

# BS in Environmental Sciences with Emphasis in Land and Soil

## Degree Program Description

The Environmental Science degree with an emphasis in Land and Soil combines interests in monitoring environmental change, conserving and managing soil and biological organisms, sustainably managing soil, improving environmental quality with the shaping of new policies and educating others about the natural environment and environmental issues. Example careers include Environmental Specialist, Environmental Technician, Land Manager, and Soil Scientist. Employment may occur in a variety of sectors, including federal, state, county and city government agencies, non-government agencies (NGOs), and private consulting firms.

## Major Program Requirements

The degree combines interests in monitoring environmental change, conserving and managing soil and biological organisms, sustainably managing soil, and improving environmental quality with the shaping of new policies and educating others about the natural environment and environmental issues. Example careers include Environmental Specialist, Environmental Technician, Land Manager, and Soil Scientist. Employment may occur in a variety of sectors, including federal, state, county and city government agencies, non-government agencies (NGOs), and private consulting firms.

Students earning a Bachelor of Science in Environmental Sciences are required to complete all University general education (<https://catalog.missouri.edu/academicdegreerequirements/generaleducationrequirements/>), University graduation (<https://catalog.missouri.edu/academicdegreerequirements/universityrequirements/>), and degree requirements, including selected foundational courses, which may fulfill some University general education requirements.

## Foundational

MATH 1100 or MATH 1160	College Algebra Precalculus Mathematics	3-5
MATH 1400 or MATH 1500	Calculus for Social and Life Sciences I Analytic Geometry and Calculus I	3-5
CHEM 1400 & CHEM 1401	College Chemistry I and College Chemistry I Laboratory	4
Business Elective (select from ABM, FINPLN, MANGMT, MRKTNG)		3
ABM 2123 or STAT 1200	Quantitative Applications in Agricultural and Natural Resource Sciences Introductory Statistical Reasoning	3
ENV_SC 1100	Introduction to Environmental Science	3
AGSC_COM 2220	Verbal Communication in Agriculture, Food and Natural Resources	3
ATM_SC 1050	Introductory Meteorology	3
NAT_R 2325 or GEOG 3040	Introduction to Geographic Information Systems Introduction to Geographic Information Systems GIS	3

ENV_SC 4560 or ABM 1200	Observing the Earth from Space Applied Computer Applications	3
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## Core Emphasis Area

### Biological Science

BIO_SC 1200 or PLNT_SCI 2110	General Botany with Laboratory Who Runs the World? Plants.	3
BIO_SC 1500	Introduction to Biological Systems with Laboratory	5
FOREST 4320 or BIO_SC 3650	Forest Ecology General Ecology	5

### Chemistry

CHEM 1410 & CHEM 1411	College Chemistry II and College Chemistry II Laboratory	4
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### Geology

GEOL 1100 or GEOL 1200	Introduction to the Earth with Laboratory Environmental Geology with Laboratory	4
GEOL 2400	Surficial Earth Processes and Products with Laboratory	4

### Policy/Regulation

NAT_R 4353 or ENV_SC 4400W	Natural Resource Policy/Administration Environmental Law, Policy, and Justice - Writing Intensive	3
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### Soil Science

SOIL 2100	Introduction to Soils	3
SOIL 2106	Soil Science Laboratory	2

### Physics

SOIL 4305	Environmental Soil Physics	3
SOIL 4306 or PHYSCS 1210	Environmental Soil Physics Laboratory College Physics I	4

### Additional Emphasis Area Requirements

FOREST 2151	Dendrology	4
ENV_SC 2600	Sustainability Foundations: An Introduction to Sustainability	3
ENV_SC 3250	Pollutant Fate and Transport	3
SOIL 4313 or FOREST 4330 or F_W 4600W	Soil Fertility and Plant Nutrition Practice of Silviculture Ecosystem Management - Writing Intensive	3-4
ENV_SC 4940	Environmental Science Internship	3

### UpperLevel Disciplinary Electives

Select from the following courses to achieve an additional 15 credits. Must take at least one Atmospheric, Environmental, or Soil Science course. May only double count up to 6 credits between degree program requirements and upper-level disciplinary electives.		
ATM_SC 3600	Climates of the World	3
AG_S_TCH 4360	Precision Agriculture Science and Technology	3
AG_S_TCH 4420	Surface Water Management	3
ENV_SC 4305	Environmental Soil Physics	3
ENV_SC 4306	Environmental Soil Physics Laboratory	2
ENV_SC 4312	Environmental Soil Microbiology	3
ENV_SC 4318	Environmental Soil Chemistry	3
ENV_SC 4320	Hydrologic and Water Quality Modeling	3
ENV_SC 4450	Environmental Hydrology	3
F_W 4500	Animal Population Dynamics and Management	3

ENV_SC 4600W	Sustainability Science Problem Solving - Writing Intensive	3
F_W 4600W	Ecosystem Management - Writing Intensive	3
FOREST 3207	Forest Fire Control and Use	3
FOREST 4380	Forest Resource Management	3
FOREST 4390	Watershed Management and Water Quality	3
GEOG 3610	Physical Geography of the United States	3
GEOG 3630	Earth Surface Systems	3
GEOG 3830	Remote Sensing	3
GEOG 4710	Spatial Analysis in Geography	3
GEOG 4940	Advanced Geographic Information Systems (GIS II)	3
NAT_R 4110	Natural Resource Biometrics	4
PLNT_SCI 3270	Forage Crops	3
PLNT_SCI 3275	Grain Crops	3
SOIL 4313	Soil Fertility and Plant Nutrition	3
<b>Capstone Experience</b>		<b>4</b>
SOIL 4320	Genesis of Soil Landscapes	4
Electives approved by professional advisor to complete 120 total credits.		

ENV_SC 4305	3 Emphasis Area Elective-Upper Level WI	3
ENV_SC 4306	2 Humanities Elective	3
Emphasis Area Elective	3 NAT_R 4353	3
GEOG 2400	4	
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	<b>16</b>	<b>13</b>
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<b>Total Credits: 120</b>		

## Semester Plan

First Year			
Fall	CR	Spring	CR
HIST 1100 or POL_SC 1100	3	ENGLISH 1000	3
ENV_SC 1100	3	MATH 1100	3
BIO_SC 1200	5	BIO_SC 1500	5
ATM_SC 1050	3	SOIL 2100	3
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	<b>14</b>		<b>14</b>

Second Year			
Fall	CR	Spring	CR
CHEM 1400 & CHEM 1401	4	CHEM 1410 & CHEM 1411	4
AGSC_COM 2220	3	Emphasis Area Elective	3
FOREST 4320	5	GEOG 1200	4
ENV_SC 2600	3	SOIL 2106	2
		Business Elective	3
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	<b>15</b>		<b>16</b>

Third Year					
Fall	CR	Spring	CR	Summer	CR
STAT 1200	3	NAT_R 2325	3	ENV_SC 4940	3
FOREST 2151	4	ENV_SC 3250	3		
ABM 1200	3	MATH 1400	3		
ENV_SC 3290	3	Humanities Elective-Lower Level WI	3		
		Emphasis Area Elective	4		
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	<b>13</b>		<b>16</b>		<b>3</b>

Fourth Year			
Fall	CR	Spring	CR
SOIL 4320	4	FOREST 4330	4