

ENVIRONMENTAL SCIENCE - BS

THIS IS A **GENERAL** CURRICULUM GUIDE AND IS NOT APPLICABLE TO EVERY STUDENT. IT IS IMPORTANT TO MEET WITH YOUR ADVISOR.

Year One			
ENV 160 Foundations of Environmental Science (GE Life Science)	4 (6)	CHM 127+128 Principles of Chemistry II w/lab Prerequisites: CHM 125+126 and (MTH 122 or MTH 124 or MTH 125 or MTH 201)	5 (6)
CHM 125+126 Principles of Chemistry I w/lab (GE Physical Science) Prerequisites: High school chemistry and (MTH 110 or MTH 122 or MTH 125 or MTH 201)	4 (6)	BIO 121 General Biology II w/lab Prerequisites: MTH 110 (may be taken concurrently)	4 (6)
² MTH 122 College Algebra (GE Math) Prerequisite: MTH 110 or assignment through Grand Valley math placement	3	¹ WRT 130 or Gen ed Gen Ed	3 3
¹ WRT 120 or WRT 150 Strategies in Writing (GE Writing) (self-placement)	3-4		
Elective if WRT 120 is taken	1		
<i>Numbers noted within (parentheses) are contact hours</i> Total	15	Total	15
Year Two			
BIO 215 Ecology w/lab (<i>summer and fall only</i>) Prerequisites: BIO 121	4 (6)	GEO 220 Earth Surface Materials and Systems Prerequisites: one of (GEO 111, 100, 103, 107, 109) and CHM 125+126. Recommended: ENV 160	4 (6)
GEO 111 Exploring the Earth	4	CHM 221 Survey of Analytical Chemistry Prerequisites: CHM 127+128 or one full year of general chemistry	4
GPY 307 ⁵ Introduction to Geographic Information Systems OR NRM 250 ⁵ Natural Resource Measurements and Mapping	3	General Education	3
General Education	3	General Education	3
⁴ Elective	1	Elective	1
Total	15	Total	15
Year Three			
ENV 305 Applied Environmental Science Experience (<i>fall only</i>) Prerequisites: ENV 160 and Junior Standing	4 (6)	NRM 330 Environmental Pollution (winter only) Prerequisites: CHM 109 or CHM 127+128	3
STA 215 Intro to Applied Statistics (GE Math) OR Prerequisites: MTH 110	3	NRM 405 GIS applications in Natural Resources (winter only) Prerequisites: GPY 307 or NRM 250	3
GEO 330 Data Analysis for Earth Scientists Prerequisites: MTH 122 or permission of instructor. Recommended: GEO 112, GEO 175, and STA 215		Environmental Policy Elective (see below)	3
NRM 281 Principles of Soil Science (<i>fall only</i>) Prerequisites: CHM 109 or CHM 125+126	3	General Education	3
Environmental Science Elective (see below)	3-4	General Education	3
Elective	1		
Total	15	Total	15
Year Four			
GEO 440 Geohydrology (<i>fall only</i>) Prerequisites: GEO 220	4 (6)	⁶ ENV 495 SWS Environmental Systems and Processes Prerequisites: Senior Standing	3
Environmental Science Elective	3-4	Environmental Science Elective	3-4
General Education+SWS	3	Minor/Certificate/Elective course	3
Minor/Certificate ⁵ /Elective course	3	Minor/Certificate/Elective course	3
Minor/Certificate/Elective course	3	Minor/Certificate/Elective course	3
Total	15-16*	Total	15-16

*The block tuition rate is for 12-15 credits. You will pay additional tuition for any credits over 15 credits.

¹A grade of C or better is required in WRT 130 or 150 in order to satisfy the WRT requirement at GVSU.²MTH 122 is required for CHM 127+128. **Take the Math Proficiency Tests for MTH 122 and/or 123 online:** www.gvsu.edu/s/mv⁴Students must have a **minimum of 120 credits** to graduate with **58 of the 120 credits** being from a senior level institution and the **final 30 of the 120 credits** completed at GVSU. Elective refers to any course that will help meet these requirements.⁵One applied training or certification is required for completion of capstone assignment. Please see reverse side for options⁶Students must complete a total of two courses with an SWS attribute.**Declaring the Environmental Science Major:**

1. In myBanner, select "Student" > "Student Records" > "Change Major" > "Change Major 1/Program"
2. Choose "Environmental Science-BS" from the drop-down box.
3. Click "Submit" and then "Change to New Program"

General Education Categories fulfilled by the Environmental Science major:
Life Science: ENV 160
Physical Science: CHM 125+126, GEO 111
Mathematical Sciences: MTH 122, STA 215
Issues: EGR/NRM 406 (elective), GPY 327 (elective), GPY 328 (elective), GPY/ENS 412 (elective) NRM 451 (elective), PLS/ENS 303 (elective),

Environmental Policy Elective: Choose one of the following

EGR/NRM 406 Renewable Energy Systems (GE Issues) (Winter only)
NRM 451 Natural Resource Policy (GE Issues)

OSH 414 Environmental and Health Safety
PLS/ENS 303 Introduction to Environmental Policy (GE Issues) (Winter only)

Choose 3 classes (9 credits) from at least 2 disciplines from the following Environmental Science Elective options

Offered in Fall Semesters only:

BIO 357 Environmental Microbiology
Prerequisite: BIO 120 (or CMB155+156), or permission of instructor
BIO 440 Limnology (*offered in odd numbered years*)
Prerequisite: BIO 215 or permission of instructor
BIO 451 Stream Ecology (*offered in even numbered years*)
Prerequisite: BIO 215 or permission of instructor
BIO 460 Terrestrial Ecosystem Ecology
Prerequisite: BIO 215 or permission of instructor; NRM 281 recommended
CHM 325 Instrumental Analysis
Prerequisite: CHM 221 or CHM 222, and fulfillment of Writing gen ed.
CHM 421 Green Chemistry for Sustainable Environment
Prerequisite: CHM 231 or CHM 235+236 or CHM 247
GEO 320 Geomorphology
Prerequisite: GEO 112
GPY 328 Urban Ecological Design (GE Issues)
Prerequisite: Junior Standing
NRM 450 Applied Spatial Analysis of Natural Resources
Prerequisite: NRM 405 or GPY 307
NRM 454 Watershed and Wetland Management
Prerequisite: MTH 122 and NRM 250

Offered in both Fall and Winter Semesters:

CHM 231 Introductory Organic Chemistry
Prerequisite: CHM 109 or CHM 127+128
GPY 407 Advanced GIS
Prerequisite: GPY 307
NRM 240 Principles of Climatology
Offered in Winter Semesters only:
CHM 427 Green and Environmental Chemistry (*offered in odd numbered years*)
Prerequisite: CHM 221 and either (CHM 235+236) or (CHM 245+246)
GEO 312 Sedimentation-Stratigraphy
Prerequisite: GEO 112
GEO 420 Glacial and Quaternary Geology
Prerequisite: GEO 112; GEO 312 strongly recommended
GEO 445 Introduction to Geochemistry
Prerequisite: GEO 220, MTH 122, CHM 127+128; MTH 201 strongly recommended.
GPY 327 Place, Race, and Ethnicity (GE Issues)
Prerequisite: Junior Standing
GPY/ENS 412 Global Climate & Environmental Change (GE Issues)
Prerequisite: Junior standing, and either GPY 100 or ENS 201 or at least one course from Foundations - Natural Sciences.
OSH 460 Environmental Compliance Applications
Prerequisite: OSH 414

GIS Certification Options

GIS & Technology Certificate (offered through GPY)

*Recommended courses to maximize overlap with the ENV degree. Courses in **BOLD** will meet ENV degree requirements.*

GPY 200 – Computer Cartography

GPY 307 – Intro to GIS

GPY 407 – Advanced GIS

NRM 250- Natural Resource Measurements & Mapping OR NRM 405 – GIS Applications in Resource Management

Applied GIS in Natural Resources (offered through BIO)

*Recommended courses to maximize overlap with the ENV degree. Courses in **BOLD** will meet ENV degree requirements.*

NRM 250 – Natural Resource Measurements & Mapping

NRM 405 – GIS Applications in Resource Management

NRM 450 – Applied Spatial Analysis

NRM/GPY 435 – Applications of Web GIS & Drones

Applied Training OR Professional Certification Required Assignment for Capstone (examples of options)

Below are some examples of certifications. This list is not exhaustive. Students should talk to their faculty advisor for approval of certifications.

Hazardous materials	RCRA Haz. Waste Generator Training Basic Haz Mat Employee Training Michigan HAZWOPER Training	Earned through OSH 460 Earned through OSH 414 (link)
Water conservation & management	Industrial or Construction Stormwater Operator Training Water Operator Training	Earned through OSH 460 EGLE (link)
Wetland delineation	Wetland Delineation Training	Michigan Wetlands Assoc. (link)
Environmental professional	Envtl. Professional In-Training (EPI) Cert. Assoc. Envtl. Professional (AEP) Cert.	Board for Global EHS Credentialing (link) Natl. Registry of Envtl. Professionals (link)
GIS, remote sensing	GIS & Technology Certificate Applied GIS in Natural Resources Cert. Environmental Remote Sensing Cert. FAA Part 107 Remote Pilot Certification	GVSU Undergraduate Cert. (link) GVSU Undergraduate Cert. (link) GVSU Undergrad Cert. (link) Federal Aviation Admin (link)
Prescribed fire	Intro to Wildland Fire Behavior Cert. Wildland Firefighter Training Cert. Intro to Fire Effects Cert. Intermediate Wildland Fire Cert.	Earned through NRM 230 Earned through NRM 230 Earned through NRM 415 Earned through NRM 430