

# CHEMISTRY-BS-ENVIRONMENTAL

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

Year One			
<sup>9,10</sup> <b>CHM 115</b> Principles of Chemistry I Prerequisites: High school chemistry and (MTH 110 or MTH 122 or MTH 125 or MTH 201)	4 (6)	<sup>9,10</sup> <b>CHM 116</b> Principles of Chemistry II Prerequisites: CHM 115 and (MTH 122 or 125 or 201)	5 (7)
<sup>7</sup> <b>MTH 122</b> College Algebra Prerequisite: MTH 110 or assignment through Grand Valley math placement	3	<sup>7</sup> <b>MTH 123</b> Trigonometry Prerequisite: MTH 122 or assignment through Grand Valley math placement (MTH 122 may be taken concurrently)	3
Gen Ed	3	<b>WRT 150</b> Strategies in Writing	4
<sup>2</sup> Elective	1	Gen Ed	3
<sup>1</sup> Track Course	3	Elective	1
<i>Numbers noted within (parentheses) are contact hours</i>	<i>Total</i>	<i>Total</i>	<i>16*</i>
Year Two			
<sup>9</sup> <b>CHM 222</b> Quantitative Analysis ( <i>if taken before Fall 16</i> ) Prerequisites: CHM 116; Corequisite: CHM 241 or CHM 245 OR <b>CHM 221</b> Survey of Analytical Chemistry Prerequisites: CHM 116	3 (6)	<b>CHM 225</b> Instrumental Analysis I ( <i>if taken before Fall 16</i> ) Prerequisite: CHM 222 OR <b>CHM 325</b> Survey of Analytical Chemistry Prerequisites: CHM 221; WRT 150 with a C or better	3 (6)
<sup>3,9</sup> <b>CHM 245</b> Principles of Organic Chemistry I	4	<sup>3,9</sup> <b>CHM 247</b> Principles of Organic Chemistry II	3
<b>CHM 246</b> Principles of Organic Chemistry I Lab Prerequisite: CHM 116; CHM 245 and 246 must be taken as corequisites	1 (4)	<b>CHM 248</b> Principles of Organic Chemistry II Lab Prerequisites: CHM 245 and CHM 246; CHM 247 and 248 must be taken as corequisites	1 (4)
<b>MTH 201</b> Calculus I Prerequisites: MTH 122 and MTH 123 or assignment through Grand Valley math placement	4	<b>CIS 150</b> Introduction to Computing	3
Gen Ed	3	<sup>4</sup> <b>PHY 220</b> General Physics I Prerequisites: MTH 122 and MTH 123	5 (7)
<i>Total</i>	<i>15-16*</i>	<i>Total</i>	<i>15</i>
Year Three			
<sup>5</sup> <b>CHM 351</b> Introduction to Physical Chemistry Prerequisites: CHM 116, MTH 201, and PHY 220 (may be taken concurrently)	3	<b>CHM 321</b> Environmental Chemistry ( <i>if taken before Fall 16</i> ) Prerequisites: CHM 231 or CHM 242 or CHM 247 or CHM 248 OR <b>CHM 421</b> Green Chemistry for Sustainable Environment ( <i>offered in Fall semester</i> ) Prerequisite: One of CHM 231, CHM 242, or CHM 247	3
<sup>3</sup> <b>PHY 221</b> General Physics II Prerequisites: PHY 220	5 (7)	<sup>5,6</sup> <b>CHM 352</b> SWS Applied Physical Chemistry Prerequisites: CHM 116, MTH 201, CHM 351 and PHY 220 (may be taken concurrently)	3
<b>STA 215</b> Introductory Applied Statistics Prerequisites: MTH 110 or equivalent	3	<sup>9</sup> <b>CHM 391</b> Chemistry Seminar I Prerequisites: 18 credits of chemistry and junior standing	1
<sup>1</sup> Track Course	3	<sup>1</sup> Track Course	3
<sup>2</sup> Elective	1	Gen Ed	3
		Issue	3
<i>Total</i>	<i>15</i>	<i>Total</i>	<i>14</i>
Year Four			
<b>CHM 322</b> Environmental Chemical Analysis ( <i>if taken before Fall 16</i> ) Prerequisites: CHM 221 or CHM 222, and CHM 231, CHM 242, CHM 247 or CHM 248 OR <b>CHM 427</b> Green and Environmental Chemistry Lab ( <i>offered winter semester only</i> ) Prerequisite: CHM 221; CHM 241, or CHM 245 and CHM 246	3 (5)	<b>CHM 491</b> Chemistry Seminar II (Capstone) Prerequisites: CHM 391 and senior standing <b>OSH 414</b> Environmental Safety and Health Regulations <sup>1</sup> Track Course	1
<sup>8</sup> CHM Elective Course	3	Gen Ed	3
<sup>1</sup> Track Course	3	Gen Ed	3
Gen Ed	3	Gen Ed	3
Issue	3		
<i>Total</i>	<i>15</i>	<i>Total</i>	<i>16*</i>

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

- <sup>1</sup> The environmental emphasis also requires specialization in a discipline outside of chemistry. Students must choose one of the following tracks to complete the emphasis: Biology; Natural Resources Management; or Geology. See reverse track courses.
- <sup>2</sup> Elective refers to any course that will help you earn the required 120 credits for graduation.
- <sup>3</sup> CHM 241 and CHM 242 may substitute for CHM 245/246/247/248 with advisor approval.
- <sup>4</sup> Students interested in graduate school should take PHY 230/231 in place of PHY 220/221 and should also take MTH 202.
- <sup>5</sup> Students interested in graduate school should take CHM 356, 353, 358 and 355 or 455 instead of CHM 351 and 352.
- <sup>6</sup> Students must complete a total of two courses with an SWS attribute.
- <sup>7</sup> Math proficiency exams are available for MTH 122 and MTH 123. **To take the Math Proficiency Tests online, visit this link: [gvsu.edu/s/mv](https://gvsu.edu/s/mv)**
- <sup>8</sup> Chemistry elective must be taken at the 300-400 level and be 2-3 credits (approval required).
- <sup>9</sup> The following courses must be completed with a C or better grade: CHM 115, 116, 222, 225, 245, 246, 247, 248, 391.
- <sup>10</sup> Chemistry majors who have AP/IB Credit in CHM 115 and/or CHM 116 are generally better prepared for higher level chemistry courses if they take CHM 115 and CHM 116 at GVSU.

**Declaring the Chemistry Major with Environmental emphasis:**

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

General Education Categories fulfilled by the Chemistry -Environmental Major:
Physical Sciences with Lab: CHM 115
Mathematical Sciences: MTH 122 or MTH 123 or MTH 201

Track Courses		
Choose <b>ONE</b> of the following tracks:		
Biology	Natural Resource Management	Geology
BIO 120 General Biology I BIO 215 General Ecology <i>And <b>TWO</b> of the following:</i> BIO 338 Environmental Ethics BIO 357 Environmental Microbiology BIO 440 Limnology	GEO 111 Exploring the Earth NRM 281 Principles of Soil Science <i>And <b>TWO</b> of the following:</i> GPY 307 Introduction to Computer Mapping/Geographic Information Systems NRM 320 Introduction to Resource Systems NRM 451 Natural Resource Policy NRM 452 Watershed and Wetland Management	GEO 111 Exploring the Earth GEO 112 Earth History <i>And <b>TWO</b> of the following:</i> GEO 440 Geohydrology GEO 445 Introduction to Geochemistry GPY 307 Introduction to Computer Mapping/Geographic Information Systems

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

Please Friend the GVSU Chemistry Facebook page: <https://www.facebook.com/gvsu.chemistrystockroom>

The CLAS Academic Advising Center is located in C-1-140 MAK, 616-331-8585  
<http://www.gvsu.edu/clasadvising> (Also find us on Orgsync, Facebook, and Twitter!)

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