

# ANATOMY AND PHYSIOLOGY CONCENTRATION

BIO 452	Cell Biology	4
CHEM 369 or CHEM 314	Biochemical Principles Biochemistry: Fundamentals and Applications	5
<b>Biodiversity Courses</b> <sup>1,2</sup>		
Select from the following:		4
BIO 321	Mammalogy	
BIO 322	Ichthyology	
BIO 323	Ornithology	
BIO 324	Herpetology	
BIO 329	Vertebrate Field Zoology	
BIO 335	General Entomology	
BIO 336	Invertebrate Zoology	
BIO 415	Biogeography	
BOT 313	Taxonomy of Vascular Plants	
MCRO 224	General Microbiology I <sup>3</sup>	
MSCI 324	Marine Mammals, Birds and Reptiles	
MSCI 437	Marine Botany	
PLSC/BOT 323	Plant Pathology	
<b>Core Anatomy and Physiology Courses</b> <sup>1,2</sup>		
Select from the following:		16
BIO 406	Advanced Anatomy and Physiology: Neuroscience	
BIO 407 or ASCI 405	Advanced Anatomy and Physiology: Endocrinology Domestic Livestock Endocrinology	
BIO 408	Advanced Anatomy and Physiology: Cardiorespiratory and Renal	
BIO 409	Advanced Anatomy and Physiology: Muscle and Locomotion	
BIO 410	Functional Histology	
BIO 412	Gastrointestinal Physiology and Microbiology	
BIO 426	Immunology	
<b>Department Electives</b> <sup>1,2</sup>		
Select from the following:		3
BIO 321	Mammalogy	
BIO 322	Ichthyology	
BIO 323	Ornithology	
BIO 324	Herpetology	
BIO 329	Vertebrate Field Zoology	
BIO 335	General Entomology	
BIO 336	Invertebrate Zoology	
BIO 405	Developmental Biology	
BIO 406	Advanced Anatomy and Physiology: Neuroscience	
BIO 407 or ASCI 405	Advanced Anatomy and Physiology: Endocrinology Domestic Livestock Endocrinology	

BIO 408	Advanced Anatomy and Physiology: Cardiorespiratory and Renal	
BIO 409	Advanced Anatomy and Physiology: Muscle and Locomotion	
BIO 410	Functional Histology	
BIO 411	Advanced Human Gross Anatomy	
BIO 415	Biogeography	
BIO 426	Immunology	
BIO 428	Hematology	
BIO 429	Parasitology	
BIO 434	Environmental Physiology	
BIO 435	Plant Physiology	
BIO 470	Selected Advanced Topics (for "Gastrointestinal Physiology & Microbiology" topic only)	
BIO/CHEM 475	Molecular Biology Laboratory	
MCRO 224	General Microbiology I <sup>3</sup>	
MCRO 225	General Microbiology II	
MCRO 320	Emerging Infectious Diseases	
MCRO 342	Public Health Microbiology	
MCRO 402	General Virology	
MCRO 423	Medical Microbiology	
MCRO 424	Microbial Physiology	
<b>Approved Electives</b> <sup>1</sup>		
At least 4 units must be upper-division		
Select from the following:		11
ANT 401	Culture and Health	
ASCI 351	Reproductive Physiology	
ASCI 406	Applied Animal Embryology and Assisted Reproduction	
ASCI 407	Assisted Reproduction Technologies of Gametes and Embryos Laboratory	
ASCI 438	Systemic Animal Physiology	
BIO 231 or BIO 232	Human Anatomy and Physiology I <sup>4</sup> Human Anatomy and Physiology II	
BIO 300	Research Experience for Undergraduates <sup>5</sup>	
BIO 321	Mammalogy	
BIO 322	Ichthyology	
BIO 323	Ornithology	
BIO 324	Herpetology	
BIO 329	Vertebrate Field Zoology	
BIO 335	General Entomology	
BIO 336	Invertebrate Zoology	
BIO 400	Special Problems for Advanced Undergraduates <sup>5</sup>	
BIO 405	Developmental Biology	
BIO 406	Advanced Anatomy and Physiology: Neuroscience	
BIO 407 or ASCI 405	Advanced Anatomy and Physiology: Endocrinology Domestic Livestock Endocrinology	
BIO 408	Advanced Anatomy and Physiology: Cardiorespiratory and Renal	

BIO 409	Advanced Anatomy and Physiology: Muscle and Locomotion
BIO 410	Functional Histology
BIO 411	Advanced Human Gross Anatomy
BIO 415	Biogeography
BIO 426	Immunology
BIO 428	Hematology
BIO 429	Parasitology
BIO 434	Environmental Physiology
BIO 435	Plant Physiology
BIO 461	Senior Project - Research Proposal <sup>6</sup>
BIO 462	Senior Project Research Experience <sup>6</sup>
BIO 463	Honors Research
BIO 470	Selected Advanced Topics (for "Gastrointestinal Physiology & Microbiology" topic only)
BIO/CHEM 475	Molecular Biology Laboratory
BOT 313	Taxonomy of Vascular Plants
CHEM 217	Organic Chemistry II
CHEM 218	Organic Chemistry III
CHEM 220	Organic Chemistry Laboratory For Life Sciences II
CHEM 223	Organic Chemistry Laboratory for Life Sciences III
CHEM 372	Metabolism
CHEM 418	Neurochemistry
CHEM 428	Nutritional Biochemistry
COMS 418	Health Communication
CSC 101	Fundamentals of Computer Science
DATA 301	Introduction to Data Science
ENGR 322/ SCM 302	The Learn By Doing Lab Teaching Practicum <sup>7</sup>
FSN 310	Maternal and Child Nutrition
KINE 406	Neuroanatomy
KINE 445	Electrocardiography
KINE 446	Echocardiography
MCRO 225	General Microbiology II
MCRO 320	Emerging Infectious Diseases
MCRO 342	Public Health Microbiology
MCRO 402	General Virology
MCRO 423	Medical Microbiology
MCRO 424	Microbial Physiology
MSCI 324	Marine Mammals, Birds and Reptiles
MSCI 437	Marine Botany
PHIL 323 or PHIL 339 or PHIL 341	Ethics, Science and Technology Biomedical Ethics Professional Ethics
PLSC/BOT 323	Plant Pathology
PSY 320	Health Psychology
PSY 340	Biopsychology
STAT 313	Applied Experimental Design and Regression Models

WGQS/ES 350 Gender, Race, Culture, Science & Technology

**Total units** **43**

- <sup>1</sup> Consultation with advisor is recommended prior to selecting electives; bear in mind your selections may impact pursuit of post-baccalaureate studies and/or goals. Choose electives carefully to ensure that you meet the required 60 units of 300-400 level courses.
- <sup>2</sup> Excess units will be applied to Approved Electives.
- <sup>3</sup> Recommended for students interested in health sciences careers.
- <sup>4</sup> Only one of the following courses may count toward Approved Electives: BIO 231, BIO 232.
- <sup>5</sup> Maximum of 6 units may be applied toward Approved Electives: BIO 200, BIO 300, BIO 400, BIO 450, BIO 485, BIO 495, MSCI 401.
- <sup>6</sup> If BIO 461 or BIO 462 is used to meet the senior project requirement, it cannot be double-counted as an Approved Elective.
- <sup>7</sup> Maximum of 2 units may be applied toward Approved Electives from ENGR 322 /SCM 302.