### Fisheries and Aquatic Sciences-BS

This is a **general** curriculum guide and is not applicable to every student. It is important to meet with your advisor.

<table>
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<th>Year One</th>
<th>Year Two</th>
<th>Year Three</th>
<th>Year Four</th>
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</table>
| **BIO 121** General Biology II w/lab  
Prerequisite: MTH 110 (may be taken concurrently) | **BIO 120** General Biology I w/lab (GE Life Science)  
Prerequisites: High school chemistry, CHM 109, or CHM 115 strongly recommended (CHM 109 or 115 may be taken concurrently) | **BIO 323** Aquatic and Wetland Plants (fall only)  
Prerequisites: BIO 121 | **BIO 451** Stream Ecology (fall even years only) OR  
**BIO 440** Limnology (fall odd years only)  
Prerequisites: BIO 215 or permission of instructor |
| 4 (6) | 4 (6) | 3 (5) | 4 (6) |
| **CHM 109** Introductory Chemistry (GE Physical Science) OR  
**CHM 115** 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) | **1CHM 116** Principles of Chemistry II w/lab OR  
Prerequisites: CHM 115 and (MTH 122 or MTH 125 or MTH 201) | **BIO 375** Genetics and **BIO 376** Genetics Laboratory  
**BIO 375** Prerequisites: BIO 120 or CMB 155 and 156  
**BIO 376** Prerequisites: BIO 375 or 355 (either may be taken concurrently) | **BIO 495** Perspectives in Biology (Capstone) OR  
Prerequisites: Senior Standing  
2/RNR 495 SWS Trends in Natural Resources Mgt  
Prerequisites: Senior Standing, STA 215, NRM 150 and one upper level NRM course (330, 386, 408, 420, 452 or 462) |
| 4 (6) | 5 (7) | 4 (6) | 3 |
| Gen Ed (GE Art) or **WRT 120** (self-placement) | **CHM 231** Introductory Organic Chemistry w/lab  
Prerequisite: CHM 109 or CHM 116 | 3 | 4 |
| 3 | 4 (6) | Gen Ed (GE Social/Behavioral) OR  
**MTH 122** College Algebra  
Prerequisite: MTH 110 or assignment through Grand Valley math placement | Gen Ed (GE Social/Behavioral) OR  
**MTH 123**  
Prerequisite: MTH 122 or assignment through Grand Valley math placement |
| 3 | 1 | 3 | 3 |
| **Elective** | **Elective** | **Gen Ed or Elective** | **Elective** |
| 1 | 3 | 1 | 1 |
| **Total 15** | **Total 15-16** | **Total 14-16** | **Total 14-15** |

*It is strongly recommended that FAS majors take BIO 121 before BIO 120.*

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<th>Year Three</th>
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| **BIO 375** Genetics and **BIO 376** Genetics Laboratory  
**BIO 375** Prerequisites: BIO 120 or CMB 155 and 156  
**BIO 376** Prerequisites: BIO 375 or 355 (either may be taken concurrently) | **BIO 495** Perspectives in Biology (Capstone) OR  
Prerequisites: Senior Standing  
2/RNR 495 SWS Trends in Natural Resources Mgt  
Prerequisites: Senior Standing, STA 215, NRM 150 and one upper level NRM course (330, 386, 408, 420, 452 or 462) |
| 4 (6) | 3 (5) |
| **BIO 413** Freshwater Algae (winter odd years only)  
Prerequisites: BIO 121 and BIO 215 | **BIO 402** Aquatic Insects (winter only)  
Prerequisites: BIO 120 and BIO 121  
Fisheries & Aquatic Sciences Elective (see below, if needed)  
Gen Ed (if needed) or **Elective**  
Gen Ed (if needed) or **Elective** |
| 3 | 3 |
| Fisheries & Aquatic Sciences Elective (see below)  
Gen Ed (GE US Diversity) or **Elective** | **Fisheries & Aquatic Sciences Elective** (see below, if needed)  
Gen Ed (if needed) or **Elective**  
Gen Ed (if needed) or **Elective** |
| 3 | 3 |
| **Total 15** | **Total 15** |

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| **BIO 451** Stream Ecology (fall even years only) OR  
**BIO 440** Limnology (fall odd years only)  
Prerequisites: BIO 215 or permission of instructor  
Fisheries & Aquatic Sciences Elective (see below)  
Fisheries & Aquatic Sciences Elective (see below)  
Issues Gen Ed (NRM 451 recommended)  
**Elective** (if needed) | **BIO 495** Perspectives in Biology (Capstone) OR  
Prerequisites: Senior Standing  
2/RNR 495 SWS Trends in Natural Resources Mgt  
Prerequisites: Senior Standing, STA 215, NRM 150 and one upper level NRM course (330, 386, 408, 420, 452 or 462) |
| 4 (6) | 3 (5) |
| 4 (6) | **BIO 402** Aquatic Insects (winter only)  
Prerequisites: BIO 120 and BIO 121  
Fisheries & Aquatic Sciences Elective (see below, if needed)  
Gen Ed (if needed) or **Elective**  
Gen Ed (if needed) or **Elective** |
| **Total 15** | **Total 15-17** |

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

1 Students planning to pursue careers in fisheries management, graduate school, or participate in research are advised to take CHM 115 and CHM 116.

2 A grade of C or better is required in WRT 130 or 150 and SWS courses in order to satisfy the WRT requirement at GVSU.

3 MTH 122 is required for CHM 116. MTH 122 + 123 are required for PHY 220. Take the Math Proficiency Tests for MTH 122 and/or 123 online: [www.gvsu.edu/s/mv](http://www.gvsu.edu/s/mv)
Students 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.

5 MTH 201 can be used in place of MTH 125.

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

### Declaring the Fisheries and Aquatic Sciences Major:
1. In myBanner, select “Student” > “Student Records” > “Change Major” > “Change Major 1/Program”
2. Choose “Fisheries and Aquatic Sciences-BS” from the drop-down box.
3. Click “Submit” and then “Change to New Program”

<table>
<thead>
<tr>
<th>General Education Categories fulfilled by the Fisheries &amp; Aquatic Sciences major:</th>
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<tr>
<td>Life Science and Physical Science: BIO 120 and CHM 109 or CHM 115 (all fulfill lab requirement)</td>
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<tr>
<td>Mathematical Sciences: STA 215</td>
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<tr>
<td>Philosophy &amp; Literature (recommended): COM 202</td>
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<tr>
<td>Issues (recommended): BIO 338-SWS* and NRM 451*</td>
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### Fisheries and Aquatic Sciences Electives

**Students must complete at least 12 credits from the options below.**

**Courses marked with an * need approval of a faculty advisor.**

Students pursuing American Fisheries Society certification should take NRM 395, NRM 451, and NRM 472. Students interested in aquatic sciences are recommended to select at least 1 genetics course (BIO 475 or BIO 485) and NRM 452. Students interested in marine biology are advised to take BIO 232, BIO 370, GEO 430, and a field course in Marine studies.

#### Physical Science Electives

Must complete one of the following sequences:

- CHM 109 and CHM 231 and one of CHM 232, GEO 111, PHY 220 or PHY 200
- CHM 115 and CHM 116 and CHM 231

Be active in relevant student clubs, such as the Soil & Water Conservation and Wildlife Clubs. Visit [gvu-campuslabs.com/engage](http://gvu-campuslabs.com/engage) to learn more. More information about the American Fisheries Society certification can be found here, [https://fisheries.org/membership/afs-certification/](https://fisheries.org/membership/afs-certification/). Consult your faculty advisor for more information.

**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 MAK, 616-331-8585. To schedule an appointment with an advisor in the CLAS Academic Advising Center, visit [www.gvsu.edu/clasadvising](http://www.gvsu.edu/clasadvising) and click on “Schedule Appointment.”