

# Environmental and Sustainability Sciences and Economics, BS

Through this combined major, students 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.

## Universitywide Requirements

All undergraduate students are required to complete the Universitywide 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/>).

## Environmental and Sustainability Sciences Requirements

Code	Title	Hours
<b>Core Courses</b>		
ENVR 1400 and ENVR 1401	Foundations in Environmental and Sustainability Sciences and Lab for ENVR 1400	5
ENVR 1200 and ENVR 1201 or ENVR 2200	Dynamic Earth and Lab for ENVR 1200 Earth's Changing Cycles	4-5
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	
ENVR 5260	Geographical Information 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	
ENVR 5600	Coastal Processes, Adaptation, and Resilience	
ENVR 5670	Global Biogeochemistry	
<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	
ENVR 4505	Wetlands	
ENVR 5700	Streams and Watershed 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
ENVR 5800	Climate Adaptation and Nature-Based Solutions
<i>Environment and Society</i>	
ENVR 5450	Applied Social-Ecological Systems Modeling
ENVR 5750	Urban Ecology
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
<b>Core Courses</b>		
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 for Economists	4
ECON 2560	Applied Econometrics	4
ECON 3423	Environmental Economics	4

### Supporting Courses

#### Calculus

Complete one of the following. It is recommended that MATH 1241 or higher is chosen: 4

MATH 1231	Calculus for Business and Economics
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

#### Computer Science

Complete one of the following: 4-5

CS 1100 and CS 1101	Computer Science and Its Applications and Lab for CS 1100
DS 2000 and DS 2001	Programming with Data and Data Science Programming Practicum
MISM 2510	Fundamentals of Information Analytics

### Electives

Complete two courses in the following ranges, with only one at the 1000 level: 8

ECON 1200–ECON 1999
ECON 2990 –ECON 4689
ECON 4900–ECON 4996
ECON 5200–ECON 5999

## Integrative Requirements

Code	Title	Hours
<b>Introduction to College</b>		
ENVR 1000 or ECON 1000 or INSC 1000	Marine and Environmental Sciences at Northeastern Economics at Northeastern Science at Northeastern	1

### 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
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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
ECON 4997	Senior Economics Thesis

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

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

**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 for Economists	4
ECON 2560	Applied Econometrics	4

83 semester hours required in the major

**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	Hours
ECON 1115		4 CS 1100, DS 2000 <i>and</i> DS 2001, or MISM 2510		4 Elective		4 Elective		4
ENGW 1111 or 1102		4 ECON 1116		4 Elective		4 Elective		4
ENVR 1000 or ECON 1000		1 ENVR 2200 or 1200		4				
ENVR 1400 and ENVR 1401		5 ENVR elective 1		4				
MATH 1231, 1241, 1245, 1251, 1340, or 1341		4						
	<b>18</b>		<b>16</b>			<b>8</b>		<b>8</b>
Year 2								
Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours	Hours
ECON 2315		4 ECON 2316		4 Elective		4 Co-op		
EEMB 2302		4 ECON 2350		4 Elective		4		
EEMB 2303		1 ENVR 2515		4				
ECON elective 1		4 ENVR elective 3		4				

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ENVR elective 2		4						
		<b>17</b>		<b>16</b>		<b>8</b>		<b>0</b>
<b>Year 3</b>								
<b>Fall</b>	<b>Hours</b>	<b>Spring</b>	<b>Hours</b>	<b>Summer 1</b>	<b>Hours</b>	<b>Summer 2</b>	<b>Hours</b>	
Co-op		ECON 2560		4 ENVR elective 4		4 Co-op		
		ECON 3423		4 Elective		4		
		ENGW 3308, 3307, or 3315		4				
		ENVR 3150, 5350, 5450, or 5563		4				
		<b>0</b>		<b>16</b>		<b>8</b>		<b>0</b>
<b>Year 4</b>								
<b>Fall</b>	<b>Hours</b>	<b>Spring</b>	<b>Hours</b>					
Co-op		ENVR 4050, 4997, ECON 4692, or ECON 4997		4				
		ECON 1711, 3404, or 3425		4				
		ECON elective 2		4				
		ENVR elective 5		4				
		<b>0</b>		<b>16</b>				

**Total Hours: 131**