### ANATOMY AND PHYSIOLOGY CONCENTRATION

**BIO 452**  
Cell Biology  

**CHEM 369**  
Biochemical Principles  
or **CHEM 314**  
Biochemistry: Fundamentals and Applications

**Biodiversity Courses**  
Select from the following:  

- **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  
- **MSCI 324**  
  Marine Mammals, Birds and Reptiles  
- **MSCI 437**  
  Marine Botany  
- **PLSC/BOT 323**  
  Plant Pathology

**Core Anatomy and Physiology Courses**  
Select from the following:  

- **BIO 406**  
  Advanced Anatomy and Physiology: Neuroscience  
- **BIO 407**  
  Advanced Anatomy and Physiology: Endocrinology  
  or **ASCI 405**  
  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  
- **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

**Department Electives**  
Select from the following:  

- **BIO 400**  
  Special Problems for Advanced Undergraduates  
- **BIO 405**  
  Developmental Biology  
- **BIO 406**  
  Advanced Anatomy and Physiology: Neuroscience  
- **BIO 407**  
  Advanced Anatomy and Physiology: Endocrinology  
  or **ASCI 405**  
  Domestic Livestock Endocrinology  
- **BIO 408**  
  Advanced Anatomy and Physiology: Cardiorespiratory and Renal  
- **BIO 409**  
  Advanced Anatomy and Physiology: Muscle and Locomotion

**Approved Electives**  
At least 4 units must be upper-division  
Select from the following:  

- **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**  
  Human Anatomy and Physiology I  
  or **BIO 232**  
  Human Anatomy and Physiology II  
- **BIO 300**  
  Research Experience for Undergraduates  
- **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**  
  Advanced Anatomy and Physiology: Endocrinology  
  or **ASCI 405**  
  Domestic Livestock Endocrinology  
- **BIO 408**  
  Advanced Anatomy and Physiology: Cardiorespiratory and Renal  
- **BIO 409**  
  Advanced Anatomy and Physiology: Muscle and Locomotion
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<tr>
<td>BIO 461</td>
<td>Senior Project - Research Proposal 6</td>
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<td>BIO 462</td>
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<td>BIO 463</td>
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<td>Organic Chemistry III</td>
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<td>CHEM 220</td>
<td>Organic Chemistry Laboratory For Life Sciences II</td>
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<td>CHEM 223</td>
<td>Organic Chemistry Laboratory for Life Sciences III</td>
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<td>CHEM 372</td>
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<td>Fundamentals of Computer Science</td>
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<td>DATA 301</td>
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<td>Applied Experimental Design and Regression Models</td>
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**Total units**: 43

1. 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.
2. Excess units will be applied to Approved Electives.
3. Recommended for students interested in health sciences careers.
4. Only one of the following courses may count toward Approved Electives: BIO 231, BIO 232.
5. Maximum of 6 units may be applied toward Approved Electives: BIO 200, BIO 300, BIO 400, BIO 450, BIO 485, BIO 495, MSCI 401.
6. If BIO 461 or BIO 462 is used to meet the senior project requirement, it cannot be double-counted as an Approved Elective.
7. Maximum of 2 units may be applied toward Approved Electives from ENGR 322/SCM 302.