



## Biology, B.S. *major*

### Cellular and Molecular Emphasis (Optional)

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Required Credits: 71

Required GPA: 2.25

#### I REQUIRED BIOLOGY CORE COURSES

COMPLETE THE FOLLOWING COURSES:

- BIOL 1211 Introductory Biology I (4 credits)
- BIOL 1212 Introductory Biology II (4 credits)
- BIOL 2360 Genetics (4 credits)
- BIOL 2610 General Ecology (3 credits)

#### II REQUIRED CELLULAR AND MOLECULAR EMPHASIS

COMPLETE THE FOLLOWING COURSES:

- BIOL 3074 Molecular Techniques (2 credits)  
or BCMB 3074 Molecular Techniques (2 credits)
- BIOL 3075 Cellular Techniques (2 credits)  
or BCMB 3075 Cellular Techniques (2 credits)
- BIOL 3380 Molecular Genetics (3 credits)
- BIOL 3580 Immunology (3 credits)
- BIOL 3590 Cell Biology (3 credits)
- BIOL 3710 Microbiology (4 credits)

#### III CAPSTONE PROJECT

The Biology capstone project, completed in the senior year, provides a culminating experience that integrates the knowledge and skills learned in previous courses and applies them to a scholarly activity. The capstone project must be designed or chosen by the student in consultation with a faculty mentor or advisor, who must approve the project before work begins. Students should consult with their faculty mentor or advisor before their senior year commences. All capstone projects will include a written and oral component (except for professional/graduate school entrance exams) and provides a culminating experience that integrates the knowledge and skills learned in previous courses and applies them to a scholarly activity.

SELECT ONE OF THE FOLLOWING OPTIONS:

Required capstone project courses (4 credits total).

##### OPTION 1

- BIOL 4894 Advanced Research Project I (2 credits)
- BIOL 4895 Advanced Research Project II (2 credits)

##### OPTION 2

- BIOL 4449 Gene Expression (4 credits)

#### IV REQUIRED CELLULAR AND MOLECULAR EMPHASIS

SELECT 7 SEMESTER CREDITS FROM THE FOLLOWING COURSES:

- BIOL 3260 Human Physiology (4 credits)
- BIOL 3300 Introduction to Hematology (4 credits)
- BIOL 3337 Science Communication (3 credits)
- BIOL 3338 Science Communication Lab (1 credit)
- BIOL 3339 Bioethics (3 credits)
- BIOL 4360 Developmental and Tumor Biology (3 credits)
- BIOL 4447 Genomics (3 credits)

- BIOL 4448 Genomics Lab (2 credits)
- BIOL 4460 Stem Cells and Regenerative Medicine (3 credits)
- BIOL 4470 Introduction to Vaccinology (4 credits)
- BIOL 4715 Clinical Microbiology (3 credits)
- CHEM 4411 Biochemistry I (3 credits)
- CHEM 4471 Biochemistry Laboratory I (1 credit)

#### V REQUIRED COURSES IN RELATED FIELDS

A. SELECT 1 OF THE FOLLOWING GROUPS:

##### GROUP 1:

- CHEM 2211 Principles of Chemistry I (4 credits)
- CHEM 2212 Principles of Chemistry II (4 credits)

##### GROUP 2:

- CHEM 1111 General Chemistry I (4 credits)
- CHEM 1112 General Chemistry II (4 credits)

B. SELECT 1 OF THE FOLLOWING COURSES:

- STAT 2610 Applied Statistics (4 credits)
- PSY 3401 Basic Statistics for Research (4 credits)

C. SELECT 1 OF THE FOLLOWING GROUPS:

##### GROUP 1:

- PHYS 2101 Physics I (5 credits)
- PHYS 2102 Physics II (5 credits)

##### GROUP 2:

- PHYS 1101 General Physics I (4 credits)
- PHYS 1102 General Physics II (4 credits)

D. COMPLETE THE FOLLOWING 4 COURSES:

- CHEM 3311 Organic Chemistry I (3 credits)
- CHEM 3312 Organic Chemistry II (3 credits)
- CHEM 3371 Organic Chemistry Laboratory I (1 credit)
- CHEM 3372 Organic Chemistry Laboratory II (1 credit)