Environmental Science Co-Major

(for students starting Spring 2015 and earlier)

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 complete another major at Miami University. The Environmental Science co-major complements the 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 (33-39 semester hours)

Complete a major in one of the divisions of the university

Natural Science (12 semester hours)

1. Biological Science (4 hours) - one of these:
   BIO/MBI 115 Biological Concepts (4)
   BIO 191 General Botany (4)
2. Physical Science (8 hours) and at least one from (a) and one from (b):
   a. CHM 111 Chemistry in Modern Society with the laboratory (4)
      CHM 142, 145 College Chemistry/College Chemistry Lab (3,2)
      GLG 211 Chemistry of Earth Systems (3)
      CPE 244 Introduction to Environmental Engineering (3)
   b. At least one of these
      GLG 111 The Dynamic Earth (3) and GLG 115.L Geology Lab (1)
      GLG 121 Environmental Geology (3) and GLG 115.L Geology Lab (1)
      GLG 141 Geology of US National Parks (3) and GLG 115.L Geology Lab (1)
      GLG 180 Geology Gemstones (3) and GLG 115.L Geology Lab (1)
      GEO 121 Earth's Physical Environments (4)
      GEO 122 Geographic Environments (3)

      Note: PHY 171/172 or 181/182 strongly recommended.

Statistics (3-4 semester hours)

One of these:
   STA 261 Statistics (4)
   STA 301 Applied Statistics (3)

Social Science (6-7 semester hours):

1. ECO 201 Microeconomics (3)

and

2. One of these:
   ATH 175 Peoples of the World (3)
   GEO 101 Global Forces and Local Diversity (3)
   POL 241 American Political System (4)
   POL 261 Public Administration (4)

IES 211 Energy and Policy (3)

Environmental Science (9-11 semester hours):

1. This course:
   IES 275 Principles of Environmental Science (3)

2. Two of these, and both must be outside the department of the primary major:

BIO 333 Field Ecology (3)
BIO 401 Plant Ecology (3)
BIO 408 Ornithology (3)
BIO 425 Environmental Plant Physiology (4)
BIO/GEO 431 Global Plant Diversity (3)
BIO/GEO 432 Ecoregions of North America (3)
BIO 438 Soil Ecology
BIO 453 Animal Physiological Ecology (4)
BIO 462 Environmental Toxicology and Risk Assessment (4)
BIO 463 Limnology (4)
BIO 467 Conservation Biology (4)
CHM 363/4 Analytical Chemistry and laboratory (5)
CHM 454 Instrumental Analysis (3)
CHM 463 Environmental Chemistry (3)
CHM 491 Chemistry in Societal Issues (3)
CPE 441 Pollution Prevention in Environmental Management (3)
CPE 405 Industrial Environmental Control (3)
CPE 442 Air Pollution Control (3)
ENG/IES/JRN 429: Environmental Communication (3)
GEO 421 Climatology (3)
GEO 425 Hydrogeography (4)
GEO 428 Soil Geography (4)
GEO 441 Geographic Information Systems (3)
GEO 444 GIScience in Landscape Ecology (3)
GLG 307 Water and Society (3)
GLG 335 Ice Age Earth (3)
GLG 354 Geomorphology (4)
GLG 401 Global Climate Change (4)
GLG/MBI 402 Geomicrobiology (3)
GLG 408 Introduction to Hydrogeology (4)
GLG 428 Groundwater Flow Modeling (4)
GLG 430 Mineral Surface Geochemistry (3)
GLG 432 Clays and Clay Mineralogy (4)
GLG 435 Soils and Paleosols
GLG 474 Paleoecology, botany, climate (3)
GLG 482 Contaminant Hydrogeology (4)
GLG 496 Isotopes in Environmental Processes (3)
IES 441 Environmental & Occupational Health (3)
MBI 475 Microbial Ecology (3)
PHY 421 Introduction to Biophysics (4)
PHY 437 Intermediate Thermodynamics and Intro. to Statistical Physics (4)
PHY 441 Optics and Laser Physics (4)
STA 333 Nonparametric Statistics (3)
STA 363 Regression & Design of Experiments (3)
STA 401 Probability
STA 462 Inferential Statistics (3)
STA 475 Data Analysis Practicum (3)

Practicum and Synthesis (3-5 semester hours)

One of these:

BIO 351 Environmental Education (4)
BIO 451 Conservation Education and Community Engagement (3)
GEO 436 Women, Gender and the Environment (3)
BUS/IES 494 Sustainability Perspectives in Resources and Business (3)
Field-Based Workshops (See department for available workshops)
Honors Thesis (3)
IES 431 Principles and Applications of Environmental Science (3)
Independent Study 377 (3) or Internship 340 (3). This must be approved by the IES Director or the Co-Major Adviser

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