

# 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\*)**

**ENV 303** F, S - Cr. 3  
**ENV 304** A - Cr. 3  
**GEO 309** F, OY - Cr. 3  
**GEO 310** F, EY - Cr. 3  
**GEO 320** S, OY - Cr. 3  
**GEO 321** S - Cr. 3  
**GEO 340** F, EY - Cr. 3  
**GEO 427** F, OY\*\* - Cr. 3

**HUMANS AND  
THE ENVIRONMENT**  
(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\*)

**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\*)**

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.

**PREREQUISITES:**  
→  
REQUIRED

**LEGEND (WHEN OFFERED):**

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

\* See Undergraduate Catalog for course prerequisite details

GEOGRAPHY &  
ENVIRONMENTAL SCIENCE



**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)****(Maximum of one course from ENV 303; maximum of one course from ENV 304)**

Name	Credits	Description	Prerequisite	Offered
ENV 303	3	Topics in Sustainability and Environmental Studies	ENV 101	F, S
ENV 304	3	Topics in Environmental Justice	ENV 101 or ENV 201	A
GEO 309	3	Cities: Past, Present, and Future	-	F-Odd
GEO 310	3	Transportation Equity and Sustainable Communities	-	F-Even
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	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 CHM 417 or CHM 461	O
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)**

<b>Name</b>	<b>Credits</b>	<b>Description</b>	<b>Prerequisite</b>	<b>Offered</b>
BIO 412	4	Mycology	BIO 203 or BIO 304 or 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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