

ENVIRONMENTAL SCIENCE MAJOR: ENVIRONMENTAL MICROBIOLOGY TRACK (B.S.)

CORE REQUIREMENTS (8 Courses)

Cr. 4	F, S	Cr. 5	F, S, Su	Cr. 3	F, S	Cr. 4	F, S	Cr. 3	F, S	Cr. 1	F, S	Cr. 4	F, S, Su	Cr. 4	F, S, Su
BIO 105		CHM 103		ENV 101		GEO 101		GEO 305		GEO 401		MIC 230		STAT 145	

BIO 341 F** - Cr. 3	GEO 410 F** - Cr. 3
BIO 447 S** - Cr. 3	GEO 412 S** - Cr. 3
BIO 499 F, S, SU** - Cr. 1-3	GEO 450 F, W, S, Su - Cr. 1-6
CHM 413 F** - Cr. 2	GEO 499 F, W, S, Su - Cr. 1-3
CHM 479 O** - Cr. 1-3	MIC 499 F, W, S, Su - Cr. 1-3
CHM 499 F, S, SU** - Cr. 1-3	

**ENVIRONMENTAL SCIENCE
FIELD EXPERIENCE**
(Min 3 Credits*)

GEO 221 F - Cr. 4 **GEO 222** S - Cr. 4
**EARTH'S CLIMATE AND
LANDFORMS**
(1 Course*)

GEO 221 F - Cr. 4	GEO 428 S, EY** - Cr. 3
GEO 222 S - Cr. 4	GEO 430 S, OY** - Cr. 3
GEO 422 S** - Cr. 3	GEO 460 F, EY** - Cr. 3
GEO 425 F, OY** - Cr. 3	

GEO 221 and GEO 222 can ONLY be applied to Earth's Climate OR Earth's Environmental Systems

**EARTH'S ENVIRONMENTAL
SYSTEMS (2 Courses*)**

BIO 202 W, Su - Cr. 2
BIO 419 F** - Cr. 3
CHM 301 F, S - Cr. 5
GEO 488 S, OY** - Cr. 3
MTH 207 F, S, Su - Cr. 5
STAT 405 F - Cr. 3

**QUANTITATIVE
ANALYSIS**
(1 Course*)

ENV 310 0 - Cr. 3	ENV 353 0 - Cr. 3
ENV 311 0 - Cr. 3	GEO 309 F, OY - Cr. 3
ENV 313 0 - Cr. 3	GEO 310 F, EY - Cr. 3
ENV 315 0 - Cr. 3	GEO 320 S, OY - Cr. 3
ENV 316 0 - Cr. 3	GEO 321 S - Cr. 3
ENV 350 0 - Cr. 3	GEO 340 F, EY - Cr. 3
ENV 351 0 - Cr. 3	GEO 427 F, OY** - Cr. 3
ENV 352 0 - Cr. 3	

**HUMANS AND
THE ENVIRONMENT**
(2 Courses*, at least
1 must be GEO)

**EVS
EXIT
SURVEY**

BIO 412 Su, ** - Cr. 1	MIC 427 F, OY, ** - Cr. 3
BIO 442 F, OY, ** - Cr. 3	MIC 434 F, EY, ** - Cr. 3
MIC 350 F-OY, S-OY - Cr. 3	MIC 442 F, OY, ** - Cr. 3

**ENVIRONMENTAL MICROBIOLOGY
ELECTIVES (2 Courses*)**

PREREQUISITES:

REQUIRED →
* See Undergraduate
Catalog for course
prerequisite details

LEGEND (WHEN OFFERED):

F = FALL S = SPRING
SU = SUMMER W = WINTER
A = ANNUALLY O = OCCASIONALLY
OY = ODD NUMBERED YEARS
EY = EVEN NUMBERED YEARS
** = JR/SR STANDING

It is recommended that environmental science majors complete a minor in earth science, human and environmental geography, geographic information science, geoarchaeology, sustainability and environmental studies, biology, chemistry, and / or microbiology.

Environmental Science Major: ENVIRONMENTAL MICROBIOLOGY B.S.**55 - 61 CREDITS****Environmental Science Core (8 required courses):**

Name	Credits	Description	Prerequisite	Offered
BIO 105	4	General Biology	-	F, S
CHM 103	5	General Chemistry I	MTH 150 or placement in MTH 151	F, S, Su
ENV 101	3	Introduction to Sustainability	-	F, S
GEO 101	4	Earth Environments	-	F, S
GEO 305	3	Geographic Information Systems and Science I	-	F, S
MIC 230	4	Fundamentals of Microbiology	BIO 105	F, S, Su
STAT 145	4	Elementary Statistics	MTH 050	F, S, Su
GEO 401	1	Capstone Seminar in Geography and Environmental Science	Senior Standing	F, S

Earth's Climate and Landforms (Choose 1 courses)

Name	Credits	Description	Prerequisite	Offered
GEO 221	4	Weather and Climate	GEO 101	F
GEO 222	4	Earth Surface Processes and Landforms	GEO 101	S

Humans and the Environment (Choose 2 courses, at least 1 must be GEO)

Name	Credits	Description	Prerequisite	Offered
ENV 310	3	Food, Culture, and the Environment	ENV 101	O
ENV 311	3	The Mississippi River: Mighty and Managed	ENV 101	O
ENV 313	3	Woodlands of the Driftless: History, Ecology, and Mgmt	ENV 101	O
ENV 315	3	Sustainability: Principles and Practices	ENV 101	O
ENV 316	3	Occupying the Driftless: Culture, Place, and Environment	ENV 101	O
ENV 350	3	Justice, Injustice, and Activism	ENV 101	O
ENV 351	3	Feeding the Planet: Environmental Justice of our Food Sys	ENV 101	O
ENV 352	3	Americans, Global Parks, and Wilderness	ENV 101	O
ENV 353	3	Rural Livelihoods: Sustain and the Env in the Upper Midwest	ENV 101	O
GEO 309	3	Cities: Past, Present, and Future	-	F-Odd
GEO 310	3	Transportation Equity and Sustainable Communities	-	F-Even
GEO 320	3	Energy, the Environment, and Sustainability	-	S-Odd
GEO 321	3	Sustainable Development and Conservation	-	S
GEO 340	3	Polar Environments	-	F-Even
GEO 427	3	Sustainable Water Resource Management	-	F-Odd

Earth's Environmental Systems (Choose 2 courses)**(GEO 221 and GEO 222 can only be applied to Earth's Climate and Landforms or Earth's Environmental Systems)**

Name	Credits	Description	Prerequisite	Offered
GEO 221	4	Weather and Climate	GEO 101	F
GEO 222	4	Earth Surface Processes and Landforms	GEO 101	S
GEO 422	3	Meteorology	GEO 221	S
GEO 425	3	Biogeography	GEO 101	F-Odd
GEO 428	3	Past Environmental Change	GEO 221 and GEO 222	S-Even
GEO 430	3	River Systems	GEO 222 or BIO 341 or BIO 464	S-Odd
GEO 460	3	Environmental Hazards	GEO 221 or GEO 222	F-Even

Quantitative Analysis (Choose 1 course)

Name	Credits	Description	Prerequisite	Offered
BIO 202	2	Intro to Biological Data Analysis and Interpretation	BIO 105	W, Su
BIO 419	3	Quantitative Methods in Ecology	BIO 307 or BIO 341; STAT 145 or MTH 265	F
CHM 301	5	Analytical Chemistry	CHM 104	F, S
GEO 488	3	Quantitative Methods in Geography	GEO 305; STAT 145	S - Odd
MTH 207	5	Calculus I	MTH 151	F, S, Su
MTH 265	4	Mathematical Models in Biology	MTH 175 or MTH 207	S
STAT 405	3	Statistical Methods	STAT 145	F

Environmental Science Field Experience (Complete a minimum of 3 credits)

Name	Credits	Description	Prerequisite	Offered
BIO 341	3	Limnology	BIO 105	F
BIO 447	3	Standard Methods / Quality Assurance Water Analyses	BIO 203 or BIO 210 or BIO 303 or BIO 304	S
BIO 499	1-3	Independent Research	-	F, S, Su
CHM 413	2	Environmental Chemistry Laboratory	CHM 300 or CHM 301 or CHM 303	F
CHM 479	1-3	Field Research Station Experience	CHM301 or CHM 302 or CHM 305 or CHM 313 or CHM 325 or CHM 413 or	O

			CHM 417 or CHM 461	
CHM 499	1-3	Research		F, S, Su
GEO 410	3	Geospatial Field Methods	GEO 305	F
GEO 412	3	Geospatial Applications of Unmanned Aerial Systems	GEO 305	S
GEO 450	1-6	Internship in Geography and Environmental Science	-	F, W, S, Su
GEO 499	1-3	Research in Geography and Environmental Science	-	F, W, S, Su
MIC 499	1-3	Independent Research in Microbiology	-	F, W, S, Su

ENVIRONMENTAL MICROBIOLOGY TRACK (2 courses required)

Name	Credits	Description	Prerequisite	Offered
BIO 412	4	Mycology	BIO 203 or BIO 304 of MIC 230	F
BIO 442	3	Plant Microbe Interactions	BIO 203 or BIO 304; MIC 230	F - Odd
MIC 350	3	Bacterial Diversity	MIC 230	S – Odd, F - Odd
MIC 427	3	Industrial and Fermentation Microbiology	MIC 230, CHM 104	F - Odd
MIC 434	3	Aquatic Microbial Biology	MIC 230	F - Even
MIC 442	3	Plant Microbe Interactions	BIO 203 or BIO 304; MIC 230	F - Odd

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