

BACHELOR OF SCIENCE IN ENVIRONMENTAL SCIENCE

The environmental science program leading to a Bachelor of Science (BS) prepares students for graduate school or careers in health and safety, natural resource management, public health, environmental consulting, environmental regulations, environmental education, and other related fields:

- 42-44 s.h. of environmental science courses
- 30-31 s.h. of support courses in science and mathematics
- a prescribed minor of 12-19 s.h

The minor must include 9 s.h. of upper division courses (3000 level and above) and may be in:

- biology or biomathematics
- biological or forensic anthropology
- biological or forensic anthropology
- chemistry
- economics
- environmental engineering
- environmental geography or geography
- environmental health and safety
- forensic science
- geographic information science
- geoscience or environmental geology
- law enforcement
- mathematics or statistics
- mechanical engineering
- public health

Credits may include those required for support science and mathematics, as applicable. The student is welcome to take additional courses in other departments as electives. Students are encouraged to develop teamwork, communication, computer and problem-solving skills. This degree may be earned in eight semesters if students average 15 hours per semester.

Majors transferring in from other programs at YSU or from other universities may use up free electives and/or require additional semesters or summers of study. College and university requirements apply (total hours, upper division hours, general education goals, etc.).

COURSE	TITLE	S.H.
FIRST YEAR REQUIREMENT -STUDENT SUCCESS		
YSU 1500	Success Seminar	1-2
or YSU 1500S	Youngstown State University Success Seminar	
or HONR 1500	Intro to Honors	
General Education Requirements		
ENGL 1550	Writing 1	3-4
or ENGL 1549	Writing 1 with Support	
ENGL 1551	Writing 2	3
Mathematics Requirement (met with MATH 1570 or 1571 in major)		
Arts and Humanities (6 s.h.)		
Natural Sciences (2 courses, 1 with lab) (6-7 s.h.)(Requirement met through science courses in major)		
Social Science (6 s.h.)		
General Education Electives		
General Education Electives (6 s.h. Met with science courses in the major)		
CMST 1545	Communication Foundations (Required)	3
Major Core Requirements		

ENST 2600 & 2600L	Foundations of Environmental Science and Foundations of Environmental Science Laboratory	4
ENST 2620	Freshman/Sophomore Seminar	1
ENST 3700 & 3700L	Environmental Chemistry and Environmental Chemistry Lab	4
ENST 3730	Air Quality	3
ENST 3750	Seminar	1
ENST 3751	Water Quality Analysis	3
or ENST 3752	Soil Quality and Analysis	
ENST 3780	Environmental Research	3
ENST 3790	Internship/Cooperative	4
ENST 5810	Environmental Safety	3
ENST 5860	Environmental Regulations	3

Upper Division Electives

Select 12 credit hours from ENST 3700 level courses or higher. 3-4 credit hours of a 3700 or higher level course may come from Biology, Chemistry, Geology, Civil/Environmental Engineering or select Geography courses.

BIOL 2601	General Biology 1: Molecules and Cells	3
BIOL 2601L	General Biology I: Molecules and Cells Laboratory	1
CHEM 1515	General Chemistry 1	3
CHEM 1515L	General Chemistry 1 Laboratory	1
CHEM 1516	General Chemistry 2	3
CHEM 1516L	General Chemistry 2 Laboratory	1
GEOL 1505 & 1505L	Physical Geology and Physical Geology Laboratory (satisfies GER Science or Lab) ¹	4
MATH 1571	Calculus 1 ²	4
or MATH 1570	Applied Calculus 1	
GEOG 2611	Geospatial Foundations	3
PHYS 1501	Fundamentals of Physics 1	4
or PHYS 2610	General Physics 1	

Statistics--Take one of the following:

STAT 2601	Introductory Statistics	3-4
or STAT 2625	Statistical Literacy and Critical Reasoning	
or STAT 3717	Statistical Methods	
or STAT 3743	Probability and Statistics	

Minor	12
Electives to reach 120	15
Total Semester Hours	120-123

¹ Satisfies General Education Science or Science Lab Domain.

² Satisfies General Education Mathematics Domain.

³ Satisfies General Education Science Domain.

Year 1

Fall	S.H.	
YSU 1500	Success Seminar	1-2
or YSU 1500S	or Youngstown State University Success Seminar	
or STEM 1520	or STEM First Year Orientation	
or HONR 1500	or Intro to Honors	
CHEM 1515 & 1515L	General Chemistry 1 and General Chemistry 1 Laboratory	4
ENGL 1550	Writing 1	3-4
or ENGL 1549	or Writing 1 with Support	
ENST 2600 & 2600L	Foundations of Environmental Science and Foundations of Environmental Science Laboratory	4

GER SS or AH Course		3
Semester Hours		15-17
Spring		
CHEM 1516 & 1516L	General Chemistry 2 and General Chemistry 2 Laboratory	4
ENGL 1551	Writing 2	3
ENST 2620	Freshman/Sophomore Seminar	1
STAT 2601 or STAT 2625 or STAT 3717 or STAT 3743	Introductory Statistics or Statistical Literacy and Critical Reasoning or Statistical Methods or Probability and Statistics	3-4
GER SS or AH course		3
Semester Hours		14-15
Year 2		
Fall		
MATH 1570 or MATH 1571	Applied Calculus 1 or Calculus 1	4
BIOL 2601 & 2601L	General Biology 1: Molecules and Cells and General Biology I: Molecules and Cells Laboratory	4
CMST 1545	Communication Foundations	3
ENST 3730	Air Quality	3
Semester Hours		14
Spring		
GEOL 1505 & 1505L	Physical Geology and Physical Geology Laboratory	4
GEOG 2611	Geospatial Foundations	3
ENST 3700	Environmental Chemistry	4
Elective Course (any)		3
GER SS or AH Course		3
Semester Hours		17
Year 3		
Fall		
ENST 3781	Environmental Sampling Methods	3
ENST 5860	Environmental Regulations	3
ENST 3751 or ENST 3752	Water Quality Analysis or Soil Quality and Analysis	3
Minor Course		3
GER SS or AH Course		3
Semester Hours		15
Spring		
ENST 5800	Environmental Impact Assessment	3
ENST 3751	Water Quality Analysis	3
ENST 3750	Seminar	1
Minor Minor Course		3
Major Course > 3700		3
PHYS 1501 or PHYS 2610	Fundamentals of Physics 1 or General Physics 1	4
Semester Hours		17
Year 4		
Fall		
ENST 5830	Toxicology and Risk Assessment	3
ENST 3790	Internship/Cooperative	4
Minor Course		3
Minor Course		3
Major Course > 3700		3
Semester Hours		16

Spring		
ENST 3780	Environmental Research	4
ENST 5810	Environmental Safety	1
Major Course > 3700		3
Major Course > 3700		3
Elective		1
Semester Hours		12
Total Semester Hours		120-123

¹ Elective support courses, select two of the following: PHYS 1501 Fundamentals of Physics 1, GEOG 2630 Weather, or STAT 2601 Introductory Statistics or STAT 3717 Statistical Methods.

Request a Graduation Evaluation after completing 80-85 s.h. from the STEM Advising Center, 2325 Moser Hall, (330) 941-2512.

Learning Outcomes

The Environmental Science Program educates students in the fundamental knowledge about the environment, its resources, processes, and the changes and problems that have occurred and potential solutions to those problems. The student learning outcomes for the BS in environmental science are:

Interdisciplinary: Demonstrate an understanding of basic environmental processes and the contributions of different scientific and social disciplines to environmental issues.

Research: Properly apply the scientific method to research an environmental question including design of experiments, acquisition of data (qualitative and quantitative), and articulate results in discussions and conclusions.

Communicate: Effectively converse using the language, concepts, and models of environmental science in written, visual, and numerical formats for specific and general audiences.

Problem Solving: Demonstrate the ability to identify and apply appropriate field, laboratory, or modeling methods to address environmental problems and propose sustainable solutions.

Critical Thinking: Students will utilize their understanding of pollution and environmental systems and published information to systematically, creatively, and analytically examine current issues.