Welcome to our graduate program!

Congratulations on your acceptance to Northeastern University's Department of Civil and Environmental Engineering (CEE). We are delighted you have decided to join our program.

Please find below some important information to help you with the admissions process and facilitate your transition to our program. This information mostly pertains to MS students. PhD students admitted to the Civil and Environmental Engineering or Interdisciplinary programs may find additional information <u>here</u>.

Assignment of Faculty Advisor

If your admission letter does not specify a faculty advisor, you will be assigned an initial faculty advisor during Orientation based on your concentration area. Your initial advisor will assist you in entering the program, choosing courses, and more. The faculty advisors for the different areas and programs are listed below.

Associate Chair for Graduate Studies: Professor Andrew Myers

MS in Civil Engineering Construction Management: <u>Professor Ryan Wang</u> Data and Systems: <u>Professor Amy Mueller</u> Geotechnical/Geoenvironmental Engineering: <u>Professor Craig Shillaber</u> Structures: <u>Professor Mike Kane</u> Transportation: <u>Professor Peter Furth</u> Water, Environmental, and Coastal Systems: <u>Professor Ed Beighley</u>
MS in Environmental Engineering: <u>Professor Amy Mueller</u>
MS in Climate Science and Engineering: <u>Professor Matthew Eckelman</u>
MS in Engineering & Public Policy: <u>Professor Matthew Eckelman</u>
MS in Sustainable Building Systems: Professor David Fannon

The above also serve as Graduate Advisors for the corresponding areas of study in the CEE Ph.D. program. Professor <u>Jim Chen</u> is the Graduate Advisor for the Interdisciplinary Ph.D. program.

Curriculum and Class Registration

To be able to register for classes, admitted students need to first confirm their enrollment and pay their enrollment deposit. Students may do so by logging into their <u>application portal</u>.

All students are strongly urged to register for courses at this time to enable us to ascertain the likely enrollments in each course. Once you arrive on campus and

consult with your academic advisor, you can change your course selections as needed, including adding and dropping courses until the end of the second week of the term.

For a detailed list of graduate courses (core, electives, etc.), please refer to the CEE Graduate Catalog, available on-line <u>here</u>. For course descriptions, please check <u>here</u>.

For the complete and updated calendar of Fall 2024 courses, please visit the "<u>Banner</u> <u>Dynamic Class Schedule</u>", maintained online by the Office of the Registrar. Please select Fall 2023 for the term, then "Civil and Environmental Engineering" for Subject and "Graduate" for Course Level. For courses offered by other departments, please refer to the corresponding webpage or email CEE Program Coordinator, Rebecca Ricard, at <u>r.ricard@northeastern.edu</u>.

For completion of the MS program, please read the degree course requirements described in the CEE Graduate Catalog as listed above. There are different MS degree options. Consult with your academic advisor regarding the degree options and course requirements. Typical recommendations for initial courses for MS students by discipline concentrations are provided later in this letter.

For completion of the PhD program, please read the degree course requirements described in the CEE Graduate Catalog. Consult with your advisor regarding the core and elective course requirements.

Sample Course Selections

The following section provides examples of typical course selections for each concentration area. It is recommended to take two to four courses in a semester, with two to three courses being common for first semester students. Note that this is for your reference only; we recommend you consult with your advisor and look at the course catalog for more in-depth information, particularly to ensure you have the appropriate prerequisites.

MASTER'S IN CIVIL ENGINEERING

Construction Management Concentration

Required Core Courses

CIVE 7220 – Construction Management CIVE 7230 – Legal Aspects of Civil Engineering EMGT 6305 – Financial Management for Engineers IE 6200 – Engineering Probability and Statistics

Electives

CIVE 7151 – Urban Informatics and Processing

ACCT 6200 - Financial Reporting and Managerial Decision Making 1

ACCT 6201 – Financial Reporting and Managerial Decision Making 2

DAMG 6210 -- Data Management and Database Design

EMGT 5300 - Engineering/Organizational Psychology

GE 5010 - Customer-Driven Technical Innovation for Engineers

GE 5100 - Product Development for Engineers

IE 5617 - Lean Concepts and Applications

- IE 5640 Data Mining for Engineering Applications
 - or IE 7275 Data Mining in Engineering
- IE 7215 Simulation Analysis

IE 7290 - Reliability Analysis and Risk Assessment

INFO 6215- Business Analysis and Information Engineering

INFO 6245 - Planning and Managing Information Systems Development

OR 6205 - Deterministic Operations Research

SBSY 5250 - Building Performance Simulation

SBSY 5300 – Information Systems for Integrated Project Delivery

The full list of Required and Restrictive Electives for Construction Management is found <u>here</u>.

Data and Systems Concentration

Data and Computing

CIVE 7151 – Urban Informatics and Processing

CIVE 7100 – Time Series and Geospatial Data Sciences

ENVR - 6500 – Biostatistics

or IE 6200 – Engineering Probability and Statistics

or IE 7280 – Statistical Methods in Engineering

or INSH 5301 - Introduction to Computational Statistics

IE 7275 – Data Mining in Engineering

PPUA 5262 - Big Data for Cities

DAMG 6105 - Data Science Engineering with Python

DAMG 6210 - Data Management and Database Design

ENVR 5260 - Geographical Information Systems

IE 5640 - Data Mining for Engineering Applications or IE 7275 - Data Mining in Engineering

Systems and Sensors

CIVE 5261 – Dynamic Modeling for Environmental Investment and Policy Making

EECE 5155 - Wireless Sensor Networks and the Internet of Things

OR 6205 – Deterministic Operations Research

OR 7245 - Network Analysis and Advanced Optimization

PHYS 5116 – Network Science 1

PPUA 6502 – Economic Analysis for Policy and Planning

Civil and Environmental Systems

CIVE 5363 - Climate Science, Engineering Adaptation, and Policy

CIVE 7110 - Critical Infrastructure Resilience

CIVE 7381 – Transportation Demand Forecasting and Model Estimation

IE 7200 – Supply Chain Engineering

OR 7310 – Logistics, Warehousing, and Scheduling

SBSY 5250 – Building Performance Simulation

Electives

CIVE 7220 – Construction Management

- CIVE 7250 Environmental Chemistry
- CIVE 7251 Environmental Biological Processes

CIVE 7260 – Hydrologic Modeling

CIVE 7382 – Advanced Traffic Control and Simulation

EECE 5644 - Introduction to Machine Learning and Pattern Recognition

EECE 7204 - Applied Probability and Stochastic Processes

IE 5617 - Lean Concepts and Applications

IE 7215 - Simulation Analysis

The full list of Required and Restrictive Electives for Data and Systems can be found <u>here</u>.

Geotechnical/Geoenvironmental Concentration

Required Core Requirements

CIVE 7302 – Advanced Foundation Engineering

Electives

CIVE 7230 – Legal Aspects of Civil Engineering CIVE 7250 – Environmental Chemistry CIVE 7251 – Environmental Biological Processes CIVE 7260 – Hydrologic Modeling CIVE 7313 – Ground Improvement CIVE 7330 – Advanced Structural Analysis CIVE 7331 – Structural Dynamics IE 6200 - Engineering Probability and Statistics IE 7290 - Reliability Analysis and Risk Assessment ME 5657 – Finite Element Method

The full list of Required and Restrictive Electives for Geotechnical Engineering is found <u>here</u>.

Structures Concentration

Required Core Courses

CIVE 7330 – Advanced Structural Analysis CIVE 7331 - Structural Dynamics

Restricted Electives

CIVE 5522 – Structural Systems Modeling CIVE 7342 – System Identification CIVE 7351 – Behavior of Steel Structures

Other Electives

CIVE 7151 – Urban Informatics and Processing ME 5240 – Computer Aided Design and Manufacturing ME 5655 – Dynamics and Mechanical Vibration SBSY 5100 – Sustainable Design and Technologies in Construction

The full list of Required and Restrictive Electives for Structures is found here.

Transportation Concentration

Required Core Courses

CIVE 5376 – Traffic Engineering and Sustainable Urban Street Design IE 6200 – Engineering Probability and Statistics

Restricted Electives

CIVE 7151 – Urban Informatics and Processing CIVE 7381 – Transportation Demand Forecasting and Model Estimation CIVE 7382 Advanced Traffic Control and Simulation

The full list of Required and Restrictive Electives for Transportation is found here.

Water, Environmental, and Coastal Systems Concentration

Course suggestions for Water, Environmental, and Coastal Systems Concentration Students:

Required Core Courses

CIVE 7250 – Environmental Chemistry CIVE 7251 – Environmental Biological Processes CIVE 7260 – Hydrologic Modeling

Restricted Electives

CIVE 5261 – Dynamic Modeling for Environmental Investment and Policymaking CIVE 5363 – Climate Science, Engineering Adaptation, and Policy CIVE 5366 – Air Quality Engineering and Science CIVE 7110 – Critical Infrastructure Resilience ME 6200 - Mathematical Methods for Mechanical Engineers 1

Other Electives

CIVE 7151 – Urban Informatics and Processing EECE 7204 - Applied Probability and Stochastic Processes ENVR 5260 - Geographical Information Systems EEMB 5516 - Oceanography IE 6200 - Engineering Probability and Statistics IE 7280 - Statistical Methods in Engineering IE 7290 - Reliability Analysis and Risk Assessment MATH 7344 - Regression, ANOVA, and Design

The full list of Required and Restrictive Electives for Water, Environmental, and Coastal Systems is found <u>here</u>.

MASTER'S IN ENVIRONMENTAL ENGINEERING

Required Core Courses

CIVE 7250 – Environmental Chemistry CIVE 7251 – Environmental Biological Processes

Restricted Electives

CIVE 5261 – Dynamic Modeling for Environmental Investment and Policymaking CIVE 5363 – Climate Science, Engineering Adaptation, and Policy CIVE 5366 – Air Quality Engineering and Science CIVE 7260 – Hydrologic Modeling CIVE 7278 – Air Quality Modeling and Forecasting

Other Electives

EECE 7204 - Applied Probability and Stochastic Processes ENVR 5190 - Soil Science ENVR 5260 - Geographical Information Systems IE 6200 - Engineering Probability and Statistics IE 7280 - Statistical Methods in Engineering IE 7290 - Reliability Analysis and Risk Assessment MATH 7344 - Regression, ANOVA, and Design

MASTER'S IN ENGINEERING AND PUBLIC POLICY

Sustainable Engineering and Systems Modeling

SBSY 5100 – Sustainable Design and Technologies in Construction
CIVE 5261 – Dynamic Modeling for Environmental Investment and Policymaking or PPUA 5261 Dynamic Modeling for Environmental Decision Making
CIVE 7110 – Critical Infrastructure Resilience
CIVE 7151 – Urban Informatics and Processing
ENGR 5670 - Sustainable Energy: Materials, Conversion, Storage, and Usage
IE 5640 - Data Mining for Engineering Applications
IE 6200 - Engineering Probability and Statistics
IE 7280 - Statistical Methods in Engineering

Public Policy and Analysis

INSH 5301 - Introduction to Computational Statistics

INSH 6300 - Research Methods in the Social Sciences

- INSH 6500 Statistical Analysis
- LPSC 7311 Strategizing Public Policy

PPUA 6502 - Economic Analysis for Policy and Planning

PPUA 6506 - Techniques of Policy Analysis

PPUA 6509 - Techniques of Program Evaluation

Electives

CIVE 7230 – Legal Aspects of Civil Engineering

EMGT 6225 - Economic Decision Making

ENVR 5210 - Environmental Planning

ENVR 5260 - Geographical Information Systems

PHTH 5214 - Environmental Health

PPUA 5262 - Big Data for Cities

PPUA 5263 - Geographic Information Systems for Urban and Regional Policy

PPUA 5264 - Energy Democracy and Climate Resilience: Technology, Policy, and Social Change

PPUA 5270 - Food Systems and Public Policy

PPUA 6101 - Environmental Science and Policy Seminar 1

The full list of Required and Restrictive Electives for Engineering and Public Policy is found <u>here</u>.

MASTER'S IN CLIMATE SCIENCE AND ENGINEERING

Core Courses

CIVE 5363 – Climate science, Engineering Adaptation, and Policy

CIVE 5366 - Air Quality Engineering and Science

CIVE 7110 - Critical Infrastructure Resilience

Restricted Electives

- SBSY 5100 Sustainable Design and Technologies in Construction
- EECE 5670 Sustainable Energy: Materials, Conversion, Storage, and Usage
- ENSY 5000 Fundamentals of Energy System Integration
- ENVR 5210 Environmental Planning
- ENVR 5220 Ecosystem-Based Management
- ENVR 5563 Advanced Spatial Analysis
- LPSC 7312 Cities, Sustainability, and Climate Change

MATL 6270 – Principles, Devices, and Materials for Energy Storage and Energy Harvesting ME 5685 – Solar Thermal Engineering PPUA 5238 – Climate Change and Global Urbanization PPUA 5264 – Energy Democracy and Climate Resilience: Technology, Policy, and Social Change

The full list of Required and Restrictive Elective for Climate Science and Engineering is found <u>here</u>.

MASTER'S IN ENGINEERING AND PUBLIC POLICY

Sustainable Engineering and Systems Modeling Requirements

CIVE 5363 – Climate Science, Engineering Adaptation, and Policy

CIVE 7110 – Critical Infrastructure Resilience

CIVE 7151 – Urban Informatics and Processing

EECE 5670 - Sustainable Energy: Materials, Conversion, Storage, and Usage

IE 5640 – Data Mining for Engineering Applications

IE 7280 – Statistical Methods in Engineering

SBSY 5100 – Sustainable Design and Technologies in Construction

Public Policy and Analysis Requirements

ECON 7266 - Economics of Government

- INSH 5301 Introduction to Computational Statistics
- INSH 6500 Statistical Analysis
- LPSC 7311 Strategizing Public Policy
- PPUA 5246 Participatory Modeling for Collaborative Decision Making
- PPUA 5260 Ecological Economics
- PPUA 6502 Economic Analysis for Policy and Planning
- PPUA 6506 Techniques of Policy Analysis

Electives

CIVE 7230 - Legal Aspects of Civil Engineering

ENVR 5210 - Economic Decision Making

ENVR 5260 – Geographical Information Systems

INSH 7400 – Quantitative Analysis

INTL 5100 – Climate and Development

PPUA 5262 - Big Data for Cities

PPUA 5268 – International Environmental Policy

PPUA 7346 - Resilient Cities

The full list of Required and Restrictive Elective for Engineering and Public Policy is found <u>here</u>.

MASTER'S IN SUSTAINABLE BUILDING SYSTEMS

Required Core Courses

ARCH 5210 and ARCH 5211- Environmental Systems and Recitation for ARCH 5210
SBSY 5100 – Sustainable Design and Technologies in Construction SBSY 5400 – Sustainable Building Systems Seminar

Restricted Electives

CIVE 7220 - Construction Management or EMGT 5220 – Engineering Project Management
CIVE 7230 – Legal Aspects of Civil Engineering
EMGT 6305 - Financial Management for Engineers
SBSY 5250 - Building Performance Simulation
SBSY 5300 – Information Systems for Integrated Project Delivery

Other Electives

CIVE 7151 – Urban Informatics and Processing CIVE 7351 - Behavior of Steel Structures ACCT 6200 - Financial Reporting and Managerial Decision Making 1 ACCT 6201 - Financial Reporting and Managerial Decision Making 2 FINA 6200- Value Creation through Financial Decision Making FINA 6216 - Valuation and Value Creation

The full list of Required and Restrictive Electives for Sustainable Building Systems is found <u>here</u>.

How do I register for classes?

Please review the following links for instructions on how to register using your Student Hub account:

- Course Search Article: <u>https://registrar.northeastern.edu/article/new-registration-experience/</u>

- Course Add/Drop Article: <u>https://registrar.northeastern.edu/article/drop-class/</u>

What if my course is full?

Although rare, if a course is full, you may contact the course instructor and ask if an additional seat can be accommodated in the classroom. If a seat isn't available in your preferred classes right away you can also join the waitlist. Enrollments are always shifting as students get co-ops or change their course registrations. To join a waitlist enter the class CRN (the 5 numbers in parentheses next to the course number above) directly into your registration sheet and hit submit. You will then have an option to select "waitlist" from a drop down menu. The waitlist system will automatically inform you when a seat opens up- just log into your account and accept it within the 24 hour time limit!

What if I am a part time student?

We recommend starting with one core course for your concentration.

Will I get a bill after registering for a course?

Yes. Typically, your first e-bill is generated when you register for your courses. You will receive an e-bill from the University with instructions on how to pay the e-bill. If you have questions about payment, please contact the Student Financial Services office directly: http://www.northeastern.edu/financialaid/

How do I get a MyNortheastern account?

After you confirm your enrollment, you will be able to access your StudentHub using this link, <u>myNortheastern account</u>. If you have not set up your myNortheastern account, log into your Slate account to find the instructions to do so. Refer to <u>How do</u> <u>I claim my student account</u> if you have any problems.

Do you have another question about enrollment, your visa status or housing?

Please take a moment to review the <u>New Student Information</u> page.

For more information about beginning your graduate studies at Northeastern University, please read your acceptance letter in full.

We look forward to welcoming you to the Department of Civil and Environmental Engineering and the Graduate School of Engineering.

Regards,

Jerome F. Hajjar CDM Smith Professor and Chair, Civil and Environmental Engineering College of Engineering Northeastern University

Andrew Myers Associate Professor and Associate Chair for Graduate Studies, Civil and Environmental Engineering College of Engineering Northeastern University