

# **ENVIRONMENTAL SCIENCE – College of Science & Mathematics**

## **About the Program**

### *Overview*

The environmental science program seeks to foster the appreciation and acquisition of knowledge and skills in the field of environmental science and its impact upon contemporary society.

### **Program Objectives**

- Encourage habits of:
  - deductive reasoning
  - independent thinking
  - scientific method
  - self-reliance
  - environmental stewardship
- Develop technical skills in the biological and physical sciences
- Develop oral and written communication skills
- Develop an understanding of current problems in limnology: the study of lakes

### **The program will prepare for further study:**

- continuing education in environmental science or related field
- entry into graduate programs

### **Required support Courses for major:**

MTH 1210 Precalculus or  
MTH 2510 Calculus  
w/Analytic Geometry I  
MTH 2350 Probability &  
Statistics

### **Your Success: Our Greatest Achievement**

## **Plan of Study – Bachelor’s Degree Environmental Science**

### **Required Major Courses**

BIO 1030 General Biology I	4 s.h.
BIO 1040 General Biology II	4 s.h.
CHM 1110 General Chemistry I	4 s.h.
CHM 1120 General Chemistry II	4 s.h.
CHM 2210 Organic Chemistry I	4 s.h.
CHM 2220 Organic Chemistry II	4 s.h.
PHY 2530 General Physics I	4 s.h.
PHY 2540 General Physics II	4 s.h.
ENV 3210 Limnology: The Study of Lakes	3 s.h.
ENV 3320 Environmental Analysis	4 s.h.
ENV 4710 Environmental Pollutions	4 s.h.
ENV 4950 Senior Seminar	2 s.h.
ESS 3260 Meteorology	4 s.h.
Major Electives	6 s.h.
<i>Choose from the following</i>	
BIO 2260 Microbiology	4 s.h.
BIO 3170 Invertebrate Zoology	4 s.h.
CHM 3610 Biochemistry I	4 s.h.
ENG 2000 Technical Writing	3 s.h.
ENV 2930/3930 Cooperative Education	1-4 s.h.
ENV 4700 Environmental Investigation	3 s.h.
ESS 2160 Earth Science	4 s.h.
NFS Food Service Sanitation	2 s.h.
OSH 4510 Hazardous Materials	3 s.h.
<b>Total</b>	<b>54 s.h.</b>

## **Environmental Science minor for Biology majors – required courses**

CHM 2210 Organic Chemistry I	4 s.h.
CHM 2220 Organic Chemistry II	4 s.h.
ENV 3210 Limnology: The Study of Lakes	3 s.h.
ENV 3320 Environmental Analysis	4 s.h.
ENV 4710 Environmental Pollutions	4 s.h.
ESS 3260 Meteorology	3 s.h.
Minor electives (see major for choices)	2 s.h.
<b>Total</b>	<b>24 s.h.</b>

## **Environmental Science minor for Chemistry majors – required courses**

BIO 1030 General Biology I	4 s.h.
BIO 1040 General Biology II	4 s.h.
ENV 3210 Limnology: The Study of Lakes	3 s.h.
ENV 3320 Environmental Analysis	4 s.h.
ENV 4710 Environmental Pollutions	4 s.h.
ESS 3260 Meteorology	3 s.h.
Minor electives (see major for choices)	2 s.h.
<b>Total</b>	<b>24 s.h.</b>

### **Required support course:**

MTH 2350 Probability &  
Statistics

## For Admission Information

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## OR

Coordinator of Enrollment  
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## For Program Information

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the right to withdraw or modify  
information in the brochure.

See Advisor/Admissions Office  
for current information.

Madonna University guarantees  
the right to equal educational  
opportunity without discrimination  
because of race, religion, sex,  
national origin, age, or disabilities.

## Selected Course Offerings

### **ENV 3210, Limnology: The Study of Lakes**

A study of the influences of physical, chemical, and biological factors on the structure and function of inland lakes and ecosystems. Prerequisite: 6 s.h. in Biology

### **ENV 3320, Environmental Analysis**

Application of spectrophotometric and field-kit methods in the elucidation of quantitative and qualitative data from soil, water, algae, invertebrates, plants, and fish collections. Lecture and laboratory. Prerequisites: CHM 1120, 2210, MTH 1210 or equivalent

### **ENV 4710, Environmental Pollutions**

Research investigations focused on a variety of pollution topics, e.g., mercury or metal concentration analysis of soil, water, invertebrates, fish, and plants; *E coli* colony studies of the nearby lakes and ponds; development of environmentally-friendly biocides; acid rain/air pollutants. Three hours of lecture and three hours of laboratory.  
Prerequisites: BIO 1040, CHM 1120

### **ENV 3260 Meteorology**

An understanding and appreciation of the various atmospheric phenomena that interact to produce daily weather occurrences and global climate patterns. Principles of meteorology and weather phenomena are presented as simply as possible with clear and logical explanations of the scientific ideas by description, inductive and deductive reasoning, simplification and quantification. Meteorological phenomena and issues involving hurricanes, tornadoes, thunderstorms floods, ozone depletion, potential global warming, and growing environmental concerns will be emphasized. In the sciences it is important to eliminate underachievement and underrepresentation by developing competent students with positive attitudes.