

# Environmental Science Co-Major

For more information, contact the Institute for the Environment and Sustainability, 118 Shideler Hall, 513-529-5811.

This co-major emphasizes earth science and life science approaches to understanding environmental patterns and processes. Students are prepared to pursue a wide variety of career paths and post-graduate degrees in environmental science, especially those with biological and physical science specializations. The term "co-major" indicates that students must be concurrently enrolled in and must complete another major at Miami University. The co-major complements this primary major, which provides significant depth and breadth in an academic discipline. There is no specific degree designation for the co-major; students receive the degree designation of their primary major.

## Program Requirements

(32-44 semester hours)

Code	Title	Credit Hours
<b>Biological Science</b>		
Select one of the following:		3-4
BIO/MBI 115	Biological Concepts: Ecology, Evolution, Genetics, and Diversity	
BIO 121	Environmental Biology	
BIO 131	Plants, Humanity, and Environment	
BIO 176	Ecology of North America	
BIO 191	Plant Biology	
<b>Physical Science</b>		
Select one course from group A and one from B: <sup>1</sup>		6-9
Group A:		
CHM 111 & 111L	Chemistry in Modern Society and Chemistry in Modern Society Laboratory	
CHM 142 & CHM 145	College Chemistry and College Chemistry Laboratory	
GLG 211	Chemistry of Earth Systems	
CPB 244	Introduction to Environmental Engineering	
Group B:		
GEO 121	Earth's Physical Environment	
GEO 122	Geographic Perspectives on the Environment	
GLG 111 & GLG 115L	The Dynamic Earth and Understanding the Earth	
GLG 121 & GLG 115L	Environmental Geology and Understanding the Earth	
GLG 141 & GLG 115L	Geology Of U.S. National Parks and Understanding the Earth	
<b>Statistics</b>		
Select one of the following:		3-4
STA 261	Statistics	
STA 301	Applied Statistics	

### Social Science/Humanities

Select one of the following:		3
ATH 175	Global Cultural Diversity	
ENG 264	Environmental Literature	
ENG 429	Environmental Communication	
GEO 101	Global Forces, Local Diversity	
GEO 436	Women, Gender, and the Environment	
IES 429	Environmental Communication	
JRN 429	Environmental Communication	
PHL 376	Environmental Philosophy	

### Policy

Select one of the following:		3
ECO 201	Principles of Microeconomics	
IES 211	Energy and Policy	
IES 494	Sustainability Perspectives in Resources and Business	
POL 241	American Political System	
POL 261	Public Administration	

### Environmental Science

IES 275	Principles of Environmental Science	3
Select two related courses from the list at the bottom of this page (both of which must be outside department of primary major) <sup>2</sup>		5-9

### Synthesis

IES 431	Principles and Applications of Environmental Science	3
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### Practicum/Field Experience <sup>2</sup>

Select one of the following:		3-6
BIO/MBI 433	Field Ecology	
BIO 463	Limnology	
GLG 311	Geoenvironmental Field Methods	
GLG 411A	Field Geology	
GLG 419	Geology of Streams	
IES/KNH 411	Environmental Protocols	

Honors Thesis

Independent Studies 377 or Internship 340 <sup>3</sup>

Or other appropriate field courses with permission of the CDA or IES Director

**Total Credit Hours** **32-44**

<sup>1</sup> PHY 161 or PHY 181 & PHY 183 strongly recommended.

<sup>2</sup> Courses used for the *Environmental Science: Related Courses* requirement cannot also be used for the *Practicum/Field Experience* requirement.

<sup>3</sup> must be approved by IES Director or Co-Major advisor

## Environmental Science: Related courses

Code	Title	Credit Hours
BIO 351	Environmental Education: Focus on Natural History	4
BIO 408	Ornithology	4
BIO/GEO 431	Global Plant Diversity	3
BIO 438	Soil Ecology and Sustainable Use	3

BIO 453	Animal Physiological Ecology	4
BIO 463	Limnology	4
BIO 467	Conservation Biology	3
CHM 363 & CHM 364	Analytical Chemistry and Analytical Chemistry Laboratory	5
CHM 454	Instrumental Analysis	3
CHM 491	Chemistry in Societal Issues	3
CPB 405	Industrial Environmental Control	3
CPB 441	Pollution Prevention in Environmental Management	3
CPB 442	Air Pollution Control	3
GEO 425	Hydrogeography	3
GEO 426	Watershed Management	3
GEO 431	Global Plant Diversity	3
GEO 441	Geographic Information Systems	3
GEO 442	Advanced Geographic Information Systems	3
GEO 444	GIScience Techniques in Landscape Ecology	3
GEO 448	Techniques and Applications of Remote Sensing	3
GLG 307	Water and Society	3
GLG 335	Ice Age Earth	3
GLG 354	Geomorphology	4
GLG 402	Geomicrobiology	3
GLG 408	Introduction to Hydrogeology	4
GLG 428	Hydrogeological Modeling: Groundwater Flow and Contaminant Transport and Fate	4
GLG 432	X-ray Powder Diffraction and Clay Analysis	3
GLG 435	Soils and Paleosols	3
GLG 436	Paleoclimatology	3
GLG 496	Isotopes in Environmental Processes	3
IES 411	Environmental Protocols	4
IES/KNH 441	Environmental Public Health	3
MBI 475	Microbial Ecology: Exploration of the Diverse Roles of Microorganisms in Earth's Ecology	4
PHY 421	Molecular and Cellular Biophysics	4
PHY 437	Intermediate Thermodynamics and Introduction to Statistical Physics	4
PHY 441	Optics and Laser Physics	4
STA 333	Nonparametric Statistics	3
STA 363	Introduction to Statistical Modeling	3
STA 401	Probability	3
STA 462	Inferential Statistics	3
STA 475	Data Analysis Practicum	3