

Environmental and Sustainability Sciences and Economics, BS

Through this combined major, successful undergraduates will develop an awareness of the intrinsic connection between the environment and economics and understand how long-run economic growth is crucially dependent on policies that account for the sustainability and well-being of the environment and that are grounded on environmental science.

There are a number of interdisciplinary opportunities involving environmental and sustainability sciences. Due to curricular overlap, combinations of any environmental and sustainability sciences major, including combined majors, cannot occur with majors or minors in ecology and evolutionary biology or environmental studies or with the minor in geoscience.

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/nuopath/>).

Environmental and Sustainability Sciences Requirements

| Code | Title | Hours |
|--|--|-------|
| Core Courses | | |
| ENVR 1400 and ENVR 1401 | Foundations in Environmental and Sustainability Sciences and Lab for ENVR 1400 | 5 |
| ENVR 2200 or ENVR 1200 | Earth's Changing Cycles Dynamic Earth | 4 |
| EEMB 2302 and EEMB 2303 | Ecology and Lab for EEMB 2302 | 5 |
| ENVR 2515 | Sustainable Development | 4 |
| Complete one of the following skills courses: | | 4-5 |
| ENVR 3300 and ENVR 3301 | Geographic Information Systems and Lab for ENVR 3300 | |
| EEMB 3555 | Networks and Natural Systems | |
| Complete four courses from these lists: | | 16 |
| <i>Earth Oceans and Environmental Change</i> | | |
| ENVR 2310 and ENVR 2311 | Earth Materials and Lab for ENVR 2310 | |
| ENVR 3125 | Global Oceanic Change | |
| ENVR 3600 | Oceanography | |
| ENVR 4500 and ENVR 4501 | Applied Hydrogeology and Lab for ENVR 4500 | |
| <i>Conservation, Restoration, and Management</i> | | |
| EEMB 2400 | Introduction to Evolution | |
| EEMB 3460 | Conservation Biology | |

| | |
|---|--------------------------------------|
| EEMB 3465 | Ecological and Conservation Genomics |
| EEMB 4001 | Landscape and Restoration Ecology |
| <i>Sustainable Planning and Development</i> | |
| ENVR 3150 | Food Security and Sustainability |
| ENVR 3200 | Water Resources |
| ENVR 5150 | Climate and Atmospheric Change |
| ENVR 5210 | Environmental Planning |
| <i>Environment and Society</i> | |
| POLS 2395 | Environmental Politics and Policy |
| PPUA 5260 | Ecological Economics |
| PPUA 5268 | International Environmental Policy |
| SOCL 2485 | Environment, Technology, and Society |

Economics Requirements

| Code | Title | Hours |
|---------------------------|--|-------|
| Core Courses | | |
| ECON 1115 | Principles of Macroeconomics | 4 |
| ECON 1116 | Principles of Microeconomics | 4 |
| ECON 2315 | Macroeconomic Theory | 4 |
| ECON 2316 | Microeconomic Theory | 4 |
| ECON 2350 | Statistics | 4 |
| ECON 2560 | Applied Econometrics | 4 |
| ECON 3423 | Environmental Economics | 4 |
| Supporting Courses | | |
| MATH 1231 | Calculus for Business and Economics | 4 |
| or MATH 1241 | Calculus 1 | |
| or MATH 1245 | Calculus with Applications | |
| or MATH 1251 | Calculus and Differential Equations for Biology 1 | |
| or MATH 1340 | Intensive Calculus for Engineers | |
| or MATH 1341 | Calculus 1 for Science and Engineering | |
| CS 1100 | Computer Science and Its Applications | 4 |
| or DS 2000 and DS 2001 | Programming with Data and Data Science Programming Practicum | |
| or MISM 2510 | Fundamentals of Information Analytics | |

Electives

Complete two courses in the following ranges, with only one below the 3000 level:

| | | |
|---------------------|--|---|
| ECON 1200–ECON 1999 | | 8 |
| ECON 3000–ECON 4689 | | |
| ECON 4900–ECON 4999 | | |
| ECON 5200–ECON 5999 | | |

Integrative Requirements

| Code | Title | Hours |
|--------------------------------|---|-------|
| Introduction to College | | |
| ENVR 1000 | Marine and Environmental Sciences at Northeastern | 1 |
| or ECON 1000 | Economics at Northeastern | |
| Co-op | | |
| EESC 2000 | Professional Development for Co-op | 1 |
| or EESH 2000 | Professional Development for Co-op | |

Environmental and Sustainability Sciences Integrative Course

Complete one of the following (courses used as electives may not overlap with courses used as integrative): 4

| | |
|-----------|--|
| ENVR 3150 | Food Security and Sustainability |
| ENVR 5350 | Sustainable Energy and Climate Solutions |
| ENVR 5450 | Applied Social-Ecological Systems Modeling |
| ENVR 5563 | Advanced Spatial Analysis |

Economics Integrative Course

Complete one of the following (courses used as electives may not overlap with courses used as integrative): 4

| | |
|-----------|-----------------------------|
| ECON 1711 | Economics of Sustainability |
| ECON 3404 | International Food Policy |
| ECON 3425 | Energy Economics |

Capstone

Complete one of the following: 4

| | |
|-----------|--|
| ENVR 4050 | Solving Emerging Environmental Challenges through Capstone |
| ENVR 4997 | Senior Thesis |
| ECON 4692 | Senior Economics Seminar |

Experiential Liberal Arts

All undergraduate students in the College of Social Sciences and Humanities are required to complete the Experiential Liberal Arts Requirement (<http://catalog.northeastern.edu/undergraduate/social-sciences-humanities/#ela>).

English Requirements (First-Year Writing and Advanced Writing in the Disciplines)

| Code | Title | Hours |
|--------------|---|-------|
| ENGW 1111 | First-Year Writing | 4 |
| or ENGW 1102 | First-Year Writing for Multilingual Writers | |
| ENGW 3307 | Advanced Writing in the Sciences | 4 |
| or ENGW 3308 | Advanced Writing in the Social Sciences | |
| or ENGW 3315 | Interdisciplinary Advanced Writing in the Disciplines | |

Major GPA/Credit Requirement

Grades in the following four economics courses must average to a minimum of C (2.000):

| Code | Title | Hours |
|-----------|----------------------|-------|
| ECON 2315 | Macroeconomic Theory | 4 |
| ECON 2316 | Microeconomic Theory | 4 |
| ECON 2350 | Statistics | 4 |
| ECON 2560 | Applied Econometrics | 4 |

83 semester hours required in the major

Experiential Liberal Arts

All undergraduate students in the College of Social Sciences and Humanities are required to complete the Experiential Liberal Arts Requirement (<http://catalog.northeastern.edu/undergraduate/social-sciences-humanities/#ela>).

Program Requirement

128 total semester hours required

Plan of Study

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

Year 1

| Fall | Hours | Spring | Hours | Summer 1 | Hours | Summer 2 | Hours |
|--|-------|---|-------|----------|-------|----------|-------|
| ENVR 1000 or ECON 1000 | 1 | CS 1100, DS 2000 and DS 2001, or MISM 2510 | 4 | Elective | 4 | Elective | 4 |
| MATH 1231, 1241, 1245, 1251, 1340, or 1341 | 4 | ECON 1116 | 4 | Elective | 4 | Elective | 4 |
| ECON 1115 | 4 | ENVR 2200 or 1200 | 4 | | | | |
| ENGW 1111 or 1102 | 4 | ENVR elective 1 | 4 | | | | |
| ENVR 1400 | 4 | | | | | | |
| ENVR 1401 | 1 | | | | | | |
| | 18 | | 16 | | 8 | | 8 |

Year 2

| Fall | Hours | Spring | Hours | Summer 1 | Hours | Summer 2 | Hours |
|-----------------|-------|-----------------|-------|----------|-------|----------|-------|
| EEMB 2302 | 4 | ECON 2316 | 4 | Elective | 4 | Co-op | |
| EEMB 2303 | 1 | ECON 2350 | 4 | Elective | 4 | | |
| ECON 2315 | 4 | ENVR 2515 | 4 | | | | |
| ENVR elective 2 | 4 | ENVR elective 3 | 4 | | | | |
| ECON elective 1 | 4 | | | | | | |
| | 17 | | 16 | | 8 | | 0 |

Year 3

| Fall | Hours | Spring | Hours | Summer 1 | Hours | Summer 2 | Hours |
|-------|-------|--------------------------------|-------|-----------------|-------|----------|-------|
| Co-op | | ECON 2560 | 4 | Elective | 4 | Co-op | |
| | | ECON 3423 | 4 | ENVR elective 4 | 4 | | |
| | | ENVR 3150, 5350, 5450, or 5563 | 4 | | | | |
| | | ENGW 3308, 3307, or 3315 | 4 | | | | |
| | 0 | | 16 | | 8 | | 0 |

Year 4

| Fall | Hours | Spring | Hours |
|-------|-------|-------------------------------|-------|
| Co-op | | ENVR 4050, 4997, or ECON 4692 | 4 |
| | | ENVR elective 5 | 4 |
| | | ECON elective 2 | 4 |
| | | ECON 1711, 3404, or 3425 | 4 |
| | 0 | | 16 |

Total Hours: 131