

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

Year One			
<sup>1</sup> <b>BIO 120</b> General Biology I (w/lab) (GE Life Science) Prerequisites: High school chemistry, CHM 109, or CHM 125 and CHM 126 strongly recommended (CHM 109 or CHM 125 and CHM 126 may be taken concurrently)	4 (6)	<b>BMS 208</b> Human Anatomy Prerequisite: BIO 120	3
<b>CHM 125/126</b> Principles of Chemistry I (w/lab) (GE Physical Science) Prerequisites: High school chemistry and (MTH 108/109, MTH 110, MTH 122, MTH 125 or MTH 201; or fulfillment of MTH 110 through Math Placement [ <i>gvsu.edu/s/mv</i> ])	3/1 (6)	<b>CHM 127/128</b> Principles of Chemistry II (w/lab) Prerequisites: CHM 125/126 and (MTH 122 or MTH 125 or MTH 201)	4/1 (7)
<sup>2</sup> <b>MTH 122</b> College Algebra Prerequisite: MTH 110 or by Grand Valley math placement	3	<sup>3</sup> <b>WRT 130</b> or <b>WRT 150</b> Strategies in Writing (GE Writing)	3-4
Gen Ed (GE Art) or <sup>3</sup> <b>WRT 120</b> (self-placement)	3	Gen Ed (GE Philosophy & Literature)	3
<sup>4</sup> Elective	1	<sup>4</sup> Elective (if needed)	1
<i>Numbers noted within (parentheses) are contact hours</i>	<i>Total</i>	<i>Total</i>	<i>Total</i>
	15		15
Year Two			
<b>BMS 290</b> Human Physiology Prerequisites: BMS 208 or BIO 302 and two semesters of chemistry	3	<b>BMS 212</b> Introductory Microbiology Prerequisites: BIO 120 and one of (CHM 127 and CHM 128), or CHM 234, or CHM 231.	3 1 (4)
<b>CHM 235/236</b> Organic Chemistry for Life Sciences I (w/lab) Prerequisite: CHM 127/128	4/1 (7)	<b>BMS 213</b> Laboratory in Microbiology Prerequisite: BMS 212 or concurrent enrollment	3/1(6)
<b>STA 215</b> Introductory Applied Statistics (GE Math) Prerequisite: MTH 108/109, MTH 110, or fulfillment of MTH 110 through Math Placement ( <i>gvsu.edu/s/mv</i> )	3	<b>CHM 237/238</b> Organic Chemistry for Life Sciences II (w/lab) Prerequisite: CHM 235/236	3
Gen Ed (GE Social/Behavioral)	3	<sup>2</sup> <b>MTH 123</b> Trigonometry Prerequisite: MTH 122 or assignment through Grand Valley math placement (MTH 122 may be taken concurrently)	3
<sup>4</sup> Elective	1	Gen Ed (GE Social/Behavioral)	1
		<sup>4</sup> Elective	1
<i>Total</i>	<i>15</i>	<i>Total</i>	<i>15</i>
Year Three			
<b>BMS 391</b> Laboratory in Human Physiology (CLAS Voyage: Experiential Learning) Prerequisite: BMS 290 or 251 and two semesters of chemistry	2 (3) 4	<b>PHY 221</b> General Physics II (w/lab & discussion) Prerequisites: PHY 220	5 (7) 2
<b>CHM 461</b> Biochemistry I Prerequisite: CHM 237/238 or CHM 247/248	5 (7)	<b>BMS 309</b> Laboratory in Human Anatomy (CLAS Voyage: Experiential Learning) Prerequisite: C- or better in BMS 208	3
<b>PHY 220</b> General Physics I (w/lab & discussion) Prerequisites: MTH 122 and MTH 123	3	Issue (or <sup>7</sup> Human Genetics (lecture only))	3
Gen Ed (GE US Diversity)	1	<sup>5</sup> Gen Ed (SWS) (GE Historical Analysis)	3
<sup>4</sup> Elective		<sup>4</sup> Elective	1-2
<i>Total</i>	<i>15</i>	<i>Total</i>	<i>15</i>
Year Four			
<sup>5</sup> <b>BMS 495</b> Concepts in Wellness (Capstone) SWS (CLAS Voyage: Capstone) Prerequisites: BMS 208, BMS 212, BMS 290 or 391, and senior standing	3	<sup>6</sup> Biomedical Science Elective (300 or 400-level)	3
<b>BIO 375</b> Genetics/ <b>BIO 376</b> Genetics Laboratory BIO 375 Prerequisites: BIO 120 or CMB 155 and 156 BIO 376 Prerequisites: BIO 375 or 355 (either may be taken concurrently)	3/4	<sup>6</sup> Biomedical Science Elective (400-level, if not taken already)	3
<b>OR BIO 355</b> Human Genetics (lecture only) Prerequisite: BIO 120 or BIO 104, or permission of instructor	3	Gen Ed (if remaining) or <sup>4</sup> Elective	3
<sup>6</sup> Biomedical Science Elective (300 or 400-level)	3	<sup>4</sup> Elective	3
Gen Ed (GE Global Perspectives)	3	Issue	3
<sup>4</sup> Elective	1-2		
<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> CMB 155+156 can substitute for BIO 120 for those students interested in research.

<sup>2</sup> Students starting below MTH 122 should consult with an advisor about summer courses to stay on track for a 4-year graduation. 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 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 pass the MTH 122 and 123 proficiency tests, only need to complete STA 215. MTH 124 and MTH 201 will substitute for MTH 122 and MTH 123. **To take the Math Proficiency Tests online, visit this link: [gvsu.edu/s/mv](http://gvsu.edu/s/mv)**

<sup>3</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>4</sup> 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. **Consider a minor or certificate.**

<sup>5</sup> Students must complete two courses with an SWS attribute.

<sup>6</sup> BMS Electives must consist of at least 9 hours of upper-division Biomedical Science courses. At least 3-credits must be at the 400-level. See list below.

<sup>7</sup> Students preparing for the MCAT, DAT, or OAT are advised to complete Genetics (either BIO 355 or BIO 375) prior to the entrance exam.

### General Education Overlap

General Education Categories fulfilled by the Biomedical Sciences Major:	
Life Sciences with Lab: BIO 120	Physical Sciences with Lab: CHM 125/126
Mathematical Sciences: STA 215, MTH 122, MTH 123	
Additional Overlap for Preprofessional Students:	
Social and Behavioral Sciences: PSY 101 and SOC 101	

### Biomedical Science Elective Courses (9 credits required)

Anatomy	Microbiology	Nutrition
<sup>2</sup> BMS 355 Anatomy of Joints (2) w/Lab	<sup>1</sup> BMS 312 Bacterial Genetics (3) (only offered in even-numbered years)	BMS 305 Clinical Nutrition (3)
BMS 393 Lab Asst in Human Anatomy (1)	<sup>1</sup> BMS 313 Bacterial Genetics Laboratory (1) (only offered in even-numbered years)	<sup>1</sup> BMS 306 Advanced Human Nutrition (3)
<sup>1</sup> BMS 427 Neuroanatomy (1)	BMS 394 Lab Asst in Microbiology (1)	BMS 407 Nutrition in the Life Cycle (3)
<sup>1</sup> BMS 450 Human Histology (4) w/Lab	BMS 410 Immunology (3)	<sup>2</sup> BMS 415 Nutrition and Physical Performance (3)
<sup>2</sup> BMS 460 Regional Human Anatomy (4) w/Lab	<sup>2</sup> BMS 412 Medical Bacteriology (3)	<b>General</b>
<sup>2</sup> BIO 302 Comparative Vertebrate Anatomy w/Lab (4)	<sup>2</sup> BMS 413 Medical Bacteriology Laboratory (2)	BMS 301 Introduction to Research in Biomedical Sciences (3)
<sup>1</sup> BIO 422 Animal Developmental BIO (3) w/Lab	<sup>1</sup> BMS 422 Bacterial Physiology (3) (only offered in odd-numbered years)	BMS 380/480 Special Topics in the Biomedical Sciences (1-4)
<b>Physiology</b>	<sup>1</sup> BMS 423 Bacterial Physiology Laboratory (2) (only offered in odd-numbered years)	BMS 399 Readings in the Biomedical Sciences (1-3)
BMS 310 Basic Pathophysiology (3)	<sup>2</sup> BMS 431 Medical Virology (3)	BMS 492 Biomedical Sciences Internship (1-4)
BMS 311 Pharmacological Aspects of Biomedical Sciences (3)	<sup>1</sup> BMS 432 Medical Mycology (2)	BMS 499 Research in the Biomedical Sciences (1-3)
<sup>1</sup> BMS 375 The Biology of Aging (3)	<sup>1</sup> BMS 433 Medical Parasitology (3) w/Lab	BMS 405 Cell and Molecular Biology (4)
BMS 392 Laboratory Assistant in Physiology (1)	<sup>2</sup> BIO 416 Advanced Genetics Laboratory (2)	CMB 406 Cell and Molecular Biology Lab (2)
<sup>1</sup> BMS 409 Endocrinology (3)	CMB 451 Bioinformatics: Tools and Techniques for Life Scientists (3)	CHM 462 Techniques in Biochemistry w/Lab (3)
<sup>2</sup> BMS 426 Sensory Systems Neuroscience: Anatomy and Physiology (3)	CMB 411 Genetics of Development & Cancer (3)	<sup>2</sup> CHM 463 Biochemistry II (3)
<sup>2</sup> BMS 428 Neurosciences (3)	CMB 414 Molecular Biology of the Gene (3)	<i>Numbers in parentheses indicate # of credits</i>
<sup>2</sup> BMS 475 The Pathology of Aging (3)	CMB 426 Nucleic Acids Laboratory (3)	<sup>1</sup> Offered in Fall Only
BMS 453 Advanced Pharmacology (3)	<sup>2</sup> CMB 440 Research Applications in Drosophila Genomics (3) w/Lab	<sup>2</sup> Offered in Winter Only
<sup>2</sup> BMS 508 Advanced Human Physiology (3) <i>special permission needed</i>	CMB 452 Computer Modelling and Drug Design (3)	
	CMB 460 Genomics & Molecular Diagnostics (3)	

### CLAS Voyage Courses

What is the CLAS Voyage? <https://www.gvsu.edu/clas/clas-voyage-1184.htm> or search "GVSU CLAS Voyage"

Experiential Learning	BMS 309 & 391
Capstone	BMS 495

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 a Biomedical Sciences and/or Preprofessional Advisor in the CLAS Academic Advising Center, visit [www.gvsu.edu/clasadvising](http://www.gvsu.edu/clasadvising) and click on "Schedule Appointment"

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