

ENVIRONMENTAL SCIENCE - BSTHIS 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) Elective if WRT 120 is taken	3-4 1	**Note: ENV 160 and BIO 121 can be taken either fall or winter semester.	
<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>) (CLAS Voyage, Experiential Learning) Prerequisites: BIO 121	4 (6) 4	GEO 220 Earth Surface Materials and Systems (CLAS Voyage, Experiential Learning) Prerequisites: one of (GEO 111, 100, 103, 107, 109) and CHM 125+126. Recommended: ENV 160	4 (6) 4
GEO 111 Exploring the Earth	3	CHM 221 Survey of Analytical Chemistry Prerequisites: CHM 127+128 or one full year of general chemistry	3
STA 215 Intro to Applied Statistics (GE Math) OR Prerequisites: MTH 110		General Education	3
GEO 330 Data Analysis for Earth Scientists (fall only) Prerequisites: MTH 122 or permission of instructor. Recommended: GEO 112, GEO 175, and STA 215	3	General Education	1
General Education	1	Elective	
⁴ Elective			
Total	15	Total	15
Year Three			
ENV 305 Applied Environmental Science Experience (<i>fall only</i>) (CLAS Voyage, Experiential Learning) Prerequisites: ENV 160 and Junior Standing	4 (6)	NRM 330 Environmental Pollution (winter only) (CLAS Voyage, Experiential Learning) Prerequisites: CHM 109 or CHM 127+128	3 3
⁵ GPY 307 Introduction to Geographic Information Systems OR NRM 250 Natural Resource Measurements and Mapping	3	NRM 405 GIS applications in Natural Resources (winter only) (CLAS Voyage, Experiential Learning) Prerequisites: GPY 307 or NRM 250	3 3
NRM 281 Principles of Soil Science (<i>fall only</i>) Prerequisites: CHM 109 or CHM 125+126	4	Environmental Policy Elective (see below)	3
Environmental Science Elective (see below)	3-4	General Education	3
Elective	1	General Education	
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 (CLAS Voyage, Capstone) Prerequisites: Senior Standing	3 3-4
Environmental Science Elective	3-4	Environmental Science Elective	3
⁶ General Education+SWS	3	Minor/Certificate/Elective course	3
⁷ Minor/Certificate/Elective course	3	Minor/Certificate/Elective course	3
Minor/Certificate/Elective course	3	Minor/Certificate/Elective course	
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/mv**⁴Students 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.⁵Students may choose to pursue a GIS certificate. Please see below for 2 GIS certificate options.⁶Students must complete a total of two courses with an SWS attribute.⁷One Applied Training or Certification is required for completion of the capstone assignment. Students have opportunities for completion as part of multiple majors courses and other free, on campus opportunities in addition to external options; May take more than one. Please see reverse side for examples of options.

CLAS Voyage Courses	
What is the CLAS Voyage? https://www.gvsu.edu/clas/clas-voyage-1184.htm or search "GVSU CLAS Voyage"	
Experiential Learning	BIO 215, NRM 405, NRM 330, 454, NRM 462, GEO 312, GEO 220, ENV 305, NRM 330,
Capstone	ENV 495
General Education Categories fulfilled by the Environmental Science major:	
Life Science with lab: ENV 160	
Physical Science with lab: 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),	
Supplemental Writing Skills: BIO 460, CHM 325, ENV 495	

Environmental Policy Elective: Choose one of the following:

Must complete one of the following sequences:

EGR/NRM 406 Renewable Energy Systems (GE Issues) (Winter only)	OSH 414 Environmental and Health Safety
NRM 451 Natural Resource Policy (GE Issues)	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

<p>Offered in Fall Semesters only:</p> <p>BIO 357 Environmental Microbiology Prerequisite: BIO 120 (or CMB155+156), or permission of instructor</p> <p>BIO 440 Limnology (<i>offered in odd numbered years</i>) Prerequisite: BIO 215 or permission of instructor</p> <p>BIO 451 Stream Ecology (<i>offered in even numbered years</i>) Prerequisite: BIO 215 or permission of instructor</p> <p>BIO 460 Terrestrial Ecosystem Ecology Prerequisite: BIO 215 or permission of instructor; NRM 281 recommended</p> <p>CHM 325 Instrumental Analysis Prerequisite: CHM 221 or CHM 222, and fulfillment of Writing gen ed.</p> <p>CHM 421 Green Chemistry for Sustainable Environment Prerequisite: CHM 231 or CHM 235+236 or CHM 247</p> <p>GEO 320 Geomorphology Prerequisite: GEO 112</p> <p>GPY 328 Urban Ecological Design (GE Issues) Prerequisite: Junior Standing</p> <p>NRM 450 Applied Spatial Analysis of Natural Resources Prerequisite: NRM 405 or GPY 307</p> <p>NRM 454 Watershed and Wetland Management (<i>CLAS Voyage, Experiential Learning</i>) Prerequisite: MTH 122 and NRM 250</p>	<p>Offered in both Fall and Winter Semesters:</p> <p>CHM 231 Introductory Organic Chemistry Prerequisite: CHM 109 or CHM 127+128</p> <p>GPY 407 Advanced GIS Prerequisite: GPY 307</p> <p>NRM 240 Principles of Climatology</p> <p>Offered in Winter Semesters only:</p> <p>CHM 427 Green and Environmental Chemistry (offered in odd numbered years) Prerequisite: CHM 221 and either (CHM 235+236) or (CHM 245+246)</p> <p>GEO 312 Sedimentation-Stratigraphy (<i>CLAS Voyage, Experiential Learning</i>) Prerequisite: GEO 112</p> <p>GEO 420 Glacial and Quaternary Geology Prerequisite: GEO 112; GEO 312 strongly recommended</p> <p>GEO 445 Introduction to Geochemistry Prerequisite: GEO 220, MTH 122, CHM 127+128; MTH 201 strongly recommended.</p> <p>GPY 327 Place, Race, and Ethnicity (GE Issues) Prerequisite: Junior Standing</p> <p>GPY/ENS 412 Global Climate and Environmental Change (GE Issues) Prerequisite: Junior standing, and either GPY 100 or ENS 201 or at least one course from Foundations - Natural Sciences.</p> <p>OSH 460 Environmental Compliance Applications Prerequisite: OSH 414</p>
---	---

It is imperative to meet with your faculty advisor and an advisor in the CLAS Academic Advising Center regularly.

The CLAS Academic Advising Center is located in C-1-120 and C-1-140 MAK, 616-331-8585. To schedule an appointment with an advisor in the CLAS Academic Advising Center, visit www.gvsu.edu/clasadvising and click on "Schedule Appointment."

⁵GIS Certification Options

<p>GIS & Technology Certificate (offered through GPY) <i>Recommended courses to maximize overlap with the ENV degree. Courses in BOLD will meet ENV degree requirements.</i></p> <p>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</p>	<p>Applied GIS in Natural Resources (offered through BIO) <i>Recommended courses to maximize overlap with the ENV degree. Courses in BOLD will meet ENV degree requirements.</i></p> <p>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</p>
--	--

⁷Applied 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.

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

