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.

Online at: [http://www.gvsu.edu/clasadvising](http://www.gvsu.edu/clasadvising)

### BIOMEDICAL SCIENCES-BS-MICROBIOLOGY EMPHASIS

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

<table>
<thead>
<tr>
<th>Year One</th>
<th>Year Two</th>
<th>Year Three</th>
<th>Year Four</th>
</tr>
</thead>
</table>
| **BIO 120** General Biology I  
Prerequisites: High school chemistry, CHM 109, or CHM 115 strongly recommended (CHM 109 or 115 may be taken concurrently) | **CHM 116** Principles of Chemistry II  
Prerequisites: CHM 115 and (MTH 122 or MTH 125 or MTH 201) | **BMS 208** Human Anatomy  
Prerequisite: BIO 120 or BMS 202 | **BMS 322** Bacterial Physiology (offered fall in odd numbered years)  
Prerequisite: BMS 212 or BIO 357 |
| **CHM 115** Principles of Chemistry I  
Prerequisites: High school chemistry and (MTH 110 or MTH 122 or MTH 125 or MTH 201) | **WRT 150** Strategies in Writing  
Gen Ed  
Gen Ed | **CHM 241** Organic Chemistry for Life Sciences I  
Prerequisite: CHM 116 | **BMS 212** Introductory Microbiology  
Prerequisites: BIO 120 and (CHM 230 or CHM 232 or CHM 241) |
| **MTH 122** College Algebra  
Prerequisite: MTH 110 or assignment through Grand Valley math placement  
Gen Ed | **CHM 116** Principles of Chemistry II  
Prerequisites: CHM 115 and (MTH 122 or MTH 125 or MTH 201) | **BIO 375** Genetics  
**BIO 376** Genetics Laboratory  
Prerequisites: BIO 120. Concurrent enrollment in BIO 376 is required (recommended)  
**OR** BIO 355 Human Genetics  
Prerequisite: BIO 120 or BIO 103, or permission of instructor  
Gen Ed | **BMS 290** Human Physiology  
Prerequisites: BMS 208 and two semesters of chemistry  
**BMS 291** Laboratory in Human Physiology  
Prerequisite: BMS 290 or concurrent registration  
Gen Ed |
| **BIO 375** Genetics/BIO 376 Genetics Laboratory  
Prerequisites: BIO 120. Concurrent enrollment in BIO 376 is required (recommended) | **CHM 242** Organic Chemistry for Life Sciences II  
Prerequisite: CHM 241 | **BMS 213** Laboratory in Microbiology  
Prerequisite: BMS 212 or concurrent enrollment | **BIO 322** Bacterial Physiology (offered fall in even numbered years)  
Prerequisite: BMS 212 or BIO 357, and BIO 355 or BIO 375  
**BMS 313** Bacterial Genetics Laboratory  
Prerequisite: BMS 312 or concurrent registration  
**1**Biomedical Science Elective  
Issue/Theme  
**2**Elective  
**2**Elective  
**2**Elective |
| Total 15 | Total 15 | Total 13-14 | Total 16 |

<table>
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<tr>
<th>Year Three</th>
<th>Year Four</th>
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</thead>
</table>
| **BMS 322** Bacterial Physiology (offered fall in odd numbered years)  
Prerequisite: BMS 212 or BIO 357 | **BMS 320** Human Physiology  
Prerequisites: BMS 208 and two semesters of chemistry  
**BMS 291** Laboratory in Human Physiology  
Prerequisite: BMS 290 or concurrent registration  
Gen Ed |
| **BMS 323** Bacterial Physiology Lab  
Prerequisite: BMS 322 or concurrent registration | **CHM 461** Biochemistry I  
Prerequisite: CHM 242, CHM 247, or CHM 248  
**OR** CHM 232 Biological Chemistry  
Prerequisite: CHM 231 or 242 |
| **BMS 290** Human Physiology  
Prerequisites: BMS 208 and two semesters of chemistry  
**BMS 291** Laboratory in Human Physiology  
Prerequisite: BMS 290 or concurrent registration | **PHY 221** General Physics II  
Prerequisite: PHY 220  
**3**Gen Ed |
| **PHY 220** General Physics I  
Prerequisites: MTH 122 and MTH 123  
Gen Ed | Issue/Theme  
**3**Gen Ed |
| Total 16 | Total 15 |

<table>
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<tr>
<th>Year Four</th>
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</table>
| **BMS 312** Bacterial Genetics (offered fall in even numbered years)  
Prerequisites: BMS 212 or BIO 357, and BIO 355 or BIO 375 | **BMS 499** Research in the Biomedical Sciences  
**1**Biomedical Science Elective  
**1**Biomedical Science Elective  
**1**Biomedical Science Elective  
**1**Biomedical Science Elective  
**2**Elective  
**2**Elective  
**2**Elective  
**2**Elective |
| **BMS 313** Bacterial Genetics Laboratory  
Prerequisite: BMS 312 or concurrent registration  
**1**Biomedical Science Elective  
Issue/Theme  
**2**Elective  
**2**Elective  
**2**Elective  
**2**Elective |
| Total 16 | Total 13-15 |

See reverse for notes

*The block tuition rate is for 12-15 credits. You will pay additional tuition for any credits over 15.*
Biomedical Science Electives must consist of at least 6 hours of upper-division Biomedical Science courses. See list below for elective options.

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

Students must complete two courses with an SWS attribute.

For students with the Advanced Waiver/Override for Mathematics based on ACT scores, it is STRONGLY RECOMMENDED that proficiency in MTH 123 – Trigonometry – be demonstrated by either taking the MTH 123 course or by achieving a passing score on the GVSU math placement test PRIOR to taking PHY 220 and 221.

Declaring the BMS Major with Microbiology Emphasis:

1. Log into myBanner from the GVSU homepage
2. Once logged in select “Student,” “Student Records,” and then “Change Major”
3. Click on the “Change Major 1/Program” box
4. Click on the down arrow in the box next to “New Major 1/Program,” from here scroll down and choose “Biomedical Science-BS-Microbiology” You also have the option of a general Biomedical Sciences major or an emphasis in Nutrition
5. Click “Submit” and then “Change to New Program”

If you are going into a pre-professional track besides Pre-Veterinary, you will either:
- declare “Pre-Med” as your SECOND MAJOR if you have decided on a major
- OR
- declare “Pre-Med” as your FIRST MAJOR if you have not decided on a major

If you are Pre-Veterinary, and are not yet sure what to major in, we recommend that you declare Biology with Pre-Veterinary emphasis

General Education Overlap

<table>
<thead>
<tr>
<th>General Education Categories fulfilled by the Biomedical Sciences Major:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Life Sciences with Lab: BIO 120</td>
</tr>
<tr>
<td>Mathematical Sciences: STA 215, MTH 122, MTH 123</td>
</tr>
</tbody>
</table>

Additional Overlap for Pre-Professional Students

| Social and Behavioral Sciences: PSY 101 | Social and Behavioral Sciences: SOC 205 |
| U.S. Diversity: SOC 205 |

Pre-Professional Students
(Pre-Chiropractic, Pre-Dental, Pre-Medical, Pre-Optometry, Pre-Pharmacy, Pre-Podiatry, & Pre-Veterinary)

Keep in mind that you may choose any major as long as you complete the pre-requisites for your professional program.

The AAMC has approved changes to the MCAT exam starting in 2015 that will add emphasis on the social and behavioral sciences, scientific inquiry and reasoning skills, and introductory biochemistry.

See www.gvsu.edu/clasadvising/professional-programs-14.htm for additional details regarding professional school preparation and applications.

<table>
<thead>
<tr>
<th>Biomedical Science Microbiology Emphasis Elective Courses</th>
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</thead>
<tbody>
<tr>
<td>BIO 414 Molecular Biology of the Gene</td>
</tr>
<tr>
<td>BMS 410 Immunology</td>
</tr>
<tr>
<td>BMS 411 Immunology Laboratory</td>
</tr>
<tr>
<td>BMS 412 Medical Bacteriology</td>
</tr>
<tr>
<td>BMS 413 Medical Bacteriology Laboratory</td>
</tr>
<tr>
<td>BMS 431 Medical Virology</td>
</tr>
<tr>
<td>CHM 462 Techniques in Biochemistry</td>
</tr>
</tbody>
</table>