

# Environmental Science and Management, B.S.

The Bachelor of Science in Environmental Science and Management (BS-ENSM) offers students the option to choose between environmental science and environmental management degree tracks to suit their career goals. The program helps students gain a comprehensive understanding of the interrelationships between humans, the Earth, and other living systems. It combines scientific knowledge, management principles, and practical skills to prepare students to tackle environmental and social issues as well as manage and mitigate environmental impacts effectively. The program equips students with skills to work in a variety of fields, including ecology, air, water, and soil pollution control, hydrology, water monitoring and treatment, compliance, environmental consulting, private industry, or other natural science-based careers such as environmental law, public policy, education, and public health.

## Program Requirements

Code	Title	Credit Hours
<b>Total Credit Hours</b>		<b>121</b>
<b>General Education Requirements</b>		<b>36 Credits</b>
ENGL 1010 or ENGH 1005	Introduction to Academic Writing CC Literacies and Composition Across Contexts CC	3
ENGL 2010	Intermediate Academic Writing CC	3
Complete one of the following:		4
MATH 1210	Calculus I QL (4) <sup>1</sup>	
MATH 1050	College Algebra QL (4) <sup>2</sup>	
MATH 1080	Precalculus QL (5)	
Complete one of the following:		3
HIST 1700	American Civilization AS (3)	
HIST 1740	US Economic History AS (3)	
HIST 2700 & HIST 2710	US History to 1877 AS and US History since 1877 AS (6)	
POLS 1000	American Heritage AS (3)	
POLS 1100	American National Government AS (3)	
Complete the following:		
HLTH 1100 or EXSC 1097	Personal Health and Wellness TE Fitness for Life TE	2
PHIL 2050 or PHIL 205G	Ethics and Values IH Ethics and Values IH GI	3
Distribution Courses:		
Complete one of the following:		3
BIOL 1010	General Biology BB (3)	
BIOL 1610	College Biology I BB (4) <sup>3</sup>	
ENVT 1110	Introduction to Environmental Management PP (fulfills Physical Science Distribution)	3
Third Science Distribution		3
Complete one of the following:		
GEO 1010	Introduction to Geology PP (3)	
GEO 1030	Natural Disasters and the Environment PP (3)	
GEO 1040	The Dinosaurian World PP (3)	
GEO 1050	Geology of National Parks PP (3)	
Fine Arts		3
Humanities		3
Social/Behavioral Science (GEOG 2000 Recommended)		3
<b>Discipline Core Requirements</b>		<b>52 Credits</b>
GEO 1015	Introduction to Geology Laboratory	1

CHEM 1210 & CHEM 1215	Principles of Chemistry I PP and Principles of Chemistry I Laboratory	5
CHEM 1220 & CHEM 1225	Principles of Chemistry II PP and Principles of Chemistry II Laboratory	5
ENVT 1270 or MICR 3150	Environmental Microbiology Microbial Ecology WE	3
ENVT 1300	Environmental Lab and Sampling	2
STAT 2040	Principles of Statistics QL	4
ENVT 2710	Environmental Careers	1
ENVT 2730	Introduction to Soils	4
ENVT 2560	Environmental Health	3
ENVT 3210	Water Quality and Reclamation	4
ENVT 3280	Environmental Law	3
GEOG 3600	Introduction to Geographic Information Systems	4
ENVT 3790	Applied Hydrology WE	4
ENVT 3850	Environmental Policy WE	3
GEO 480R	Earth Science Seminar (Must be taken twice)	1

Complete one of the following combinations: 5

PHYS 2010 & PHYS 2015	College Physics I PP and College Physics I Lab (5)	
PHYS 2210 & PHYS 2215	Physics for Scientists and Engineers I PP and Physics for Scientists and Engineers I Lab (5)	

**Academic Track Requirements 12 Credits**

Select one of the following tracks: 12

**Environmental Management Track**

ENVT 1200	Environmental Worker Safety (3)	
ENVT 1510	Hazardous Materials Emergency Response (3)	
Complete one of the following - Water and Pollution Management		
ENVT 3010	Environmental Toxicology (3)	
ENVT 3320	Hydraulics of Water (3)	
ENVT 3330	Water Resources Management (3)	
Complete one of the following - Land and Environmental Management		
ENVT 3530	Environmental Management Systems (3)	
ENVT 3750	Land Use Planning (3)	
ENVT 3770	Natural Resources Management (3)	

**Environmental Science Track**

METO 1010 or METO 1060	Introduction to Meteorology PP (3) Fundamentals of Weather Forecasting PP	
GEOG 3400	Environmental Remote Sensing (3)	
Complete one of the following - Biological Sciences		
BIOL 2500	Environmental Biology BB (3)	
BIOL 3700	General Ecology (3) <sup>4</sup>	
BIOL 3800	Conservation Biology (3)	
Complete one of the following - Environmental Sciences		
GEO 3000	Environmental Geochemistry (3)	
METO 3100	Climate and the Earth System (3)	
GEOG 3700	Wetland Studies (3)	
ENVT 3800	Energy Use on Earth GI (3)	

**Elective Requirements 21 Credits**

Choose 21 credits, not already taken in the core or track, from the following list (at least 15 credits must be Upper Division): <sup>5</sup> 21

ENVT 1200	Environmental Worker Safety (3)	
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ENVT 1510	Hazardous Materials Emergency Response (3)
ENVT 3010	Environmental Toxicology (3)
ENVT 3290	Environmental Reporting WE (3)
ENVT 3320	Hydraulics of Water (3)
ENVT 3330	Water Resources Management (3)
ENVT 3530	Environmental Management Systems (3)
ENVT 3550	Site Investigation (3)
ENVT 3700	Current Topics in Environmental Management (3)
ENVT 3750	Land Use Planning (3)
ENVT 3770	Natural Resources Management (3)
ENVT 3800	Energy Use on Earth GI (3)
ENVT 482R	Geologic Environmental Internship (1)
ENVT 495R	Special Projects in Environmental Management (1)
GEO 1080	Introduction to Oceanography PP (3)
GEO 202R	Science Excursion (1)
GEO 204R	Natural History Excursion BB (3)
GEO 2070	Desert Natural History (3)
GEO 3000	Environmental Geochemistry (3)
GEO 3100	Isotope Geochemistry (3)
GEO 3080 & GEO 3085	Earth Materials WE and Earth Materials Laboratory (4)
GEO 3100	Isotope Geochemistry (3)
GEO 3105	Isotope Geochemistry Laboratory (1)
GEO 3200 & GEO 3205	Geologic Hazards and Geologic Hazards Laboratory (4)
GEO 3500 & GEO 3505	Geomorphology WE and Geomorphology Lab (4)
GEO 4500	Sedimentary Geology WE (4)
GEO 4790	Hydrogeology (undefined)
GEOG 2000	Sustainability and Environment SS (3)
GEOG 3440	Geospatial Data Science (3)
GEOG 3650	Advanced Geographic Information Systems (4)
GEOG 3700	Wetland Studies (3)
GEOG 3705	Wetland Studies Laboratory (1)
GEOG 3800	Environmental History of the United States (3)
GEOG 4100	Geospatial Field Methods (3)
GEOG 482R	GIS Internship (1-3)
METO 1020	Introduction to Meteorology Laboratory (1)
METO 1060	Fundamentals of Weather Forecasting PP (3)
METO 3100	Climate and the Earth System (3)
PHYS 2015	College Physics I Lab (1)
PHYS 2025	College Physics II Lab (1)
PHYS 2210	Physics for Scientists and Engineers I PP (4)
PHYS 2220	Physics for Scientists and Engineers II PP (4)
CHEM 2310	Organic Chemistry I (4)
CHEM 2315	Organic Chemistry I Laboratory (1)
CHEM 2320	Organic Chemistry II (4)
CHEM 2325	Organic Chemistry II Laboratory (1)
MATH 1210	Calculus I QL (4)
MATH 1220	Calculus II (4)
MATH 2210	Calculus III (4)
BIOL 1610	College Biology I BB (4)
BIOL 1615	College Biology I Laboratory (1)

BIOL 1620	College Biology II (3)
BIOL 1625	College Biology II Laboratory (1)
BIOL 2500	Environmental Biology BB (3)
BIOL 3700	General Ecology (3) <sup>4</sup>
BIOL 3705	General Ecology Laboratory (1) <sup>4</sup>
BIOL 3800	Conservation Biology (3)
BIOL 4000	Freshwater Ecology (4) <sup>4</sup>
MICR 3150	Microbial Ecology WE (4) <sup>4</sup>
Or other electives approved by the advisor and chair	

1

MATH 1210 is required for PHYS 2110 option

2

Both MATH 1050 and PHYS 1100 is needed for PHY 2210 option.

Otherwise both MATH 1050 and MATH 1060 is required

3

BIOL 1610 has a co-requisite of BIOL 1615 which can count as an elective.

4

This course has a prerequisite that is not in program and may require you to take additional courses.

5

Credits used to satisfy core and/or track requirements cannot double count as an elective.

#### Graduation Requirements

1. Completion of a minimum of 121 semester credits, with a minimum of 40 upper-division credits.
2. Overall grade point average of 2.0 (C) or above.
3. Grade of C- or better in all ENVT, GEO, and GEOG courses.
4. Residency hours--minimum of 30 credit hours through course attendance at UVU, with at least 10 hours earned in the last 45 hours.
5. **Completion of an exit interview with the department chair and a Qualtrics Exit Survey prior to graduation.**
6. Completion of GE and specified departmental requirements.
7. Successful completion of at least one Global/Intercultural course.
8. Successful completion of at least two Writing Enriched (WE) courses.

## Graduation Plan

This graduation plan is a sample plan and is intended to be a guide. Your specific plan may differ based on your Math and English placement and/ or transfer credits applied. You are encouraged to meet with an advisor and set up an individualized graduation plan in Wolverine Track (<http://www.uvu.edu/wolverinetrack/>).

#### First Year

Semester 1		Credit Hours
ENGL 1010 or ENGH 1005	Introduction to Academic Writing CC or Literacies and Composition Across Contexts CC	3
Quantitative Literacy		4
ENVT 1110	Introduction to Environmental Management PP	3
Fine Arts Distribution		3
Social/Behavioral Science Distribution		3
<b>Credit Hours</b>		<b>16</b>
Semester 2		Credit Hours
ENGL 2010	Intermediate Academic Writing CC	3
American Institutions		3
BIOL 1010	General Biology BB	3
GEO 1010	Introduction to Geology PP	3
GEO 1015	Introduction to Geology Laboratory	1
ENVT 2710	Environmental Careers	1
GEO 480R	Earth Science Seminar	0.5
<b>Credit Hours</b>		<b>14.5</b>

**Second Year****Semester 3**

PHIL 2050	Ethics and Values IH	3
CHEM 1210	Principles of Chemistry I PP	4
CHEM 1215	Principles of Chemistry I Laboratory	1
PHYS 2010 & PHYS 2015	College Physics I PP and College Physics I Lab	5
ENVT 2730	Introduction to Soils	4
<b>Credit Hours</b>		<b>17</b>

**Semester 4**

Humanities Distribution		3
CHEM 1220	Principles of Chemistry II PP	4
CHEM 1225	Principles of Chemistry II Laboratory	1
ENVT 1270	Environmental Microbiology	3
ENVT 1300	Environmental Lab and Sampling	2
Track Requirement		3
<b>Credit Hours</b>		<b>16</b>

**Third Year****Semester 5**

STAT 2040	Principles of Statistics QL	4
ENVT 3210	Water Quality and Reclamation	4
GEOG 3600	Introduction to Geographic Information Systems	4
ENVT 3790	Applied Hydrology WE	4
<b>Credit Hours</b>		<b>16</b>

**Semester 6**

HLTH 1100 or EXSC 1097	Personal Health and Wellness TE or Fitness for Life TE	2
ENVT 3280	Environmental Law	3
ENVT 3850	Environmental Policy WE	3
Track Requirement		3
ENVT Elective		4
<b>Credit Hours</b>		<b>15</b>

**Fourth Year****Semester 7**

ENVT 2560	Environmental Health	3
GEO 480R	Earth Science Seminar	0.5
Track Requirement		3
ENVT Elective		7
<b>Credit Hours</b>		<b>13.5</b>

**Semester 8**

Track Requirement		3
ENVT Elective		10
<b>Credit Hours</b>		<b>13</b>
<b>Total Credit Hours</b>		<b>121</b>

## Program Learning Outcomes

1. Analyze the complex interrelationships among environmental, societal, and economic systems.
2. Evaluate the impacts of human activities on environmental problems.
3. Employ the scientific method in the field of environmental science and management.
4. Communicate scientific findings and environmental management strategies effectively to diverse stakeholders, utilizing written, oral, and visual means.
5. Build multi-disciplinary teamwork and leadership skills in environmental and science management field.