### Year One

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIO 120</td>
<td>General Biology I</td>
<td>4</td>
<td>Prerequisites: High school chemistry, CHM 109, or CHM 115 strongly recommended (CHM 109 or 115 may be taken concurrently)</td>
</tr>
<tr>
<td>CHM 115</td>
<td>Principles of Chemistry I</td>
<td>4</td>
<td>Prerequisites: High school chemistry and (MTH 111 or MTH 121 or MTH 125 or MTH 201)</td>
</tr>
<tr>
<td>CHM 116</td>
<td>Principles of Chemistry II</td>
<td>5</td>
<td>Prerequisites: CHM 115 and (MTH 122 or MTH 125 or MTH 201)</td>
</tr>
<tr>
<td>MTH 122</td>
<td>College Algebra</td>
<td>3</td>
<td>Prerequisite: MTH 110 or assignment through Grand Valley math placement</td>
</tr>
<tr>
<td>GEN ED</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WRT 150</td>
<td>Strategies in Writing</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

Numbers noted within (parentheses) are contact hours

Total: 16

### Year Two

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIO 215</td>
<td>General Ecology</td>
<td>4</td>
<td>Prerequisite: BIO 120 and 12 college credits</td>
</tr>
<tr>
<td>CHM 231</td>
<td>Introductory Organic Chemistry</td>
<td>4</td>
<td>Prerequisite: CHM 109 or CHM 116</td>
</tr>
<tr>
<td>OR CHM 241</td>
<td>Organic Chemistry for Life Sciences I</td>
<td>5</td>
<td>Prerequisite: CHM 116</td>
</tr>
<tr>
<td>MTH Cognate Course</td>
<td></td>
<td>3</td>
<td>Gen Ed</td>
</tr>
<tr>
<td>4 Elective (if taking CHM 231)</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>BIO 375</td>
<td>Genetics and BIO 376 Genetics Laboratory</td>
<td>4</td>
<td>Prerequisites: BIO 120. Concurrent enrollment in BIO 376 is required</td>
</tr>
<tr>
<td>CHM 232</td>
<td>Biological Chemistry</td>
<td>4</td>
<td>Prerequisite: CHM 231</td>
</tr>
<tr>
<td>OR CHM 242</td>
<td>Organic Chemistry for Life Sciences II</td>
<td>4</td>
<td>Prerequisite: CHM 241</td>
</tr>
<tr>
<td>GEN ED</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WRT 150</td>
<td>Strategies in Writing</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

Total: 15

### Year Three

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMB 405</td>
<td>Cell and Molecular Biology</td>
<td>4</td>
<td>Prerequisites: (BIO 375 or 355), BIO 376, and (CHM 232 or CHM 242 or CHM 247) may be taken concurrently</td>
</tr>
<tr>
<td>3 CMB 406</td>
<td>SWS Cell and Molecular Biology Laboratory</td>
<td>2</td>
<td>Prerequisites: CMB 405 (may be taken concurrently)</td>
</tr>
<tr>
<td>BIO 222</td>
<td>Natural History of Vertebrates</td>
<td>3</td>
<td>Prerequisite: BIO 121</td>
</tr>
<tr>
<td>PHY 221</td>
<td>General Physics II</td>
<td>5</td>
<td>Prerequisite: PHY 220</td>
</tr>
<tr>
<td>BIO 308</td>
<td>Wildlife Ecology</td>
<td>4</td>
<td>Prerequisite: BIO 215</td>
</tr>
<tr>
<td>4 Elective</td>
<td></td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

Total: 15-16

### Year Four

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIO 408</td>
<td>Wildlife Management</td>
<td>4</td>
<td>Prerequisite: BIO/NRM 308</td>
</tr>
<tr>
<td>BIO 333</td>
<td>Systematic Botany</td>
<td>4</td>
<td>Prerequisite: BIO 121</td>
</tr>
<tr>
<td>NRM 281</td>
<td>Principles of Soil Science</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>4 Elective</td>
<td></td>
<td>1-2</td>
<td></td>
</tr>
<tr>
<td>BIO 495</td>
<td>Evolutionary Biology (Capstone)</td>
<td>3</td>
<td>Prerequisites: Senior Standing, BIO 120, BIO 215, (BIO 375 or 355), BIO 376, (CHM 231 or 241 or 245)</td>
</tr>
<tr>
<td>BIO 342</td>
<td>Ornithology</td>
<td>3</td>
<td>Prerequisite: BIO 121</td>
</tr>
<tr>
<td>GEN ED</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total: 15

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

1 MTH 122/123 are prerequisites for PHY 220 and are not part of the Biology major. If a student chooses to take PHY 200, MTH 123 does not need to be completed. PHY 221 is not required but students planning to attend graduate school, professional school, or to pursue secondary teacher certification should complete the PHY 220/221 sequence. To take the Math Proficiency Tests for MTH 122 and/or 123 online, visit this link: gvsu.edu/s/mv

2 If you plan to attend graduate or professional school you will want to complete the CHM 241/242 sequence.
Choose one of the following to complete the math cognate for the major: MTH 125: Survey of Calculus, MTH 201: Calculus, or STA 215: Introductory Applied Statistics.

Elective refers to any course that will help you earn the required 120 credits to graduate.

Students must complete a total of two courses with an SWS attribute

**Declaring the Biology-Wildlife Major:**

1. In myBanner, select “Student” > “Student Records” > “Change Major” > “Change Major 1/Program”
2. Choose “Biology-BA or Biology-BS Wildlife” from the drop-down box.
3. Click “Submit” and then “Change to New Program”

<table>
<thead>
<tr>
<th>General Education Categories fulfilled by the Biology major:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Life Science and Physical Science: BIO 120 and CHM 115 (both fulfill lab requirement)</td>
</tr>
<tr>
<td>Mathematical Sciences: STA 215, MTH 122, MTH 123, MTH 201</td>
</tr>
</tbody>
</table>

**Biology Elective Courses**

*All BIO majors require a total of 38 credits of BIO classes, including CMB 405+406. Classes listed below can be taken, if needed, to complete this requirement.*

### Plant Biology
- BIO 243 Plant Identification and Natural History (3)
- BIO 303 Plant Morphology (4)
- BIO 323 Aquatic and Wetlands Plants (3)
- BIO 333 Systematic Botany (4)
- BIO 403 Plant Structure and Function (4)
- BIO 413 Freshwater Algae (3)
- BIO 423 Plant Biotechnology (3)
- BIO 433 Plant Ecology (4)
- BIO 473 Ecology and Evolution of Plant-Animal Interactions (3)
- BIO 573 Plants of the Great Lakes Area (3) *with permission*

### Animal Biology
- BIO 222 Natural History of Vertebrates (3)
- BIO 232 Natural History of Invertebrates (3)
- BIO 272 Insect Biology and Diversity (3)
- BIO 302 Comparative Vertebrate Anatomy (4)
- BIO 342 Ornithology (3)
- BIO 352 Animal Behavior (3)
- BIO 362 Fisheries Biology (4)
- BIO 380 Principles of Animal Nutrition (3)
- BIO 402 Aquatic Insects (3)
- BIO 412 Mammalogy (4)
- BIO 422 Embryology (3)
- BIO 432 Comparative Animal Physiology (4)
- BIO 572 Field Zoology (3) *with permission*
- BMS 208/309 Human Anatomy and Lab (4)
- BMS 290/291 Human Physiology and Lab (4)

### The following courses are excluded from the Biology major:
- BIO 104 Biology for the 21st Century
- BIO 105 Environmental Science
- BIO 107 Great Lakes and Other Water Resources
- BIO 109 Plants in the World
- BIO 205 Genetics for K-8 Pre-Service Teachers

*Any other biology course whose description prevents it from being used in the major Only ONE of the following courses may be counted in the biology major:
- BIO 309 Plants and Human Health (3)
- BIO 311 Biological Basis of Society (3)
- BIO 329 Evolution of Social Behavior (3)
- BIO 349 The Darwinian Revolution (3)*

### Additional Biology Electives

- BIO 280 Special Topics in Biology (1-4)
- BIO 308 Wildlife Ecology (4)
- BIO 319 Global Agricultural Sustainability (3)
- BIO 325 Human Sexuality (3)
- BIO 328 Biomedical Ethics (3)*
- BIO 338 Environmental Ethics (3) * only one of BIO 328 or 338 may be used as elective credit in the major
- BIO 357 Environmental Microbiology (4)
- BIO 380 Special Topics in Biology (1-4)
- BIO 390 Seminar (1)
- BIO 399 Selected Experiences in Biology (1-4)
- BIO 408 Wildlife Management (4)
- BIO 416 Advanced Genetics Laboratory (2)
- BIO 417 International Field Biology (1-4)
- BIO 418 Regional Field Biology (1-4)
- BIO 440 Limnology (4)
- BIO 442 Fish Ecology (3)
- BIO 450 Stream Ecology (4)
- BIO 452 Human Evolution (3)
- BIO 460 Terrestrial Ecosystem Ecology (4)
- BIO 470 Conservation Biology (3)
- BIO 480 Special Topics in Biology (1-4)
- BIO 490 Internship (1-6)
- BIO 499 Research in Biology (1-4)
- BMS 212 Microbiology (3) AND BMS 213 Microbiology Laboratory (1)
- The following CMB courses can count as electives with faculty advisor approval:
  - CMB 411 Genetics of Development & Cancer (3)
  - CMB 414 Molecular Biology of the Gene (3)
  - CMB 426 Nucleic Acids Laboratory (3)

*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-1-140 MAK, 616-331-8585

http://www.gvsu.edu/clasadvising

**CLAS Academic Advisors:**

Jo Ann Litton  
littonj@gvsu.edu

Julie Amon  
amonju@gvsu.edu

Edited 03/2/15