BIOLOGY MAJOR

BIOTECHNOLOGY CONCENTRATION

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  

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:

Students may elect a curriculum that emphasizes cellular and molecular biology. Courses covering microbiology, immunology, genetics, recombinant DNA technology, and cell culture are appropriate for those interested in research positions in the biotechnology industry, medical centers, and government agencies. Graduates of the program are also prepared for careers in diverse areas of the pharmaceutical industry such as product development, sales and marketing, quality control, and technical training.

Students must take an additional six (6) or seven (7) electives:

BIOL 260/260L Cell Biology with Lab  
CHEM 301/301L Biochemistry I with Lab OR  
CHEM 300/300L Principles of Biochemistry with Lab~ 248 ~  
PHYS 201/201L Physics for Earth and Life Scientists OR both  
PHYS 211/211L Principles of Physics I AND  
PHYS 212/212L Principles of Physics II

One (1) Course from Group A

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

Choose Two (2) additional courses from:

Biology Courses 200-level or above  
CHEM 208/208L Organic Chemistry II with Lab  
CHEM 332/332L Biochemistry II with Lab  
MATH 219 Calculus I

Note: A student who selects CHEM 208/208L Organic Chemistry II with Lab, CHEM 300/301L Biochemistry I with Lab and CHEM 332/332L Biochemistry II with Lab may complete a Biochemistry minor in addition to the Biotechnology Concentration.

Note: If the student is enrolled in the PSM 4+1 program up to two (2) of the science graduate courses may be used toward this concentration in place of the additional courses.

FREE ELECTIVES (3 or 4) for Biotechnology Concentration:

*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  

2022-2023
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