approves (not accredits) programs.

**The Massachusetts Board of Registration in Nursing approves (not accredits) programs.

***Accredited under the aegis of the “sponsoring” full-time college.

****The Association of American Law Schools is an elected membership organization, not an accrediting body.

STATE LICENSURE

Licensed by the South Carolina Commission on Higher Education, 1122 Lady Street, Suite 300, Columbia, SC 29201, Telephone 803.737.2260. Licensure indicates only that minimum standards have been met; it is not an endorsement or guarantee of quality. Licensure is not equivalent to or synonymous with accreditation by an accrediting agency recognized by the U.S. Department of Education.

Northeastern University is registered as a Private Institution with the Minnesota Office of Higher Education pursuant to sections 136A.61 to 136A.71. Registration is not an endorsement of the institution. Credits earned at the institution may not transfer to all other institutions.

APPROVALS, AUTHORIZATIONS, AND EXEMPTIONS

See the corresponding addendum at www.northeastern.edu/registrar/appr-auth-exem.html for up-to-date regulatory information specific to Northeastern’s online program offerings.

Institutional Calendars and Online Resources

The online resources listed below supplement this catalog.

INSTITUTIONAL CALENDARS

University events:

www.curry.neu.edu

Academic calendars:

www.northeastern.edu/registrar/calendars.html

OTHER ONLINE RESOURCES

Course descriptions:

www.northeastern.edu/registrar/banner-catalog.html

Class schedules:

www.northeastern.edu/registrar/banner-schedule.html

Campus maps:

www.northeastern.edu/campusmap

The *Northeastern University Graduate Catalog* contains the university's primary statements about these academic programs and degree requirements, as authorized by the president or the Board of Trustees. For information about other academic policies and procedures; student responsibilities; student academic and cocurricular life; faculty rights and responsibilities; or general personnel policies, benefits, and services, please refer to the *Cooperative Education Student Handbook*, *Faculty Handbook*, and related procedural guides, as appropriate.

Accreditation. Northeastern University is accredited by the New England Association of Schools and Colleges, Inc.

Delivery of Services. Northeastern University assumes no liability for delay or failure to provide educational or other services or facilities due to causes beyond its reasonable control. Causes include, without limitation, power failure, fire, strikes by university employees or others, damage by natural elements, and acts of public authorities. The university will, however, exert reasonable efforts, when it judges them to be appropriate, to provide comparable services, facilities, or performance; but its inability or failure to do so shall not subject the university to liability.

The *Northeastern University Graduate Catalog* contains current information about the university calendar, admissions, degree requirements, fees, and regulations; however, such information is not intended and should not be regarded to be contractual.

Northeastern University reserves the sole right to promulgate and change rules and regulations and to make changes of any nature in its program; calendar; admissions policies, procedures, and standards; degree requirements; fees; and academic schedule whenever necessary or desirable, including, without limitation, changes in course content and class schedule, the cancellation of scheduled classes and other academic activities, and the substitution of alternatives for scheduled classes and other academic activities. In any such case, the university will give whatever notice is reasonably practical.

Northeastern University will endeavor to make available to its students a fine education and a stimulating and congenial environment. However, the quality and rate of progress of an individual's academic career and professional advancement upon completion of a degree or program are largely dependent on his or her own abilities, commitment, and effort. In many professions and occupations, there are also requirements imposed by federal and state statutes and regulatory agencies for certification or entry into a particular field. These requirements may change while a student is enrolled in a program and may vary from state to state or country to country. Although the university stands ready to help its students find out about requirements and changes in them, it is the student's responsibility to initiate the inquiry.

Tuition Default Policy. In cases where the student defaults on his/her tuition, the student shall be liable for the outstanding tuition and all reasonable associated collection costs incurred by the university, including attorneys' fees.

Emergency Closing of the University. Northeastern University posts emergency announcements, including news of weather-related closings, on its homepage, at www.northeastern.edu, and notifies members of the community individually through the NU ALERT system. In addition, the university has made arrangements to notify students, faculty, and staff by radio and television when it becomes necessary to cancel classes because of extremely inclement weather. AM stations WBZ (1030), WILD (1090), and WRKO (680), and FM station WBUR (90.9) are the radio stations authorized to announce the university's decision to close. Television stations WBZ-TV4, WCVB-TV5, and WHDH-TV7 will also report cancellations. Since instructional television courses originate from live or broadcast facilities at the university, neither the classes nor the courier service operates when the university is closed. Please listen to the radio or television to determine whether the university will be closed.

If a storm occurs at night, the announcement of university closing is given to the radio stations at approximately 6 a.m. Classes are generally canceled for that entire day and evening at all campus locations unless stated otherwise. When a storm begins late in the day, cancellations of evening classes may be announced. This announcement is usually made between 2 and 3 p.m.

Equal Opportunity Policy. Northeastern University does not discriminate on the basis of race, color, religion, sex, sexual orientation, age, national origin, disability, or veteran status in admission to, access to, treatment in, or employment in its programs and activities. In addition, Northeastern University will not condone any form of sexual harassment. Handbooks containing the university's nondiscrimination policies and its grievance procedures are available in the Office of Institutional Diversity and Inclusion, 125 Richards Hall. Inquiries regarding the university's nondiscrimination policies may be directed to:

Office of Institutional Diversity and Inclusion
125 Richards Hall
Northeastern University
Boston, Massachusetts 02115
617.373.2133

Inquiries concerning the application of nondiscrimination policies may also be referred to the Regional Director, Office for Civil Rights, U.S. Department of Education, 8th Floor, 5 Post Office Square, Boston, MA 02109-3921.

Disability Resource Center. The Disability Resource Center provides a variety of disability-related services and accommodations to Northeastern University's students and employees with disabilities.

Northeastern University's compliance with Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990 are coordinated by the senior director of the Disability Resource Center. Persons requiring information regarding the Disability Resource Center should contact the center at 617.373.2675 or 617.373.2730 (TTY).

Family Educational Rights and Privacy Act. In accordance with the Family Educational Rights and Privacy Act of 1974, Northeastern University permits its students to inspect their records wherever appropriate and to challenge specific parts of them when they feel it is necessary to do so. Specific details of the law as it applies to Northeastern are printed in the *Undergraduate Student Handbook* and *Graduate Student Handbook* and are distributed annually at registration for the university's colleges and graduate schools.

Cleary Act. Northeastern is committed to assisting all members of the university community in providing for their own safety and security. Information regarding campus security and personal safety, including topics such as crime prevention, university police law enforcement authority, crime reporting policies, crime statistics for the most recent three-year period, and disciplinary procedures, is available upon request from the Northeastern University Director of Public Safety, 360 Huntington Avenue, Boston, MA 02115, or by calling 617.373.2696.

Mission Statement:

To educate students for a life of fulfillment and accomplishment.
To create and translate knowledge to meet global and societal needs.

NU 09.13.13