BIOLOGY MINOR

Overview

The minor in Biology curriculum begins with a core of three courses that presents the fundamentals of the life sciences, both in concept and methodology. After completing the core, students take three upper division courses with at least one course from two of the three major areas of biology (Groups A, B, and C). This distribution strategy insures that all students have broad exposure to an extensive range of topics including cell and molecular biology, microbiology, genetics, plant biology, evolution, physiology, ecology, environmental biology, and animal behavior.

Learning Goals and Outcomes

* Not all Learning Goals and Outcomes may be met by the minor since students have a choice of their upper-level courses.

Goal 1: Students will gain a fundamental understanding of cell structure and function, the organization of biological systems, and the evolution of biological diversity.

Outcome 1.1 Students will understand basic mechanisms of evolutionary change and the diversity of life.

Outcome 1.2 Students will understand basic concepts of molecular, classical, and population genetics, and basic biochemical processes in living organisms.

Outcome 1.3 Students will understand basic concepts of how organisms interact with their abiotic and biotic environment.

Goal 2. Students will develop basic skills in experimental design and the presentation of scientific information.

Outcome 2.1 Students will gain basic skills in data reduction, analysis, presentation, and the operation of basic laboratory equipment.

Outcome 2.2 Students will be able to develop cogent written and oral presentations of scientific content.

Requirements

The minor in biology requires completion of the following:

Code	Title	Hours
Required Courses:		
BIO 102 & 102L	Bio II: Genetics and Bio II: Genetics Lab (second semester, freshman year)	4
or BIO 151L	Phage Lab	
BIO 201 & 201L	Bio III: Organismic Biology and Bio III: Organismic Biol Lab (first semester, sophomore year)	4
BIO 290	Career Development Seminar (required for first-semester sophomores)	0
BIO 390	Biology Seminar (required each semester for second-semester sophomores, juniors and seniors)	0
CHM 120 & 120L	General Chemistry I and General Chemistry Lab I	4
CHM 125 & 125L	General Chemistry II and General Chemistry Lab II	4
Take at least two courses from two different groups (A - C) below: [1]		**8**
Group A: Cell Structure and Function		
BIO 402	Advanced Cell Biology	
BIO 411	Molecular Genetics	
BIO 416	Microbiology	
BIO 421	Molecular&Cellular Biophysics	
BIO 424	Biotechnology	
BIO 428	Histopathology	
BIO 430	Neurological Disorders	
Group B: Systemic Organization		
BIO 405	Biomechanics	
BIO 412	Neurobiology	
BIO 413	Plant Physiological Ecology	
BIO 415	Immunology	
BIO 417	Systemic Physiology	
BIO 425	Bacterial Pathogenesis	
Group C: Evolution and Diversity of Life		
BIO 372	Aquatic Biology	
BIO 401	Animal Behavior	
BIO 406	Comparative Anatomy	
BIO 409	Ecology	
BIO 419	Invertebrate Zoology	
BIO 420	Bioinformatics	
BIO 422	Applied&Environ Microbio	
BIO 423	Evolution	
BIO 426	Fermentation Science	
BIO 429	Environmental Science	
At least 3 additional credits of upper-level Biology courses. These credits can be from any of the courses in group A - C above, as well as in groups D and E, below. Independent Research (BIO 493 or 494) or an internship in biology (BIO 492) can also fulfill this requirement.		**3**
Group D courses [2]		
BIO 218	Hematology	
BIO 230	Basic Concepts & Proc MLS	
BIO 261	Anat&Physiol Nurs/Al Hlth II	
BIO 348	Clinical Microbiology	
BIO 433	Parasitology	
Group E courses: Non-lab courses		
BIO 205	Introduction to Neuroscience	
BIO 219	Basic Nutrition	
BIO 220	Plant Diversity and Morphology	
BIO 280	Comparative Animal Physiology	
BIO 336	Plant Therapeutics	
BIO 400	Developmental Genetics	
BIO 404	Biochemistry [3]	
BIO 434	Biology of Aging	
BIO 436	Virology	
BIO 455	Molecular Basis Neuro Disorder	
BIO 474	Emrg Bio Threat & Glbl Sustain	
Total Hours		**27**

1

BIO 101 (https://academiccatalog.sju.edu/search/?P=BIO%20101), BIO 102 (https://academiccatalog.sju.edu/search/?P=BIO%20102), BIO 201 (https://academiccatalog.sju.edu/search/?P=BIO%20201) and CHM 120 (https://academiccatalog.sju.edu/search/?P=CHM%20120), CHM 125 (https://academiccatalog.sju.edu/search/?P=CHM%20125) are prerequisite for all 300 and 400 level BIO courses.

2

One semester of BIO 493 or BIO 494 (Independent Research) and/or BIO 492 (Biology Internship) may count as one Group D biology elective.

3

CHM 215/CHM 215L is a prerequisite or co-requisite for BIO 404