

# Environmental Sciences: Environmental Health

The discipline of environmental health encompasses understanding and addressing the inter-relationships of the environment and human health, including the effects of biological, chemical and physical factors, as well as social environments on health. Clean air, stable climate, adequate water, sanitation and hygiene, safe use of chemicals, protection from radiation, healthy and safe workplaces, sound agricultural practices, health-supportive cities and built environments, and functioning ecosystems are all prerequisites for good health. As environmental health scientists, graduates of this program will work to protect human health and well-being based on an integrated understanding of human-environment interrelationships and by fostering both healthy communities and healthy ecosystems.

Students build on foundational training in the natural sciences with coursework in ecology, environmental health, soils, water resources, microbiology, physiology, toxicology and epidemiology. Courses in risk assessment, environmental laws and regulations, geographic information systems and statistics provide additional skills. Hands-on experience is gained through fieldtrips, a required environmental health internship and the capstone field course for LRES. Students in this option are eligible for national environmental health scholarships and internships. This is a flexible option with sufficient elective credits to allow students to specialize or earn a minor in any area of the interdisciplinary curriculum, such as environmental law, water and health, entomology/vectorborne disease, global health, one health, toxicology, epidemiology, outdoor recreation safety and more.

**Career opportunities:** Students earn a bachelor's degree in environmental science as well as a nationally accredited environmental health degree. As the only accredited environmental health BS degree in the Northern Plains, graduates are well prepared for and go to work as environmental health professionals in the public and private sectors, or go on to graduate school in environmental health, occupational health and safety, risk assessment, epidemiology or toxicology, or pursue medical school, the US Public Health Service or a career in environmental law and policy.

Freshman Year	Credits	
	Fall	Spring
WRIT 101W - College Writing I	3	
ENSC 110 - Land Resources and Environmental Sciences	3	
BIOB 170IN - Principles of Biological Diversity	4	
CHMY 141 - College Chemistry I & CHMY 142 - College Chemistry I Lab	4	
M 161Q - Survey of Calculus or M 171Q - Calculus I		4
BIOB 160 - Principles of Living Systems or BIOB 260 - Cellular and Molecular Biology		4
CHMY 143 - College Chemistry II & CHMY 144 - College Chemistry II Lab		4
Univ. Seminar (US Core)		3
Year Total:	14	15

Sophomore Year	Credits	
	Fall	Spring
ENSC 245IN - Soils	3	
Take one of the following:	3	
BIOB 318 - Biometry		
STAT 216Q - Introduction to Statistics		
STAT 332 - Statistics for Scientists and Engineers		

BIOB 210IN - Environmental Health Science	3	
Take one of the following:	4	
BIOH 185 - Integrated Physiology I		
BIOH 211 - Human Anatomy and Physiology II		
ANSC 265 - Anatomy and Physiology of Domestic Animals - Lecture & ANSC 266 - Anatomy and Physiology of Domestic Animals - Lab		
WRIT 201 - College Writing II	3	
GPHY 284 - Intro to GIS Science & Cartog	3	
Take one of the following:	4-5	
CHMY 123 - Introduction to Organic Chemistry and Biochemistry & CHMY 124 - Introduction to Organic and Biochemistry Lab		
CHMY 211 - Elements of Organic Chemistry & CHMY 212 - Elements of Organic Chemistry Lab		
CHMY 321 - Organic Chemistry I & CHMY 322 - Organic Chemistry I Lab		
BIOB 250 - Microbiology for Health Sciences: Infectious Diseases & BIOB 251 - Microbiology for Health Sciences Lab	4	
Univ. Core		3
Year Total:	16	14
<b>Junior Year</b>	<b>Credits</b>	
	<b>Fall</b>	<b>Spring</b>
BIOE 370 - General Ecology	3	
PHSX 205 - College Physics I	4	
Univ. Core	6	
Electives	3	
EENV 387 - Environmental Laws and Regulations or PSCI 362 - Natural Resource Policy		3
Electives: ENSC 311 and ENSC 260 are recommended this semester		9
Univ. Core		3
Year Total:	16	15
<b>Senior Year</b>	<b>Credits</b>	
	<b>Fall</b>	<b>Spring</b>
ENSC 444 - Watershed Hydrology	3	
CHTH 440 - Principles of Epidemiology	3	
MBEH 498 - Internship	3	
Electives	6	
BIOB 425 - Toxicology: Science of Poisons		3
ENSC 407 - Environmental Risk Assessment		3
ENSC 499R - LRES Capstone		3
Electives		6
Year Total:	15	15
<b>Total Program Credits:</b>	<b>120</b>	

## Suggested Electives

The number of electives required to reach the 120 total credits needed for graduation varies with the number of credits earned as a result of decisions made about other choice blocks in the curriculum. Students should work with their faculty advisor to plan elective courses appropriate to their academic, professional, and personal goals. Suggested courses are listed

below, but students are not limited to these courses. Students choosing to take lower level courses (1xx/2xx) for directed electives should be sure they are meeting the university minimum requirement of 42 credits of upper level classes (3xx/4xx) for graduation.

MBEH 492	Independent Study	1-3
MBEH 490R	Undergraduate Research	1-6
MBEH 495	Field Project	1-4
ENSC 210	Role of Plants in the Environment	3
ENSC 260	Evolution for Env Scientists	3
ENSC 272CS	Water Resources	3
ENSC 311	Fundamentals of Environmental Data Analysis	3
ENSC 353	Environmental Biogeochemistry	3
ENSC 460	Soil Remediation	3
ENSC 461	Restoration Ecology	3
ERTH 101IN	Earth System Sciences	4
BIOM 360	General Microbiology	5
BIOM 400	Medical Microbiology	3
BIOM 430	Applied and Environmental Microbiology	4
BIOM 452	Soil & Environmntl Microbiology	3
BIOO 412	Animal Physiology	3
BIOH 201	Human Anatomy and Physiology I	0,4
BIOH 303	Global Diseases and Health Disparities	3
BIOO 262IN	Introduction to Entomology	3
STAT 337	Intermediate Statistics with Introduction to Statistical Computing	3
STAT 411	Methods for Data Analysis I	3
STAT 412	Methods for Data Analysis II	3
GPHY 357	GPS Fund/App in Mapping	3
GPHY 384	Adv GIS and Spatial Analysis	3
GPHY 402	Water and Society	3
BCH 380	Biochemistry	4
CHMY 311	Fundamental Analytical Chem	4
CHMY 323	Organic Chemistry II	3
BMGT 335	Management and Organization	3
CHTH 210	Foundations in Community Health	3
CHTH 317	Health Behavior Theories	3
CHTH 414	Health and Culture: A Global Perspective	3
CHTH 428	Health Disparities	3
LS 104	Introduction to Global Health	3
NASX 310	Native Cultures of North America	3
NASX 415	Native Food Systems	3
NASX 450	History of American Indians	3
NASX 476	American Indian Policy and Law	3
NUTR 221CS	Basic Human Nutrition	3
NUTR 226	Food Fundamentals	3
NUTR 227	Food Fundamentals Lab	2
NUTR 322	Food Service System Management	3
PHSX 207	College Physics II	4
Courses in Climate, Water Resources Minor, GIS minor or Global Health minor		