

BIOLOGY-BA OR BS*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 Elective Gen Ed (GE Art) or ¹ WRT 120 (self-placement) Gen Ed (GE Philosophy & Literature) ³ MTH 122 College Algebra or Elective ⁴ Prerequisite: MTH 110 or math placement ⁴ Elective (if needed) <i>*It is recommended that BIO majors take BIO 121 before BIO 120.</i>	4 (6) 1 3 3 3 1	BIO 120* General Biology I w/lab (GE Life Science) Prerequisites: High school chemistry, CHM 109, or CHM 115 strongly recommended (CHM 109 or 115 may be taken concurrently) ^{2,6} CHM 109 Introductory Chemistry (GE Phys. Science) OR ^{2,6} CHM 115 Principles of Chemistry I w/lab (GE Physical Science) Prerequisites: High school chemistry and (MTH 110 or MTH 122 or MTH 125 or MTH 201) ¹ WRT 130 or WRT 150 Strategies in Writing (GE Writing) Gen Ed (GE Social/Behavioral) BIO 130 Careers in Biology	4 (6) 4 (6) 4 (6) 3-4 3 1
<i>Numbers noted within (parentheses) are contact hours</i>	<i>Total</i>	<i>Total</i>	<i>15-16</i>
15			
Year Two			
BIO 215 Ecology w/lab (summer and fall only) Prerequisites: BIO 121 ^{2,6} CHM 230 Intro to Organic & Biochemistry w/ lab OR Prerequisite: CHM 109 or equivalent ^{2,6} CHM 116 Principles of Chemistry II w/lab Prerequisites: CHM 115 and (MTH 122, 125 or 201) ⁵ MTH/STA Requirement (GE Math) Gen Ed (GE Social/Behavioral) ⁴ Elective (if needed)	4 (6) 4 (6) 5 (7) 3-4 3 1	BIO 210 Evolutionary Biology Prerequisites: BIO 120 and BIO 121 Biology Elective (see list below) ⁶ Supplementary Skills Elective(see list below) Gen Ed (GE Art) or ⁴ Elective ⁴ Elective (if needed)	3 3-4 3-5 3 1-3
<i>Total</i>	<i>15-16*</i>	<i>Total</i>	<i>15</i>
15			
Year Three			
BIO 375 Genetics and BIO 376 Genetics Laboratory BIO 375 Prerequisite: BIO 120 or CMB 155 and 156 BIO 376 Prerequisite: BIO 375 or 355 (may be taken concurrently) Biology Elective (see list below) ⁶ Supplementary Skills Elective(see list below) Gen Ed (GE US Diversity) ⁴ Elective (if needed)	3/1 (6) 3-4 3-5 3 1-2	Biology Elective (see list below) Issues ⁶ Supplementary Skills Elective(see list below) (if needed) Gen Ed (GE Historical Analysis) ⁴ Elective (if needed)	3-4 3 3-5 3 1-3
<i>Total</i>	<i>15-16*</i>	<i>Total</i>	<i>15</i>
15			
Year Four			
Biology Elective (see list below) Biology Elective (see list below) ⁷ Issues+SWS Gen Ed (GE Global Perspectives) ⁴ Elective	3-4 3-4 3 3 1-3	^{7,8} BIO 495 SWS Perspectives in Biology (Capstone) Prerequisites: Senior Standing, and either STA 215, MTH 125 or MTH 201 Biology Elective (see list below, if needed) ⁴ Elective or (Gen Ed, if needed) ⁴ Elective ⁴ Elective	3 3-4 3 3 2-3
<i>Total</i>	<i>15</i>	<i>Total</i>	<i>15</i>
15			

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

¹ WRT 150 earned through AP/Dual Enrollment will fulfill the WRT 150 requirement. A grade of C or better is required in WRT 130 or 150.² Must complete one of the following CHM sequences: 1) CHM 109 + CHM 230; 2) CHM 115 + CHM 116. Those who need CHM 109 + CHM 231 + CHM 232 for graduate/professional school can take CHM 231 in place of CHM 230, but will still need an additional 9 credits of Supplemental Skill electives.³ MTH 122 is not a required course in the Biology major. Students who plan to take CHM 116 must complete MTH 122. MTH 124 and MTH 201 will substitute for MTH 122. **Take the Math Proficiency Tests for MTH 122 and/or 123 online: www.gvsu.edu/s/mv**⁴ 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.⁵ Choose one of the following for the math/statistics requirement 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 considering professional school need CHM 241, CHM 242, CHM 461, and PHY 220 + PHY 221. The Pre-Professional emphasis is recommended. Students should consult with a Preprofessional Advisors in the CLAS Academic Advising Center. Those pursuing graduate school in the biological sciences should consult their faculty advisor regarding admissions requirements for academic graduate programs.⁷ Students must complete a total of two courses with an SWS attribute.⁸ May substitute a 3-credit BIO 490 or BIO 499 with advisor approval. Must occur in final year and include a public presentation. Doesn't satisfy SWS.

Declaring the Biology Major:

1. In myBanner, select "Student" > "Student Records" > "Change Major" > "Change Major 1/Program"
2. Choose "Biology-(BA or BS)" from the drop-down box.
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, or optometry school.
 - If you are Preveterinary, the **Biology with Pre-Veterinary emphasis** is suggested
 - If you are planning on Premedical, dental, pharmacy, podiatry, or optometry, the **Biology with Pre-Professional emphasis** is suggested

General Education Categories fulfilled by the Biology major:
Life Science and Physical Science: BIO 120 and CHM 109 or CHM 115 (both fulfill lab requirement)
Mathematical Sciences: STA 215, MTH 125, or MTH 201

Students in the Biology major must complete an additional 9 credits from the Supplementary Skills electives listed below.	
CHM 230 - Introduction to Organic and Biochemistry (4) CHM 231 - Introductory Organic Chemistry (4) CHM 232 - Biological Chemistry (4) CHM 241 - Organic Chemistry for Life Sciences I (5) CHM 242 - Organic Chemistry for Life Sciences II (4) MTH 125 - Survey of Calculus (3) MTH 201 - Calculus I (4) MTH 202 - Calculus II (4) MTH 203 - Calculus III (4) MTH 204 - Linear Algebra I (3)	PHY 200 - Physics for the Life Sciences (4) PHY 220 - General Physics I (5) PHY 221 - General Physics II (5) STA 216 - Intermediate Applied Statistics (3) STA 301 - Questionnaire Design and Execution (3) STA 310 - Introduction to Biostatistics (3) STA 311 - Introduction to Survey Sampling (3) STA 312 - Probability and Statistics (3)

Students in the Biology Major must complete 18 credits of Biology elective courses numbered BIO 222 or higher including two (2) laboratory courses. Up to 12 credits may be taken from the Additional Biology Major Electives.		
Plant ^{5S} BIO 243 Plant Identification & Natural History (3) w/lab ² BIO 303 Plant Morphology (4) w/lab ^{2E} BIO 313 Plants and Islands (4) w/lab ¹ BIO 323 Aquatic and Wetland Plants (3) w/lab ¹ BIO 333 Systematic Botany (4) w/lab ^{1E} BIO 383 Plant-Fungal Interactions (4) w/lab ² BIO 403 Plant Structure and Function (4) w/lab ^{2O} BIO 413 Freshwater Algae (3) w/lab ² BIO 423 Plant Biotechnology (3) w/lab ¹ BIO 433 Plant Ecology (4) w/lab Animal ¹ BIO 222 Natural History of Vertebrates (3) w/lab ^{2O} BIO 232 Natural History of Invertebrates (3) w/lab ¹ BIO 272 Insect Biology and Diversity (3) w/lab ² BIO 302 Comparative Vertebrate Anatomy (4) w/lab ² BIO 342 Ornithology (3) w/lab ¹ BIO 362 Biology & Diversity of Fishes (4) w/lab ^{2E} BIO 402 Aquatic Insects (3) w/lab ¹ BIO 412 Mammalogy (4) w/lab ² BIO 422 Animal Development Biology (3) w/lab ¹ BIO 432 Comparative Animal Physiology (4) w/lab ¹ BIO 444 Herpetology (4) w/lab ¹ Offered in Fall semesters ² Offered in Winter semesters ^{5S} Offered in spring/summer ^E Offered in Even years ^O Offered in Odd years Numbers in parentheses indicate # of credits	Ecology and Evolutionary Biology ^{2/5S} BIO 230 Intro to Wildland Fire Mgmt (2) ² BIO/NRM 308 Wildlife Ecology (4) w/lab ¹ BIO 349 The Darwinian Revolution (3) BIO 352 Animal Behavior (3) w/lab ¹ BIO 357 Environmental Microbiology* (4) w/lab ¹ BIO 370 Marine Biology (3) ¹ BIO/NRM 386 - Ecological Restoration & Mgmt (4) w/lab BIO 407 Biology and Society: Study Abroad (w/ advisor permission) ¹ BIO/NRM 408 Wildlife Management (4) w/lab ² BIO 415 Fire Ecology & Management (3) BIO 417 International Field Biology (w/ advisor permission) BIO 418 Regional Field Biology (w/ advisor permission) ^{2/5S} BIO 430 Adv. Wildland Fire Mgmt w/ lab (2) ¹ BIO 433 Plant Ecology (4) w/lab ^{1O} BIO 440 Limnology (4) w/lab ^{1E} BIO 451 Stream Ecology (4) w/lab ¹ BIO 452 Human Evolution (3) ¹ BIO 461 - Terrestrial Ecosystem Ecology (4) w/lab ² BIO 470 Conservation Biology (3) ² BIO 473 Ecology and Evolution of Plant-Animal Interactions (3) ^{1E} BIO 475 Population Genetics (3) ² BIO/NRM 486 Adv. Restoration Ecology (3) Genetics ¹ BIO 357* Environmental Microbiology (4) w/lab BIO 396 Laboratory Assistant in Genetics (1) ² BIO 416 Advanced Genetics Laboratory (2) ² BIO 422 Animal Development Biology (3) w/lab ² BIO 485 Molecular Ecology (3) w/lab	General 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 325 Human Sexuality (3) BIO 328 Biomedical Ethics (3) BIO 329 Evolution of Social Behavior (3) BIO 338 Environmental Ethics (3) BIO 399 Selected Experiences in Biology (104) BIO 490 Internship (1-6) BIO 499 Research in Biology (1-4) Additional Biology Major Electives (non-BIO) Biomedical Sciences (BMS) Courses 208+ Cell & Molecular Biology (CMB) Courses 250+ Natural Resource Mgmt (NRM) Courses 150+ PSY 300 Research Methods in Psychology (3) PSY 330 Foundation of Behavioral Neuroscience (3) PSY 350 Psychology Research & Data Applications (3) PSY 435 Advanced Neuroscience & Behavior (3) Notes <ul style="list-style-type: none"> • For those interested in microbiology, it is recommended to take one of BIO 357 or BMS 212/213, but not both • It is not recommended to take BIO 355 and BIO 375. Please consult with your advisor if you have already taken BIO 355.

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 Preprofessional Advisor in the CLAS Academic Advising Center, visit www.gvsu.edu/clasadvising and click on "Schedule Appointment." To find more information on Preprofessional programs, visit www.gvsu.edu/clasadvising/preprofessional.