

BIOLOGY-BA OR BS-GENERAL (FOR PRE-PROFESSIONAL STUDENTS)*The BA degree requires 3rd semester proficiency in a foreign language (201 level).*THIS IS A **GENERAL** CURRICULUM GUIDE AND IS NOT APPLICABLE TO EVERY STUDENT. IT IS IMPORTANT TO MEET WITH YOUR ADVISOR.

Year One			
BIO 121* General Biology II w/lab Prerequisite: MTH 110 (may be taken concurrently)	4 (6)	BIO 120* 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)
CHM 115 Principles of Chemistry I w/lab Prerequisites: High school chemistry and (MTH 110 or MTH 122 or MTH 125 or MTH 201)	4 (6)	CHM 116 Principles of Chemistry II w/lab Prerequisites: CHM 115 and (MTH 122 or MTH 125 or MTH 201)	5 (7)
¹ MTH 122 College Algebra Prerequisite: MTH 110 or assignment through Grand Valley math placement	3	^{1, 3} MTH 123 Trigonometry Prerequisite: MTH 122 or assignment through Grand Valley math placement (MTH 122 may be taken concurrently)	3
Gen Ed (Philosophy & Lit) or ² WRT 120 (self-placement) <i>*It is strongly recommended that BIO majors take BIO 121 before BIO 120.</i>	3	² WRT 130 or WRT 150 Strategies in Writing	3-4
<i>Numbers noted within (parentheses) are contact hours</i>	<i>Total</i>	<i>Total</i>	<i>15-16*</i>
	14		
Year Two			
BIO 215 Ecology w/lab (summer and fall only) Prerequisites: BIO 120 and BIO 121 (BIO 120 may be taken concurrently)	4 (6)	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)	3/1 (6)
BMS 208 Human Anatomy (prerequisite to BMS 290) Prerequisite: BIO 120	3	³ CHM 242 Organic Chemistry for Life Sciences II w/lab Prerequisite: CHM 241	4 (6)
³ CHM 241 Organic Chemistry for Life Sciences I w/lab Prerequisite: CHM 116	5 (7)	⁴ BMS 290 Human Physiology (Category II) Prerequisites: BMS 208 and two semesters of chemistry	3
Gen Ed (PSY 101 recommended)	3	⁵ MTH Cognate Course	3-4
<i>Total</i>	<i>Total</i>	<i>Total</i>	<i>14-15</i>
	15		
Year Three			
⁴ BMS 391 Lab in Human Physiology (Category II) Prerequisite: BMS 290 or concurrent registration	2 (3)	⁴ BMS 212 Introductory Microbiology (Category V) Prerequisites: BIO 120 and CHM 116	3
³ CHM 461 Biochemistry I Prerequisites: CHM 242, CHM 247 or CHM 248	4	⁴ BMS 213 Laboratory in Microbiology (Category V) Prerequisite: BMS 212 or concurrent enrollment	1 (4)
³ PHY 220 General Physics I w/lab Prerequisites: MTH 122 and MTH 123	5 (7)	³ PHY 221 General Physics II w/lab Prerequisite: PHY 220	5 (7)
Gen Ed (SOC 101 recommended)	3	Issue	3
⁷ Elective	1	BIO 210 Evolutionary Biology Prerequisites: BIO 120 and BIO 121	3
<i>Total</i>	<i>Total</i>	<i>Total</i>	<i>15</i>
	15		
Year Four			
CMB 405 Cell and Molecular Biology Prerequisites: (BIO 375 or 355), BIO 376, and (CHM 232 or CHM 242 or CHM 247) may be taken concurrently	4	BIO 495 Perspectives in Biology (Capstone) Prerequisites: Senior Standing and CMB 405 (may be taken concurrently)	3
⁶ CMB 406 SWS Cell and Molecular Biology Laboratory Prerequisites: CMB 405 (may be taken concurrently)	2 (4)	⁴ Category III or IV BIO Elective Course Gen Ed (Philosophy & Literature) or ⁷ Elective	3-4 3
⁴ Category I BIO Elective Course Issue	3-4 3	Gen Ed (Art)	3
Gen Ed (Historical Perspective/Global Perspectives)	3	Gen Ed (US Diversity)	3
<i>Total</i>	<i>Total</i>	<i>Total</i>	<i>15-16*</i>
	15-16*		

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

¹MTH 122/123 are prerequisites for other courses and are not part of the Biology major. MTH 124 and/or MTH 201 will substitute for MTH 122 and MTH 123. CHM 461 is required for pre-professional students but is not part of the Biology major. Students have the option of taking the **Math Proficiency Tests for MTH 122 and/or 123 online:** www.qvsu.edu/s/mv² 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.³Students planning on professional or graduate school should complete CHM 241, CHM 242, CHM 461, and PHY 220 and PHY 221. See the Pre-Professional Advisors in the CLAS Academic Advising Center for more information.⁴Students must complete a minimum of 41 credits of Biology coursework. See reverse for required Category elective courses.⁵Choose one of the following to complete the math cognate for the major: MTH 125: Survey of Calculus, MTH 201: Calculus, or STA 215: Introductory Applied Statistics. Students who don't place into MTH 201 should take MTH 124 as a prerequisite instead of MTH 122+123.⁶ Students must complete a total of two courses with an SWS attribute.

⁷Elective refers to any course that will help you earn the required 120 credits to graduate.

Declaring the Biology-General Major:

1. In myBanner, select “Student” > “Student Records” > “Change Major” > “Change Major 1/Program”
2. Choose “Biology-(BA or BS)-General Biology” from the drop-down box.
3. Click “Submit” and then “Change to New Program”
4. Declare “Pre-Professional” as your SECOND MAJOR if you are planning on medical, dental, pharmacy, or optometry school.
→ If you are Pre-Veterinary, the **Biology with Pre-Veterinary emphasis** is recommended

General Education Categories fulfilled by the Biology major:
Life Science and Physical Science: BIO 120 and CHM 115 (both fulfill lab requirement)
Mathematical Sciences: STA 215, MTH 122, MTH 123, MTH 201

Students must complete one course from Categories I, II, and V, and one course from either Category III or IV.		
The BIO-General major requires a total of 41 credits of BIO classes, including certain CMB and BMS courses. Elective courses may only count in one category.		
<p>Category I: Plant Organismal Biology ¹BIO 243 Plant Identification & Natural History (3) w/lab ²BIO 303 Plant Morphology (4) w/lab ^{2E}BIO 313 Plants and Islands (4) w/lab ¹BIO 323 Aquatic and Wetland Plants (3) w/lab ¹BIO 333 Systematic Botany (4) w/lab ^{1E}BIO 383 Plant-Fungal Interactions (4) w/lab ²BIO 403 Plant Structure and Function (4) w/lab ^{2O} BIO 413 Freshwater Algae (3) w/lab ²BIO 423 Plant Biotechnology (3) w/lab ¹BIO 433 Plant Ecology (4) w/lab</p>	<p>Category II: Animal Organismal Biology BMS 208+309 Human Anatomy and Lab (4) BMS 290+391 Human Physiology and Lab (5)</p> <p style="text-align: center;"><i>Numbers in parentheses indicate # of credits</i> ¹<i>Offered in Fall semesters only</i> ²<i>Offered in Winter semesters only</i> ^E<i>Offered in Even years only</i> ^O<i>Offered in Odd years only</i></p>	<p>Category III: Principles of Ecology and Evolutionary Biology ²BIO 303 - Plant Morphology (4) w/lab ^{2E}BIO 313 - Plants and Islands (4) w/lab ¹BIO 333 - Systematic Botany (4) w/lab ¹BIO 349 - The Darwinian Revolution (3) BIO 352 - Animal Behavior (3) w/lab ¹BIO 370 - Marine Biology (3) ¹BIO 433 - Plant Ecology (4) w/lab ^{1O}BIO 440 - Limnology (4) w/lab ^{1E}BIO 450 - Stream Ecology (4) w/lab ¹BIO 452 - Human Evolution (3) ¹BIO 460 - Terrestrial Ecosystem Ecology (4) w/lab ²BIO 473 - Ecology and Evolution of Plant-Animal Interactions (3) ^{1E}BIO 475 – Population Genetics (3)</p>
<p>Category IV: Applied Ecology & Evolution ²BIO/NRM 308 - Wildlife Ecology (4) w/lab ¹BIO 357 - Environmental Microbiology* (4) w/lab ¹BIO 362 - Fisheries Biology (3) w/lab ¹BIO 370 - Marine Biology (3) ¹BIO/NRM 386 - Ecological Restoration & Management (4) w/lab ^{2E}BIO 402 - Aquatic Insects (3) w/lab BIO 407 - Biology and Society: Study Abroad (with advisor’s permission) ¹BIO/NRM 408 - Wildlife Mgmt(4) w/lab ²BIO 415 – Fire Ecology & Management (3) BIO 417 - International Field Biology (w/ advisor’s permission) BIO 418 - Regional Field Biology (w/ advisor permission) ^{1O}BIO 440 - Limnology (4) w/lab ^{1E}BIO 450 - Stream Ecology (4) w/lab ²BIO 470 - Conservation Biology (3) ²BIO 473 - Ecology and Evolution of Plant-Animal Interactions (3) ^{1E}BIO 475 – Population Genetics (3) ²BIO/NRM 486 – Adv. Restoration Ecology (3)</p>	<p>Category V: Biomolecular Processes BMS 212 and BMS 213* Introductory Microbiology and Lab (4)</p> <p>*Note: students may count BIO 357 or BMS 212/213 towards the Biology degree, but not both</p>	<p>Excluded and Restricted Courses: The following courses may not count towards the Biology major: BIO 104 - Biology for the 21st Century (4) BIO 105 - Environmental Science (3) BIO 107 - Great Lakes & Other Water Resources (4) BIO 109 - Plants in the World (4) BIO 205 - Genetics for K-8 Pre-Service Teachers (2) Any other biology course whose description prevents it from being used in the major.</p> <p>BIO 355 (Human Genetics) may only count towards the Biology major with advisor’s permission.</p> <p>The following courses can satisfy part of Gen Ed Issues requirement and may count towards the Biology major after elective-category requirements are satisfied: BIO 309 - Plants and Human Health (3) BIO 311 - Who’s Running Your Life: Genes, Evolution and Behavior (3) BIO 319 - Global Agricultural Sustainability (3) BIO 328 - Biomedical Ethics (3) BIO 329 - Evolution of Social Behavior (3) BIO 338 - Environmental Ethics (3)</p>

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 Biology and/or Pre-Professional Advisor in the CLAS Academic Advising Center, visit www.gvsu.edu/clasadvising and click on “Schedule Appointment.” To find more information on Pre-Professional programs, visit www.gvsu.edu/clasadvising/preprofessional.