COLLEGE OF LIBERAL ARTS AND SCIENCES (CLAS) ACADEMIC ADVISING CENTER 2013-2014

BIOLOGY-BS

Pre-Med, Pre-Dent, Pre-Optometry, Pre-Podiatry, Pre-Chiropractic

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

Year One			
BIO 120 General Biology I Prerequisites: High school chemistry, CHM 109, or CHM 115 strongly recommended (CHM 109 or 115 may be taken concurrently)	4	CHM 116 Principles of Chemistry II Prerequisites: CHM 115 and (MTH 122 or MTH 125 or MTH 201)	5
CHM 115 Principles of Chemistry I Prerequisites: High school chemistry and (MTH 110 or MTH 122 or MTH 125 or MTH 201)	5	WRT 150 Strategies in Writing	4
MTH 122 College Algebra Prerequisite: MTH 110 or assignment through Grand Valley math placement	3	MTH 123 Trigonometry Prerequisite: MTH 122 or assignment through Grand Valley math placement (MTH 122 may be taken concurrently)	3
Gen Ed	3	BIO 121 General Biology II Prerequisite: BIO 120	4
Total	*15*	*Total*	*16**
Year Two			
BIO 215 General Ecology Prerequisites: BIO 120 and 12 college credits; BIO 121 recommended	4	PHY 221 General Physics II Prerequisites: PHY 220	5
CHM 241 Organic Chemistry for Life Sciences I Prerequisite: CHM 116	4	CHM 242 Organic Chemistry for Life Sciences II Prerequisite: CHM 241	4
[1]MTH Cognate Course	3	PSY 101 Introductory Psychology	3
PHY 220 General Physics I Prerequisites: MTH 122 and MTH 123	5	SOC 205 Social Problems	3
Total	*16**	*Total*	*15*
Year Three			
CHM 461 Biochemistry I Prerequisite: CHM 242 or CHM 247 or CHM 248	4	BIO 375 Genetics and BIO 376 Genetics Laboratory Prerequisites: BIO 120. Concurrent enrollment in BIO 376 is required	4
[2]BIO Elective Course	4	[2]BIO Elective Course	3
[3]Elective	3	[3]Elective	3
Gen Ed	3	Gen Ed/Issue/Theme	3
Gen Ed	3	Gen Ed	3
		Students typically will take the MCAT in April, May, or June.	
Total	*16**	*Total*	*16**
Year Four			
BIO 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 Evolutionary Biology (Capstone) Prerequisites: Senior Standing, BIO 120, BIO 121, BIO 215, (BIO 375 or 355), BIO 376, (CHM 231 or 241 or 245)	3
[4]BIO 406 SWS Cell and Molecular Biology Laboratory	2	[2]BIO Elective Course	3
[2]BIO Elective Course	3	[3]Elective	3
Gen Ed/Issue/Theme	3	[3]Elective	3
[3]Elective	3	Gen Ed	3
Total	*16**	*Total*	*15*

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

[1] Choose 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. Some professional schools require calculus; be sure to check admission pre-requisites.

[2] Biology majors must take 13 additional credits of BIO Electives at the 200 level. At least 3 credits must be at the 300-400 level. At least ONE animal biology course and ONE plant biology course. The following courses are **strongly** suggested for the biology electives: BMS 208 and 309 Human Anatomy and Laboratory, BMS 213 & 213 Introductory Microbiology & Laboratory, and BMS 290 & 291 Human Physiology & Laboratory. See reverse for additional elective options.

[3] Elective refers to any course to help you earn the required 120 credits to graduate.

[4] Students must complete a total of two courses with an SWS attribute.

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.
Online at: http://www.gvsu.edu/clasadvising

Biology students can pursue a Bachelor of Arts or Bachelor of Science degree. Students who wish to obtain a BA must fulfill 3rd semester proficiency in a foreign language (201 level). The BS degree requirements are incorporated into the major requirements

Declaring the Biology-BS Major:

1. Log into myBanner from the GVSU homepage
2. Once logged in select "Student," "Student Records," and then "Change Major"
3. Click on the "Change Major 1/Program" box
4. Click on the down arrow in the box next to "New Major 1/Program," from here scroll down and choose choose "Biology-**BA (or) BS** Predental *or* Premedical"
5. Click "Submit" and then "Change to New Program"

→If you are going into a pre-professional track besides Pre-Veterinary, you will either:

-declare **"Pre-Med"** as your SECOND MAJOR if you *have* decided on a major

OR

-declare **"Pre-Med"** as your FIRST MAJOR if you *have not* decided on a major

→If you are Pre-Veterinary, and are not yet sure what to major in, we recommend that you declare **Biology with Pre-Veterinary emphasis**

General Education Overlap

General Education Categories fulfilled by the Biology Major:	
Life Sciences with Lab: BIO 120	Physical Sciences with Lab: CHM 115
Mathematical Sciences: MTH 122 or MTH 123	
Additional Overlap for Pre-Professional Students	
Social and Behavioral Sciences: PSY 101	Social and Behavioral Sciences: SOC 205
U.S. Diversity: SOC 205	

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 pre-requisites for your professional program.

*****Needs note about PSY 101, SOC 205, etc. being required***

See www.gvsu.edu/clasadvising/professional-programs-14.htm for additional details regarding professional school preparation and applications.

Biology Elective Courses		
Plant Biology BIO 243 Plant Identification and Natural History (3) BIO 303 Plant Morphology (4) BIO 323 Aquatic and Wetlands Plants (3) BIO 333 Systemic Botany (4) BIO 403 Plant Structure and Function (4) BIO 413 Freshwater Algae (3) BIO 423 Plant Biotechnology (3) BIO 433 Plant Ecology (4) BIO 573 Plants of the Great Lakes Area (3)-*with permission*	**Animal Biology** BIO 222 Natural History of Vertebrates (3) BIO 232 Natural History of Invertebrates (3) BIO 272 Insect Biology and Diversity (3) BIO 302 Comparative Vertebrate Anatomy (4) BIO 342 Ornithology (3) BIO 352 Animal Behavior (3) BIO 362 Fisheries Biology (4) BIO 402 Aquatic Insects (3) BIO 412 Mammalogy (4) BIO 422 Embryology (3) BIO 432 Comparative Animal Physiology (4) BIO 572 Field Zoology (3)-*with permission* BMS 208/309 Human Anatomy and Lab (4) BMS 290/291 Human Physiology and Lab (4)	*The following courses are excluded from the biology major:* BIO 104 Biology for the 21st Century BIO 105 Environmental Science BIO 107 Great Lakes and Other Water Resources BIO 109 Plants in the World BIO 205 Genetics for K-8 Pre-Service Teachers Any other biology course whose description prevents it from being used in the major *Only ONE of the following courses may be counted in the biology major:* BIO 309 Plants and Human Health (3) BIO 311 Biological Basis of Society (3) BIO 329 Evolution of Social Behavior (3) BIO 349 The Darwinian Revolution (3)
Additional Biology Electives		
BIO 280 Special Topics in Biology (1-4) BIO 308 Wildlife Ecology (4) BIO 319 Global Agricultural Sustainability (3) BIO 325 Human Sexuality (3) BIO 328 Biomedical Ethics (3)* BIO 338 Environmental Ethics (3) * *only one of BIO 328 or 338 may be used as elective credit in the major* BIO 357 Environmental Microbiology (4) BIO 380 Special Topics in Biology (1-4)	BIO 390 Seminar (1) BIO 399 Selected Experiences in Biology (1-4) BIO 408 Wildlife Management (4) BIO 411 Genetics of Development and Cancer (3) BIO 414 Molecular Biology of the Gene (3) BIO 416 Advanced Genetics Laboratory (2) BIO 417 International Field Biology (1-4) BIO 418 Regional Field Biology (1-4) BIO 426 Nucleic Acids Laboratory (3) BIO 440 Limnology (4)	BIO 442 Fish Ecology (3) BIO 450 Stream Ecology (4) BIO 452 Human Evolution (3) BIO 460 Terrestrial Ecosystem Ecology (4) BIO 470 Conservation Biology (3) BIO 480 Special Topics in Biology (1-4) BIO 490 Internship (1-6) BIO 499 Research in Biology (1-4) BMS 212 Microbiology (3) AND BMS 213 Microbiology Laboratory (1)