

# BIOLOGY MAJOR

## SECONDARY EDUCATION TEACHING PROGRAM

### DOMAIN GENERAL EDUCATION (10 courses Required):

Domain II B is satisfied through completion of the Biology major, leaving ten courses to be completed to satisfy the remaining general education subdomains through courses taken outside the major department. Only courses designated (Gen. Ed. Domain) after the course title will meet general education requirements.

Common Core: A. ENWR 110 Composition 2 \_\_\_\_\_  
 B. MATH XXX \_\_\_\_\_

Domain I: A. Creative Arts \_\_\_\_\_  
 B. Humanities \_\_\_\_\_  
 C. Language \_\_\_\_\_

Domain II: A. Analysis, Modeling, Problem-Solving \_\_\_\_\_  
 B. Sciences (two; one must be a lab science) \_\_\_\_\_

Domain III: A. Perspectives on the Past \_\_\_\_\_  
 B. Perspectives on Contemp. World \_\_\_\_\_  
 C. Global Comp., Eth. Reas., Human Div. \_\_\_\_\_

### BIOLOGY MAJOR AND RELATED COURSES:

#### Required Major Related Core Courses (12):

BIOL 125 The Biology Experience \_\_\_\_\_  
 BIOL 135/135L Foundations of Biological Science with Lab \_\_\_\_\_  
 BIOL 208/208L Genetics with Lab \_\_\_\_\_  
 BIOL 230 Professional Communication in Biology \_\_\_\_\_  
 BIOL 262/262L Molecular Biology with Lab \_\_\_\_\_  
 BIOL 402 Processes of Organic Evolution \_\_\_\_\_  
 CHEM 107/107L Principles of Chemistry with Lab \_\_\_\_\_  
 CHEM 108/108L Principles of Chemistry and Quantitative Analysis with Lab \_\_\_\_\_  
 CHEM 207/207L Organic Chemistry I with Lab \_\_\_\_\_  
 MATH 180 Precalculus (CCM)\* \_\_\_\_\_  
 MATH 208 Biostatistics **OR** \_\_\_\_\_  
 ENVS 202 Data Analysis for Scientists \_\_\_\_\_

*\*Student proficient at the precalculus level should enroll in MATH219 Calculus I to satisfy the Gen. Ed. Domain Common Core Math Requirement.*

#### Biology Major Capstone:

BIOL460 Research Experience in Biology\*\* \_\_\_\_\_

*\*\*An original research project is required of all Biology Majors. Prior to enrollment in BIOL469 Research Experience in Biology, the student should meet with their academic advisor and with other Biology faculty to tailor the research project to the student's interests and career goals.*

### Additional Biology electives, Biotechnology Concentration (6):

Students who plan to teach at the high school level will fulfill the Commonwealth's requirements for secondary education certification in biology by completing a program similar to the general biology concentration. Students must also declare and complete the requirements for a Secondary Education Minor (see Education Department section of the catalog).

#### Students must take the following additional courses:

BIOL 235/235L Principles of Human Biology with Lab **OR**  
 BIOL 241/241L Human Anatomy & Physiology I with Lab **AND**  
 BIOL 242/242L Human Anatomy & Physiology II with Lab  
 BIOL 248/248L Principles of Ecology with Lab  
 PHYS 201/201L Physics for Earth and Life Scientists with Lab

#### One (1) of the following courses relating to plants:

BIOL 203 Plants and Society  
 BIOL 251/251L Vascular Plant Taxonomy with Lab  
 BIOL 255/255L Plant Physiology with Lab

#### Recommended Courses:

BIOL 228/228L Microbiology with Lab  
 GEOL 108/108L Physical Geology with Lab

Additional courses are also required for a Secondary Education Minor (see Education section of the University catalog)

### FREE ELECTIVES (4):

\_\_\_\_\_  
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 \_\_\_\_\_  
 \_\_\_\_\_

### \*For students who plan to pursue an advanced degree in Biology, the following courses are strongly recommended:

CHEM 300/300L Principles of Biochemistry with Lab \_\_\_\_\_  
 MATH219 Calculus I \_\_\_\_\_  
 PHYS 201/201L Physics for Earth and Life Scientists with Lab **or both**  
 PHYS211/211L Physics I with Lab **AND** \_\_\_\_\_  
 PHYS 212/212L Physics II with lab \_\_\_\_\_

**Group A: Cellular and Molecular Biology Electives**

BIOL 228/228L Microbiology with Lab  
BIOL 260/260L Cellular Biology with Lab  
BIOL 356 Biology of Cancer  
BIOL 381 Theories of Infectious Diseases  
BIOL 400 Trends in Biotechnology  
BIOL 426 Human Immunity  
BIOL 432 Vertebrate Development  
CHEM 300/300L Principles of Biochemistry with Lab **or**  
CHEM 301/301L Biochemistry I with Lab

**Group B: Organismal Diversity Electives**

BIOL 203 Plants and Society\*  
BIOL 212/212L Wildlife Specimen Preparation Techniques  
BIOL 232/232L Invertebrate Zoology with Lab  
BIOL 251/251L Vascular Plant Taxonomy with Lab  
BIOL 320/320L Animal Behavior with Lab  
BIOL 323 Biology and Conservation of Crocodiles  
BIOL 236/236L Ornithology with Lab

*\* This course may not be used as a required plant course.*

**Group C: Physiology Electives**

BIOL 344/344L Animal Physiological Ecology\* with Lab  
BIOL 235/235L Principles of Human Physiology\* with Lab  
BIOL 241/241L Human Anatomy and Physiology I\* with Lab  
BIOL 242/242L Human Anatomy and Physiology II with Lab  
BIOL 255/255L Plant Physiology with Lab  
BIOL 269 Sex, Brains, and Hormones  
HLTH 302 Exercise Physiology  
NEUR 225 Biopsychology  
NEUR 380 Neuropharmacology

*\* Only one of these courses may be taken in order to receive biology credit.*

**Group D: Ecological and Evolutionary Biology Electives**

BIOL 233/233L Comparative Vertebrate Anatomy with Lab  
BIOL 248/248L Principles of Ecology with Lab  
BIOL 291 Principles of Tropical Ecology and Conservation: Field Study  
BIOL 321/321L Limnology with Lab  
BIOL 335/335L Principles of Wildlife Biology with Lab  
BIOL 341/341L Marine Biology with Lab  
BIOL 393 Wildlife Management and Conservation Topics

**Group E: Advanced Biology Electives**

BIOL 490 Independent Study in Biology  
BIOL 495 Internship in Biology