The computer science and environmental science combined major focuses on geological processes that greatly impact the earth, atmosphere, and water in oceans, lakes, and rivers. Understanding these processes requires acquisition and computational analysis of large amounts of data—underscoring the natural relationship between computer science and environmental science.

**Program Requirements**
Complete all courses listed below unless otherwise indicated. Also complete any corequisite labs, recitations, clinicals, or tools courses where specified and complete any additional courses needed beyond specific college and major requirements to satisfy graduation credit requirements.

**University-Wide Requirements**
All undergraduate students are required to complete the University-Wide Requirements (http://catalog.northeastern.edu/undergraduate/university-academics/university-wide-requirements).

**NUpath Requirements**
All undergraduate students are required to complete the NUpath Requirements (http://catalog.northeastern.edu/undergraduate/university-academics/nupath).

**Computer Science Courses**

**Computer Science Overview**
- CS 1200 Computer Science/Information Science 1
- CS 1210 Computer Science/Information Science 1

**Computer Science Fundamental Courses**
A grade of C– or higher is required:
- CS 1800 Discrete Structures 5
- CS 1802 and Seminar for CS 1800
- CS 1801 Recitation for CS 1800
- CS 2500 Fundamentals of Computer Science 1 5
- CS 2501 and Lab for CS 2500
- CS 2510 Fundamentals of Computer Science 2 5
- CS 2511 and Lab for CS 2510

**Computer Science Required Courses**
- CS 3200 Database Design 4
- CS 3500 Object-Oriented Design 4
- CS 3800 Theory of Computation 4
- CS 4500 Software Development 4
- CS 4800 Algorithms and Data 4

**Computer Science Senior Seminar**
- THTR 1170 The Eloquent Presenter 1

**Computer Science Elective Courses**
With advisor approval, a directed study, project study, or appropriate graduate-level course may also be taken as a computer science elective.

Complete one course in the following ranges:
- CS 2500 or higher, except CS 5010 4
- IS 2000 or higher, except IS 4900

**Environmental Science Courses**

**Environmental Science Required Courses**
- ENVR 1200 Dynamic Earth and Lab for ENVR 1200 5
- ENVR 5210 Environmental Planning 4
- ENVR 5250 Geology and Land-Use Planning 4
- ENVR 4900 Earth and Environmental Science Capstone 1
- ENVR 4997 Senior Thesis 1

Complete one of the following sequences:
- ENVR 1202 History of Earth and Life and Interpreting Earth History 5
- ENVR 2310 Earth Materials and Lab for ENVR 2310

**Environmental Science Integrative Courses**
Complete at least two of the following:
- ENVR 3300 Geographic Information Systems and ENVR 3301 and Lab for ENVR 3300 8
- ENVR 3410 Environmental Geochemistry
- ENVR 4106 Coastal Processes and Lab for ENVR 4106
- ENVR 4504 Environmental Pollution
- ENVR 4505 Wetlands
- ENVR 4563 Advanced Spatial Analysis
- ENVR 5190 Soil Science
- ENVR 5201 Geologic Field Seminar
- ENVR 5230 Structural Geology and Lab for ENVR 5230
- ENVR 5240 Sedimentary Basin Analysis and Lab for ENVR 5240
- ENVR 5242 Ancient Marine Life and Lab for ENVR 5242
- ENVR 5248 Marine Geology
- ENVR 5270 Glacial and Quaternary History and Lab for ENVR 5270

**Environmental Science Electives**
If you complete more than two environmental science integrative courses (above), they will count as environmental science electives.

Complete four of the following:
- ENVR 1101 Environmental Science 16
- ENVR 2340 Earth Landforms and Processes and Lab for ENVR 2340
- ENVR 3400 Field Geology
- ENVR 3410 Environmental Geochemistry
- ENVR 4106 Coastal Processes and Lab for ENVR 4106
- ENVR 4504 Environmental Pollution
- ENVR 4505 Wetlands
- ENVR 4563 Advanced Spatial Analysis
- ENVR 5190 Soil Science
- ENVR 5201 Geologic Field Seminar
- ENVR 5230 Structural Geology and Lab for ENVR 5230
- ENVR 5240 Sedimentary Basin Analysis and Lab for ENVR 5240
- ENVR 5242 Ancient Marine Life and Lab for ENVR 5242
- ENVR 5248 Marine Geology
- ENVR 5270 Glacial and Quaternary History and Lab for ENVR 5270

**Supporting Courses**
- Calculus
- DS 2000 or higher, except DS 4900

**Calculus**
MATH 1251  Calculus and Differential Equations for Biology 1  4
or MATH 1341  Calculus 1 for Science and Engineering

MATH 1252  Calculus and Differential Equations for Biology 2  4
or MATH 1342  Calculus 2 for Science and Engineering

MATH 3081  Probability and Statistics  4

Chemistry

CHEM 1211  General Chemistry 1  5
and CHEM 1212  and Lab for CHEM 1211
and CHEM 1213  and Recitation for CHEM 1211

CHEM 1214  General Chemistry 2  5
and CHEM 1215  and Lab for CHEM 1214
and CHEM 1216  and Recitation for CHEM 1214

Computing and Social Issues

Complete one of the following:  4

PHIL 1145  Technology and Human Values
SOC 1280  The 21st-Century Workplace
SOC 3485  Environment, Technology, and Society
SOC 4528  Computers and Society
ANTH 3418  Wired/Unwired: Cybercultures and Technopolitics

IA 5240  Cyberlaw: Privacy, Ethics, and Digital Rights
INSH 2102  Bostonography: The City through Data, Texts, Maps, and Networks

Computer Science English Requirement

College Writing

ENGW 1111  First-Year Writing  4
or ENGW 1102  First-Year Writing for Multilingual Writers

Advanced Writing in the Disciplines

Complete one course from the following:  4

ENGW 3302  Advanced Writing in the Technical Professions
ENGW 3315  Interdisciplinary Advanced Writing in the Disciplines

Required General Electives

Complete six general electives.  24

Major GPA Requirement

Minimum 2.000 GPA required in all CS and IS courses

NUpath Requirements Satisfied

• Engaging with the Natural and Designed World
• Conducting Formal and Quantitative Reasoning
• Analyzing and Using Data
• Writing in the First Year
• Advanced Writing in the Disciplines
• Writing-intensive in the Major
• Demonstrating Thought and Action in a Capstone

Integrating Knowledge and Skills Through Experience is satisfied through co-op.

Program Requirement

137 total semester hours required

Plan of Study

Sample Patterns:

Four Years, Two Co-ops in Summer 2/Fall

Year 1

Fall  | Hours  | Spring  | Hours  | Summer 1  | Hours  | Summer 2  | Hours
---|---|---|---|---|---|---|---
CS 1200  | 1  | CS 2510  | 5  | CS 3500  | 4  | Vacation

CS 1800  | 4  | CS 2500  | 1  
and CS 1802  | 5  | and CS 2501  | 4  
or 2310  | 4  
and CS 1200  | 5  | 4  
(or ENVR 1201 (Lab if offered))

ENGR 1111  | 4  | Elective  | 4

Year 2

Fall  | Hours  | Spring  | Hours  | Summer 1  | Hours  | Summer 2  | Hours
---|---|---|---|---|---|---|---
CS 4800 or  | 4  | CHEM 1214  | 5  | MATH 1252  | 4  
ENVR 5250  |  | and CHEM 1215  |  | or 1342  | 4  
and CHEM 1216  |  | Co-op

ENVR 5210  | 4  | MATH 1251  | 4  
or 1341  | 4  
and CHEM 1211  | 5  | Elective  | 4

and CHEM 1212  | 5  
and CHEM 1213  | 5  
Elective  | 4  
CS elective  | 4

CS 1210  | 1

Year 3

Fall  | Hours  | Spring  | Hours  | Summer 1  | Hours  | Summer 2  | Hours
---|---|---|---|---|---|---|---
Co-op  |  | CS 3800  | 4  | MATH 3081  | 4  
ENVR  | 4  
elective
ENVR  | 4  
elective
ENVR  | 4  
toxic
ENVR  | 4  
inegrative

THTR 1170  | 1

Year 4

Fall  | Hours  | Spring  | Hours  | Summer 1  | Hours
---|---|---|---|---|---
Co-op  |  | CS 4500  | 4  | Elective  | 4
### Five Years, Two Co-ops in Summer 2/Fall

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#### Year 3

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Total Hours: 138