

# BIOMEDICAL SCIENCES-BS-GENERAL EMPHASIS

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

Year One			
<b>BIO 120</b> General Biology I (w/lab) Prerequisites: High school chemistry, CHM 109, or CHM 115 strongly recommended (CHM 109 or 115 may be taken concurrently)	4 (6)	<b>BMS 208</b> Human Anatomy Prerequisite: BIO 120	3
<b>CHM 115</b> Principles of Chemistry I (w/lab) 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 (w/lab) Prerequisites: CHM 115 and (MTH 122 or MTH 125 or MTH 201)	5 (7)
<sup>4</sup> <b>MTH 122</b> College Algebra Prerequisite: MTH 110 or by Grand Valley math placement	3	<b>WRT 150</b> Strategies in Writing Gen Ed	4 3
Gen Ed	3		
Elective	1		
<i>Numbers noted within (parentheses) are contact hours</i> <i>Total</i>	15	<i>Total</i>	15
Year Two			
<b>BMS 290</b> Human Physiology Prerequisites: BMS 208 and two semesters of chemistry	3	<b>BIO 375</b> Genetics/ <b>BIO 376</b> Genetics Laboratory Prerequisites: BIO 120. Concurrent enrollment in BIO 376 is required ( <i>Recommended for pre-med students</i> )	3/1 (6)
<b>BMS 291</b> Laboratory in Human Physiology Prerequisite: BMS 290 or concurrent registration	1 (3)	<b>OR BIO 355</b> Human Genetics (lecture only) Prerequisite: BIO 120 or BIO 103, or permission of instructor	3
<b>CHM 241</b> Organic Chemistry for Life Sciences I (w/lab) Prerequisite: CHM 116	5 (7)	<b>CHM 242</b> Organic Chemistry for Life Sciences II (w/lab) Prerequisite: CHM 241	4 (6)
<b>STA 215</b> Introductory Applied Statistics Prerequisite: MTH 110 or equivalent	3	<b>BMS 301</b> Introduction to Research in Biomedical Sciences Prerequisites: STA 215 and sophomore standing	3
Gen Ed	3	<sup>4</sup> <b>MTH 123</b> Trigonometry Prerequisite: MTH 122 or assignment through Grand Valley math placement (MTH 122 may be taken concurrently)	3
		<sup>2</sup> Elective	1-2
<i>Total</i>	15	<i>Total</i>	15
Year Three			
<b>CHM 461</b> Biochemistry I Prerequisite: CHM 242 or CHM 247 and CHM 248	4	<b>BMS 212</b> Introductory Microbiology Prerequisites: BIO 120 and (CHM 230 or CHM 232 or CHM 241)	3
<b>PHY 220</b> General Physics I (w/lab & discussion) Prerequisites: MTH 122 and MTH 123	5 (7)	<b>BMS 213</b> Laboratory in Microbiology Prerequisite: BMS 212 or concurrent enrollment	1 (4)
Gen Ed	3	<b>PHY 221</b> General Physics II (w/lab & discussion) Prerequisites: PHY 220	5 (7)
Gen Ed	3	Issue	3
		Gen Ed	3
<i>Total</i>	15	<i>Total</i>	15
Year Four			
<sup>3</sup> <b>BMS 495</b> Concepts in Wellness (Capstone) SWS Prerequisites: BMS 208, BMS 212, BMS 290 or 291, and senior standing	3	<sup>1</sup> Biomedical Science Elective	3
Issue	3	<sup>1</sup> Biomedical Science Elective	3
<sup>2</sup> Elective	3	Gen Ed	3
<sup>2</sup> Elective	3	<sup>2</sup> Elective	3
<sup>2</sup> Elective	3	<sup>2</sup> Elective	3
<i>Total</i>	15	<i>Total</i>	15

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

<sup>1</sup> Biomedical Science Electives must consist of at least 6 hours of upper-division Biomedical Science courses. See list on the back for elective options.

<sup>2</sup> Elective refers to any course that will help you reach the required 120 credits to graduate. **Consider a minor or certificate.**

<sup>3</sup> Students must complete two courses with an SWS attribute.

<sup>4</sup> 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. 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)**

**Declaring the BMS Major:**

1. In myBanner, select "Student" > "Student Records" > "Change Major" > "Change Major 1/Program"
2. Choose "Biomedical Science-BS" from the drop-down box. You have the option of adding an emphasis in Nutrition or Microbiology but this is not required.
3. Click "Submit" and then "Change to New Program"
4. Declare "**PreProfessional Preparation**" as your SECOND MAJOR if you are planning on medical, dental, pharmacy, chiropractic, podiatry, or optometry school.

**General Education Overlap**

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

**Biomedical Science Elective Courses (6 credits required)**

<b>Anatomy</b> BMS 309 Laboratory in Human Anatomy (1) <sup>2</sup> BMS 355 Anatomy of Joints (2) w/Lab BMS 393 Laboratory Assistant in Human Anatomy (1) <sup>1</sup> BMS 427 Neuroanatomy (1) <sup>1</sup> BMS 450 Human Histology (4) w/Lab <sup>2</sup> BMS 460 Regional Human Anatomy (4) w/Lab <sup>1</sup> BIO 422 Embryology (3) w/Lab  <b>Physiology</b> BMS 310 Basic Pathophysiology (3) BMS 311 Pharmacological Aspects of Biomedical Sciences (3) <sup>1</sup> BMS 375 The Biology of Aging (3) BMS 392 Laboratory Assistant in Physiology (1) <sup>2</sup> BMS 426 Sensory Systems Neuroscience: Anatomy and Physiology (3) <sup>2</sup> BMS 428 Neurosciences (3) <sup>2</sup> BMS 475 The Pathology of Aging (3) <sup>2</sup> BMS 508 Advanced Human Physiology (3)	<b>Microbiology</b> <sup>1</sup> BMS 312 Bacterial Genetics (3) (only offered in even-numbered years) <sup>1</sup> BMS 313 Bacterial Genetics Laboratory (1) (only offered in even-numbered years) <sup>1</sup> BMS 410 Immunology (3) <sup>2</sup> BMS 411 Immunology Laboratory (1) <sup>2</sup> BMS 412 Medical Bacteriology (3) <sup>2</sup> BMS 413 Medical Bacteriology Laboratory (2) <sup>1</sup> BMS 422 Bacterial Physiology (3) (only offered in odd-numbered years) <sup>1</sup> BMS 423 Bacterial Physiology Laboratory (2) (only offered in odd-numbered years) <sup>2</sup> BMS 431 Medical Virology (3) <sup>1</sup> BMS 433 Medical Parasitology (3) w/Lab	<b>Nutrition</b> BMS 305 Clinical Nutrition (3) <sup>1</sup> BMS 306 Advanced Human Nutrition (3) <sup>2</sup> BMS 404 Community Nutrition (3) BMS 407 Nutrition in the Life Cycle (3) <sup>2</sup> BMS 415 Nutrition and Physical Performance (3)  <b>General</b> BMS 380/480 Special Topics in the Biomedical Sciences (1-4) BMS 399 Readings in the Biomedical Sciences (1-3) BMS 492 Biomedical Sciences Internship (1-4) BMS 499 Research in the Biomedical Sciences (1-3) CMB 405 Cell and Molecular Biology (4) CMB 406 Cell and Molecular Biology Laboratory (2) <sup>2</sup> CMB 440 Research Applications in Drosophila Genomics (3) w/Lab  <i>Numbers in parentheses indicate # of credits</i> <sup>1</sup> Offered in Fall Only <sup>2</sup> Offered in Winter Only
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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> (Also find us on Orgsync, Facebook, and Twitter!)

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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 choose any major as long as you complete the prerequisites for your professional program.**

See <http://gvsu.edu/s/zY> for additional details regarding professional school information.

Follow the Pre-Professional Blog: <https://preprofessionallakers.wordpress.com>