

BS in Environmental Sciences with Emphasis in Water

Degree Program Description

The degree combines interests in understanding management effects on hydrology and water quality. Studies include monitoring environmental change, conserving and managing biological organisms, assuring healthy streams and adequate water supplies, improving environmental quality with the shaping of new policies and educating others about the natural environment and environmental issues. Example careers include Environmental Scientist, Environmental Technician, Hydrologist, Land Manager, and Water Quality Specialist. 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

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

Foundational Courses

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 1320	College Chemistry I	4
Business Elective (select from ABM, ECONOM, FINPLN)		3
AGSC_COM 2220	Verbal Communication in Agriculture, Food and Natural Resources	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
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

Core Emphasis Requirements

Biological Science

BIO_SC 1200	General Botany with Laboratory	5
BIO_SC 1500	Introduction to Biological Systems with Laboratory	5
FOREST 4320 or BIO_SC 3650	Forest Ecology General Ecology	5

Chemistry

CHEM 1330	College Chemistry II	4
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
Soil Science		
SOIL 2100	Introduction to Soils	3
SOIL 2106	Soil Science Laboratory	2
Additional Emphasis Area Requirements		
ENV_SC 2600	Sustainability Foundations: An Introduction to Sustainability	3
ENV_SC 3250	Pollutant Fate and Transport	3
ENV_SC 4450 or FOREST 4390	Environmental Hydrology Watershed Management and Water Quality	3
ENV_SC 4940	Environmental Science Internship	3
Capstone Experience		
ENV_SC 3400 or ENV_SC 4320	Water Quality and Natural Resources Management Hydrologic and Water Quality Modeling	3

Students may identify a specific track and select from the following disciplinary elective classes approved by an academic advisor to achieve an additional 15 credit hours at the 3000/4000 levels (must take at least one Atmospheric, Environmental or Soil Science course). Students not wishing to work in a specific track may select from either list to achieve an additional 15 credit hours at the 3000/4000 levels and at least one course must be in Atmospheric, Environmental, or Soil Science.

(Tracks do not appear on transcripts or diplomas)

Hydrology Track		15
AG_S_TCH 4420	Surface Water Management	3
ATM_SC 3600	Climates of the World	3
ATM_SC 4400	Micrometeorology	3
ATM_SC 4590	Radar Meteorology	3
BIOL_EN 4150	Soil and Water Conservation Engineering	3
CV_ENG 3700	Fluid Mechanics	3
CV_ENG 3702	Fundamentals of Water Resources Engineering	4
ENV_SC 4305	Environmental Soil Physics	3
ENV_SC 4306	Environmental Soil Physics Laboratory	2
ENV_SC 4318	Environmental Soil Chemistry	3
FOREST 4390	Watershed Management and Water Quality	3
GEOG 4630	River and Stream Dynamics	3
GEOL 4100	Groundwater Hydrology	3
NAT_R 3400	Water Quality and Natural Resource Management	3
SOIL 4320	Genesis of Soil Landscapes	4
Water Quality Track		15
BIOL_EN 4150	Soil and Water Conservation Engineering	3
ENV_SC 4100	Lake Ecology	3
ENV_SC 4200	Stream Ecology and Hydrology	3
ENV_SC 4300	Methods in Lake Ecology	2

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 4600W	Sustainability Science Problem Solving - Writing Intensive	3
F_W 3900	Ecology of Fishes	3
FOREST 4390	Watershed Management and Water Quality	3
GEOL 4300	Introduction to Low-Temperature Geochemistry	3
NAT_R 3400	Water Quality and Natural Resource Management	3
PLNT_SCI 4720	Aquatic Entomology	3
SOIL 4313	Soil Fertility and Plant Nutrition	3

ENV_SC 4400W	3
ENV_SC 4450	3
14	16

Total Credits: 120

Electives approved by professional advisor to complete 120 credits

Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
HIST 1100 or POL_SC 1100	3	ENGLSH 1000	3
BIO_SC 1200	5	MATH 1100	3
ENV_SC 1100	3	NAT_R 2325	3
ATM_SC 1050	3	SOIL 2100	3
		GEOL 1200	4
	14		16

Second Year			
Fall	CR	Spring	CR
BIO_SC 1500	5	SOIL 2106	2
ENV_SC 2600	3	CHEM 1320	4
ENV_SC 3290	3	AGSC_COM 2220	3
STAT 1200	3	Business Elective	3
		Emphasis Area Elective	3
	14		15

Third Year					
Fall	CR	Spring	CR	Summer	CR
GEOL 2400	4	CHEM 1330	4	ENV_SC 4940	3
FOREST 4320 or BIO_SC 3650	5	NAT_R 3400	3		
Humanities Elective	3	ENV_SC 3250	3		
Social Science Elective	3	Emphasis Area Elective	3		
	15		13		3

Fourth Year			
Fall	CR	Spring	CR
ABM 1200	3	MATH 1400	3
ENV_SC 4305	3	Humanities Elective- Lower Level WI	3
ENV_SC 4306	2	Emphasis Area Elective	10