



**BS in ENVIRONMENTAL SCIENCE (285824) MAP Sheet**  
 Department of Plant and Wildlife Sciences  
 For students entering the degree program during the 2015–2016 curricular year.

UNIVERSITY CORE AND GRADUATION REQUIREMENTS				PROGRAM REQUIREMENTS (59–61 total hours)			
<b>UNIVERSITY CORE REQUIREMENTS</b>				<b>Complete the following environmental science core courses:</b>			
<b>Requirements</b>	<b>#Classes</b>	<b>Hours</b>	<b>Classes</b>	PWS 150*	Environmental Biology	3.0	b. Complete an additional 7 hours from the general major electives list below.
<b>Religion Cornerstones</b>				PWS 155	Careers in Environmental Science	1.0	<b>Soil Science and Conservation Core Track:</b>
Teachings & Doctrine, Book of Mormon	1	2.0	Rel A 275	PWS 282	Introduction to Soil Science	3.0	a. Complete the following: Chem 285, Geog 306, PWS 303, 306, 402.
Jesus Christ & the Everlasting Gospel	1	2.0	Rel A 250	PWS 283	Introduction to Soil Science Laboratory	1.0	b. Complete an additional 10 hours from the general major electives list below. (Recommended for advanced students: PWS 511, 514, 520, 560.)
Foundations of the Restoration	1	2.0	Rel C 225	PWS 305	Soils and Water Quality	3.0	<b>Water Resources and Conservation Core Track:</b>
The Eternal Family	1	2.0	Rel C 200	PWS 306	Soil and Water Quality Laboratory	1.0	a. Complete the following: Chem 285, Geol 111, 435, PWS 325, 402, 411.
<b>The Individual and Society</b>				PWS 345	Air Quality and Pollution	2.0	b. Complete an additional 4 hours from the general major electives list below. (Recommended for advanced students: PWS 511, 514, Bio 556, 557.)
Citizenship				PWS 365	Enviro Micro & Biogeochemistry	3.0	<b>Ecology Core Track:</b>
American Heritage	1–2	3–6.0	from approved list	PWS 366	Enviro Micro & Biogeochemistry Lab	1.0	a. Complete the following: PWS 215, 344, 355, 417, 419, 440.
Global & Cultural Awareness	1	3.0	from approved list	PWS 375	Environmental Policies and Laws	3.0	b. Complete an additional 7 hours from the general major electives list below. (Recommended for advanced students: PWS 540, 551, 553.)
<b>Skills</b>				<b>Complete one of the following biology courses:</b>			<b>Eco-business Core Track:</b>
Effective Communication				Bio 350	Ecology	3.0	a. Complete the following: Acc 200, Bus M 241 or 489, 371R, Econ 110, Fin 201 Geog 306, Hlth 322.
First-Year Writing	1	3.0	from approved list	PWS 350	Rangeland Ecology	3.0	b. Complete an additional 6 hours from the general major electives list below.
Adv Written & Oral Communication	1	3.0	Engl 316 recommended	<b>Complete one of the following biology courses:</b>			<b>General Major Electives List</b>
Quantitative Reasoning	1	3–4.0	from approved list	PDBio 120	Science of Biology	2.0	Acc 200 Principles of Accounting 3.0
Languages of Learning (Math or Language)	1	3–4.0	Math 112, 119 or Stat 121 recommended	PWS 100	Living with Plants	3.0	Bio 235 Field Botany 3.0
<b>Arts, Letters, and Sciences</b>				<b>Complete one course from the following:</b>			Bio 370 Bioethics 2.0
Civilization 1 and 2	2	6.0	from approved list	Bio 450	Conservation Biology	3.0	Bio 420 Evolutionary Biology 2.0
Arts	1	3.0	from approved list	PWS 199R	Academic Internship (2 hours required)	3.0V	Bio 421 Evolutionary Biology Lab 1.0
Letters	1	3.0	from approved list	PWS 494R	Mentored Learning Experience (2 hours required)	6.0V	Bio 556 Limnology 3.0
Scientific Principles & Reasoning				<b>Complete at least 6 hours from either of the two following groups:</b>			Bio 557 Stream & Wetland Ecology 4.0
Biological Science	1	3.0	PWS 150*	a. Chem 105*	General College Chemistry	4.0	Bus M 241 Marketing Management 3.0
Physical Science	2	7.0	Chem 105*, plus one course from approved list	Chem 106	General College Chemistry	3.0	Bus M 371R Entrepreneurship Lecture Series 1.0
Social Science	1	3.0	from approved list	Chem 107	General College Chemistry Lab	1.0	Bus M 489 Agribusiness Management 2 3.0
<b>Core Enrichment: Electives</b>				Chem 351	Organic Chemistry	3.0	Chem 223 Quantitative & Qualitative Analysis 4.0
Religion Electives	3–4	6.0	from approved list	b. Chem 101*	Introductory General Chemistry	3.0	Chem 285 Intro to Bio-organic Chemistry 4.0
Open Electives	Variable	Variable	personal choice	Chem 285	Intro Bio-organic Chemistry	4.0	Chem 351 Organic Chemistry 3.0
<b>GRADUATION REQUIREMENTS:</b>				<b>Note:</b> Recommended courses for graduate school and for toxicology, soil, and water tracks: Chem 105, 106, 107, 351, 352, 353.			Chem 352 Organic Chemistry 3.0
Minimum residence hours required		30.0		<b>Complete 25 hours from the following list of general electives. The list is organized into suggested career tracks that students may find useful, but students may choose any combination of the courses listed below to fulfill their 25 hours.</b>			Chem 353 Organic Chem Lab-Nonmajors 2.0V
Minimum hours needed to graduate		120.0		<b>Health and Ecotoxicology Core Track:</b>			Chem 481 Biochemistry 3.0
				a. Complete the following: Chem 351, 352, 353, MMBio 261, PDBio 362, 363, 365.			Econ 110 Economic Principles & Problems 3.0
							Fin 201 Principles of Finance 3.0
							Geog 101 Global Environment 3.0
							Geog 212 Intro to GIS 3.0
							Geog 303 Biogeography 3.0
							Geog 306 Public Land Conservation 3.0
							Geog 310 Intro to Urban & Regional Planning 3.0
							Geol 101 Introduction to Geology 3.0
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Geol	111	Physical Geology	4.0
Geol	435	Introduction to Groundwater	3.0
Hlth	322	Environmental Health	3.0
Math	302	Mathematics for Engineering 1	4.0
Math	303	Mathematics for Engineering 2	4.0
MMBio	221	General Microbiology	3.0
MMBio	240	Molecular Biology	3.0
MMBio	241	Molecular & Cellular Bio Lab	1.0
MMBio	261	Infection and Immunity	3.0
PDBio	362	Advanced Physiology	3.0
PDBio	363	Advanced Physiology Lab	1.0
PDBio	365	Pathophysiology	4.0
Phil	205	Intro to Formal Logic	3.0
Phscs	106	General Physics 2	3.0
Phscs	107	General Physics Lab 1	1.0
Phscs	108	General Physics Lab 2	1.0
PWS	100	Living with Plants	3.0
PWS	215	Principles of Range Management	3.0
PWS	225	Principles of Wildlife & Fishery Mgt	3.0
PWS	275	Genetics & Reproduction	3.0
PWS	303	Soils Conservation & Resources	3.0
PWS	325	Fisheries & Wetlands Management	3.0
PWS	330	Rangeland Plant ID & Ecology	3.0
PWS	331	Science of Plant Pest Control	3.0
PWS	340	Genetics	3.0
PWS	344	Natural History of Wildlife	3.0
PWS	355	Wildland Veg. Measure & Analysis	3.0
PWS	402	Soils & Water in Urban Environment	3.0
PWS	405	Environmental Chemistry Lab 1	1.0
PWS	406	Environmental Chemistry Lab 2	1.0
PWS	411	Watershed Management	3.0
PWS	416	Rangeland Vegetation Improvement	3.0
PWS	417	Rangeland Planning & GIS	3.0
PWS	419	Forest Management and Ecology	3.0
PWS	431	Plant Health Diagnostics	3.0
PWS	440	Plant Physiology	3.0
PWS	511	Environ Biophysics: Soil & Plant	4.0
PWS	514	Soil Microbiology	2.0
PWS	540	Plant Response to the Environment	3.0
PWS	551	Quantitative Ecology	3.0
PWS	560	Quantitative Environmental Chemistry	2.0

**Federal Register Requirements:**

The federal register requirements for environmental science ecology or physical science emphasis can be met by choosing appropriate electives. Ecology requires 30 semester hours of basic and applied biology, including at least 9 semester hours

**Note:** Students are encouraged to complete an average of 15 credit hours each semester or 30 credit hours each year, which could include spring and/or summer terms. Taking fewer credits substantially increases the cost and the number of semesters to graduate.

of ecology and 12 hours of physical and mathematical sciences. Physical science requires 25 semester hours of physical sciences (chemistry, physics, math, etc.)

Preprofessional students should consult with the Preprofessional Advisement Office (3326 WSC) to determine which additional courses they will be required to complete.

The following courses are recommended for students that plan to pursue graduate degrees in environmental science.

Chem 351, 352, 353, 481.  
Math 119 or higher.  
Phscs 105, 106, 107, 108.

***Suggested Sequence of Courses:***

**FRESHMAN YEAR**

1st Semester

PDBio 120	2.0
Chemistry elective	3–4.0
1 <sup>st</sup> Year Writing or American Heritage	3.0
Quantitative Reasoning (if needed)	3.0
Religion Cornerstone course	2.0
<b>Total Hours</b>	<b>13–14.0</b>

2nd Semester

A Htg 100	3.0
or 1 <sup>st</sup> Year Writing	(3.0)
PWS 150	3.0
Chemistry elective	2–3.0
PWS 282, 283	4.0
Religion Cornerstone course	2.0
<b>Total Hours</b>	<b>14–15.0</b>

**SOPHOMORE YEAR**

3rd Semester

Civilization 1 elective	3.0
Math 112 or Stat 121 (Lang. of Learning)	3–4.0
PWS 303	3.0
Physical Science elective	3.0
Religion Cornerstone course	2.0
<b>Total Hours</b>	<b>14–15.0</b>

4th Semester

General elective	3.0
Civilization 2 elective	3.0
Global & Cultural Awareness elective	3.0
Major elective	2.0
PWS 305	3.0
Religion Cornerstone course	2.0
<b>Total Hours</b>	<b>16.0</b>

**JUNIOR YEAR**

5th Semester

Arts or Letters elective	3.0
Bio 350	3.0
Major electives	4.0
PWS 345	3.0
Religion elective	2.0
<b>Total Hours</b>	<b>15.0</b>

6th Semester

Adv. Written & Oral Communication elective	3.0
Major electives	6.0
PWS 375	2.0
Religion elective	2.0
Social Science elective	3.0
<b>Total Hours</b>	<b>16.0</b>

**Apply for graduation.**

**SENIOR YEAR**

7th Semester

Arts or Letters electives	6.0
Major elective	3.0
General electives	4.0
Religion elective	2.0
<b>Total Hours</b>	<b>15.0</b>

8th Semester

Bio 450 or PWS 490 or PWS 494R	2–3.0
Major electives	5.0
General electives	6.0
PWS 491R	1.0
<b>Total Hours</b>	<b>14–15.0</b>

**Note:** The above course of study provides a guide in planning. However to meet special needs and interests of each student the courses taken and the order in which they are taken may require alteration. Study the requirements, plan a course of study, and consult with an advisor early in the program. This will save considerable time and minimize frustration.

**THE DISCIPLINE:**

This degree incorporates soil science, biology, and physical science. It is designed for students who desire combined training in these fields and it provides flexibility for students. The emphasis may either be on the environment or on soil science. Students may pursue immediate employment in environmental soil science or graduate study in soil science, environmental science, and other related fields.

**CAREER OPPORTUNITIES:**

Many graduates in environmental soil science will find employment in environmental consulting, analytical laboratories, and governmental agencies. Most students in this program will continue their education in graduate school: graduate schools (PhD), professional schools (medical, dental), law schools, and hydrology. Those with MS and PhD degrees will fill leadership positions in environmental consulting, governmental agencies, and universities.

The major is designed to provide a broad range of skills, including the following: quantitative reasoning; interpretation of scientific literature; recognition of historical and current scientific trends; principles of scientific data collection, interpretation, and assimilation; and critical writing.

**HANDS-ON LEARNING OPPORTUNITIES:**

Students are also encouraged to seek mentored research opportunities in environmental soil science.

**FINANCING:**

Scholarships are available for qualified students from the department, college, and university.

**HONORARY SOCIETIES AND CLUBS:**

The Department of Plant and Wildlife Sciences encourages student participation in active clubs within the department. Students are encouraged to be active participants in professional societies; national honor societies; campus academic, service, and social clubs.

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