

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

Year One			
<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)	<b>CHM 116</b> Principles of Chemistry II Prerequisites: CHM 115 and (MTH 122 or MTH 124 or MTH 125 or equivalent by placement or exam)	5 (7)
<sup>1</sup> <b>MTH 122</b> College Algebra Prerequisite: MTH 110 or assignment through Grand Valley math placement	3	<b>BIO 120</b> General Biology I Prerequisites: High school chemistry, CHM 109, or CHM 115 strongly recommended (CHM 109 or 115 may be taken concurrently)	4 (6)
<b>Or</b> <sup>1</sup> <b>MTH 124</b> Precalculus: Functions and Models Gen Ed	5	<sup>2</sup> <b>WRT 130</b> or <b>WRT 150</b> Strategies in Writing	3-4
Gen Ed or <sup>2</sup> <b>WRT 120</b> (self-placement)	3	<sup>3</sup> Elective or Gen Ed	2-3
Gen Ed	3		
Gen Ed (if taking MTH 122)	3		
<i>Numbers noted within (parentheses) are contact hours</i>	<i>Total</i>	<i>Total</i>	<i>Total</i>
	15-16*		15
Year Two			
<b>CHM 241</b> Organic Chemistry for Life Sciences I Prerequisite: CHM 116	5 (7)	<b>CHM 242</b> Organic Chemistry for Life Sciences II Prerequisite: CHM 241	4 (6)
<b>BMS 212</b> Introductory Microbiology Prerequisites: BIO 120 and (CHM 116, 230, or 231)	3	<sup>1</sup> <b>MTH 123</b> Trigonometry ( <i>not needed if MTH 124 was taken</i> )	3
<b>BMS 213</b> Laboratory in Microbiology Prerequisite: BMS 212 or concurrent enrollment	1 (4)	Prerequisite: MTH 122 or assignment through Grand Valley math placement (MTH 122 may be taken concurrently)	
<b>STA 215</b> Introductory Applied Statistics	3	<b>OR</b> Gen Ed	3
Gen Ed	3	Gen Ed (SWS)	3
		Gen Ed	3
		<sup>3</sup> Elective	2
<i>Total</i>	<i>15</i>	<i>Total</i>	<i>15</i>
Year Three			
<b>BMS 312</b> Bacterial Genetics (offered fall in even numbered years) Prerequisites: BMS 212 or BIO 357	3	<b>CHM 461</b> Biochemistry I Prerequisite: CHM 242, CHM 247, or CHM 248	4
<b>BMS 313</b> Bacterial Genetics Laboratory Prerequisite: BMS 312 or concurrent registration	1 (4)	<b>PHY 221</b> General Physics II Prerequisites: PHY 220	5 (7)
<b>PHY 220</b> General Physics I Prerequisites: MTH 122 and MTH 123	5 (7)	<sup>3</sup> Elective	3
Gen Ed (SWS)	3	<sup>3</sup> Elective	3
<sup>3</sup> Elective	3		
<i>Total</i>	<i>15</i>	<i>Total</i>	<i>15</i>
Year Four			
<b>BMS 422</b> Bacterial Physiology (offered fall in odd numbered years) Prerequisite: BMS 212 or BIO 357	3	<b>BMS 412</b> Medical Bacteriology Prerequisite: BMS 212	3
<b>BMS 423</b> Bacterial Physiology Lab Prerequisite: BMS 422 or concurrent registration	2 (6)	<b>BMS 413</b> Medical Bacteriology Lab Prerequisite: BMS 412 or concurrent registration	2 (6)
<sup>4</sup> Microbiology Elective	3	<b>MIC/BMS 495</b> Microbiology and Infectious Disease	3
Issues	3	Prerequisite: Senior standing and one of the following pairs: BMS 312+313, BMS 412+413, or BMS 422+423	
<sup>3</sup> Elective	4	<sup>4</sup> Microbiology Elective	3
		Issues	3
		<sup>3</sup> Elective	1
<i>Total</i>	<i>15</i>	<i>Total</i>	<i>15</i>

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

<sup>1</sup>MTH 201 (Calculus I) can sub for MTH 122 (College Algebra) + MTH 123 (Trigonometry) or MTH 124 (with advisor approval). Students who wish to take MTH 201 for professional/graduate school should take MTH 124, if needed in preparation. For students with the Advanced Waiver for Mathematics based on ACT/SAT scores, it is **STRONGLY RECOMMENDED** that proficiency in MTH 123 – Trigonometry – be demonstrated by either taking the MTH 123 or MTH 124 course or by achieving a passing score on the GVSU math placement test **PRIOR** to taking PHY 220 and 221. Students who have AP/IB/dual enrollment credit for MTH 201 (Calculus I), or complete the MTH 122 and 123 proficiency tests, only need to complete STA 215. **To take the Math Proficiency Tests online, visit this link: [gvsu.edu/s/mv](https://gvsu.edu/s/mv)**

<sup>2</sup>Students who self-place into WRT 120 should take this course in the fall semester and then take WRT 130 in the winter semester of their first year. Students will not need to take WRT 150 if they have earned credit for the course through AP/Dual Enrollment. A grade of C or

better is required in WRT 130 or 150 in order to satisfy the WRT requirement at GVSU.

<sup>3</sup>Elective refers to any course that will help you earn the required 120 credits to graduate.

<sup>4</sup>Microbiology Electives must consist of at least 6 hours of upper-division science courses. See list below for elective options.

### Declaring the Microbiology Major:

1. In myBanner, select "Student" > "Student Records" > "Change Major" > "Change Major 1/Program"
2. Choose "Microbiology-BS" from the drop-down box.
3. Click "Submit" and then "Change to New Program"
4. Declare "**Pre Professional Preparation**" as your SECOND MAJOR if you are planning on medical, dental, pharmacy, chiropractic, podiatry, veterinary, or optometry school.

### General Education Overlap

General Education Categories fulfilled by the Microbiology Major:	
Life Sciences with Lab: BIO 120	Physical Sciences with Lab: CHM 115
Mathematical Sciences: STA 215, MTH 122, 123, 124	
Additional Overlap for Pre-Professional Students	
Social and Behavioral Sciences: PSY 101 and SOC 101	

### Microbiology Elective Courses

<sup>2</sup> BIO 416 Advanced Genetics Laboratory (2)* Prerequisite: BIO 375; BIO 411 or 414 recommended	CHM 462 Techniques in Biochemistry (3)* Prerequisite: CHM 461
BMS 394 Laboratory Assistant in Microbiology (1)* Prerequisite: BMS 213	<sup>2</sup> CHM 463 Biochemistry II (3) Prerequisite: CHM 461
BMS 410 Immunology (3) Prerequisites: BMS 212; CHM 232 or CHM 461 (may be taken concurrently)	CMB 405 Cell and Molecular Biology (4)* Prerequisite: (BIO 375 or BIO 355); BIO 376; CHM 232, 242, or 247 (may be taken concurrently)
<sup>2</sup> BMS 431 Medical Virology (3) Prerequisite: BMS 212 and CHM 241	CMB 406 Cell and Molecular Biology Lab (2) Prerequisite: CMB 405 (may be taken concurrently)
<sup>1</sup> BMS 432 Medical Mycology (3) Prerequisite: BMS 212	CMB 414 Molecular Biology of the Gene (3)*
<sup>1</sup> BMS 433 Medical Parasitology (3) Prerequisite: BMS 212 and CHM 241	<sup>1</sup> CMB 426 Research Applications in Nucleic Acids (4) Prerequisite: CMB 406
BMS 492 Biomedical Sciences Internship (1-4)* Prerequisite: BMS 290, BMS 291, CHM 232 or CHM 241	
BMS 499 Research in Biomedical Sciences (1-3)*	
*with advisor approval/permit required	<i>Numbers in parentheses indicate # of credits</i> <sup>1</sup> Offered in Fall Only <sup>2</sup> Offered in Winter Only

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 | <http://www.gvsu.edu/clasadvising>

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### Pre-Professional Students

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

**Keep in mind that you may major in anything so long as you complete the prerequisites for your professional program.**

To find more information on Pre-Professional programs, visit [www.gvsu.edu/clasadvising/preprofessional](http://www.gvsu.edu/clasadvising/preprofessional)