Graduate School of Engineering petition system. Students may substitute restricted electives not counted as part of their required core courses as a restricted elective. Students may substitute restricted electives not counted as part of their restricted electives as other electives. In addition to the other electives listed for each concentration, any graduate CIVE course can be counted as an other elective. Other courses, outside the CIVE department and not listed as an other elective, may also be considered as other electives, but these courses require a petition approved by the concentration advisor via the Graduate School of Engineering petition system.

Doctor of Philosophy
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
Curriculum and Graduation Requirements by Program

The 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.

To meet the full-time registration requirement for PhD students who have completed the majority of their course work and not yet reached PhD candidacy, a zero-credit course, CIVE 8960 Exam Preparation, can be taken if needed to fulfill full-time course registration. The course is an individual instruction course, billed at 1 semester hour, and graded S or U. There is no course content, and students must register in a section with their research or academic advisor as the “instructor.”

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
After achieving PhD candidacy, 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
Complete all courses and requirements listed below unless otherwise indicated.

MILESTONES
Qualifying exam and comprehensive exam
Annual review
Dissertation proposal
Dissertation committee
Dissertation defense

GENERAL REQUIREMENTS
Complete 20 semester hours of approved course work. A maximum of 4 semester hours from the following course:
CIVE 7978 Independent Study 1 to 4 SH
is allowed to count toward approved course work. Consult your faculty advisor for acceptable courses.

DISSERTATION COURSES
Complete the following (repeatable) course twice:
CIVE 9990 Dissertation 0 SH

PROGRAM CREDIT/GPA REQUIREMENTS
20 total semester hours required
Minimum 3.000 GPA required

PhD in Civil Engineering—Bachelor’s Degree Entrance
Complete all courses and requirements listed below unless otherwise indicated.

MILESTONES
Qualifying exam and comprehensive exam
Annual review
Dissertation proposal
Dissertation committee
Dissertation defense

GENERAL REQUIREMENTS
Complete 52 semester hours of approved course work. A maximum of 4 semester hours from the following course:
CIVE 7978 Independent Study 1 to 4 SH
is allowed to count toward approved course work. Consult your faculty advisor for acceptable courses.

DISSERTATION COURSES
Complete the following (repeatable) course twice:
CIVE 9990 Dissertation 0 SH

PROGRAM CREDIT/GPA REQUIREMENTS
52 total semester hours required
Minimum 3.000 GPA required