

# BIOLOGY, B.S.

**Credits:** 122  
**CIP Code:** 260101

## Program Description

The Bachelor of Science Degree in Biology is designed to prepare students interested in the study of biological sciences and health-related fields such as medicine, dentistry, veterinary, and pharmacy. The core courses include biochemistry, genetics, and cell & molecular biology.

## Admissions Requirements

Applicants must meet the General Admissions Requirements as published in this Catalog.

## Student Learning Outcomes

Graduates of the Biology Program will be able to:

1. Apply the concepts and theories of biology at the biochemical, cellular, anatomical, physiological, evolutionary, environmental, and ecological levels.
2. Interpret observations, develop hypotheses, conduct experiments, and analyze results through the completion of research experiences or projects.
3. Demonstrate an ability to communicate mastery of basic biological principles through written text, research papers, and oral presentations

## Degree Requirements

In addition to the General Degree Requirements as published in this Catalog, students pursuing the Bachelor of Science Degree in Biology must complete all *science and mathematics courses with minimum final grades of "C"*.

Code	Title	Hours
<b>Required Courses</b>		
CBIO 111	General Biology I & Lab	4
CBIO 112	General Biology II & Lab	4
CBIO 233	Microbiology and Lab	4
CBIO 312	Genetics I	3
CBIO 375	Cell and Molecular Biology	3
CBIO 390	Introductory Biochemistry	3
CBIO 480	Research in Biology	3
CBIO 482	Seminar in Biology	1
CBIO 331	Plant Biology & Lab	4
CBIO 478	Cell Biology Laboratory	3
<b>Recommended Biology Electives</b>		
Select 5-7 courses from the following:		25
CBIO 230 & CBIO 231	Anatomy and Physiology and Anatomy & Physiology II	
CBIO 230L	Anatomy and Physiology Lab	
CBIO 231	Anatomy & Physiology II	
CBIO 231L	Anatomy & Physiology II Lab	
CBIO 255	Invertebrate Zoology	
CBIO 255L	Invertebrate Zoology Lab	

CBIO 261	Environmental Biology
CBIO 261L	Environmental Biology Lab
CPSY 218	Human Growth & Development
HBIO 240	Intro to Pub Health Science
CPSY 313	Statistics I
HBIO 330	Introduction to Epidemiology
HBIO 340	Biostatistics
CBIO 350	Intro. Bioinformatics and Comp
CBIO 356	Compar. Vertebrate Anat.&Embry
CBIO 356L	Comp. Vertebrate Anatomy Lab
CPSY 358	Human Sexuality
CBIO 360	Conservation Biology & Sustain
CPSY 385	Abnormal Psychology
CBIO 420	Biology of Radioactive Mat.
HBIO 450	Public Health Sci Sem & Pract
CBIO 465	Endocrinology
CBIO 476	Human Physiology
CBIO 476L	Human Physiology Lab
CBIO 476R	Human Physiology Recitation
CBIO 484	Eukaryotic Gene Control
CBIO 492	Biochemistry
CBIO 492R	Biochemistry Recitation
CBIO 499	Special Topics in Biology

### Required Cognate Courses

CCHE 111	Gen Chem 1 & Recitation	4
CCHE 111L	General Chemistry Lab	0
CCHE 112	Gen Chem II Lec & Recitation	4
CCHE 112L	General Chemistry II Lab	0
CCHE 231	Organic Chemistry	4
CCHE 231R	Organic Chemistry Recitation	0
CCHE 231L	Organic Chemistry Lab	0
CCHE 232	Organic Chemistry	4
CCHE 232R	Organic Chemistry Recitation	0
CCHE 232L	Organic Chemistry Lab	0
CPHY 111	General & Modern Physics I	4
CPHY 111L	Gen. & Modern Physics I Lab	0
CPHY 112	General & Modern Physics II	4
CPHY 112L	Gen. & Modern Physics II Lab	0

**Total Hours** **81**

**Note:** Upper level 300 and 400 Level Courses are only for juniors and seniors.

## General Education Requirements

Code	Title	Hours
<b>Area A: Humanities/Fine Arts</b>		
Select three credits of the following:		3
CART 150	Art Appreciation	
CHUM 228C	The Early Period to 1914	
CHUM 230C	Modern Period:WWI to Present	
CMUS 120	Music Appreciation	
CSTA 252	Theater Appreciation	
CREL 103	Afr Amer Religious Experiences	

CHIS 201	United States,Africa & World	
CHIS 211	History of the United States	
CPHI 105	Critical Thinking	
<b>Area B: Social/Behavioral Sciences</b>		
Select six credits of the following:		6
CSCJ 215	Intro. to Sociology	
CSCJ 216	Intro. to Anthropology	
CSCJ 218	Contemporary Social Problems or CPSY 211 General Psychology	
<b>Area C: Natural Sciences/Mathematics/Statistics</b>		
Select two of the following:		7-8
CMAT 106	Pre-Calculus II or CMAT 107Precalculus (Accelerated)	
CMAT 111	Calculus I <sup>If placed into CMAT 111 as incoming freshman, CMAT 112 Calculus II (4) is required to complete math requirement</sup> or CMAT 113Calculus for Biological Scienc	
<b>Area D: Communication: English Literature</b>		
Select nine credits of the following:		9
CENG 105	College Composition I & CENG 106 and College Composition II	
CENG 201	Intro to World Literature I or CENG 202Intro to World Literature II	
<b>Area E: Financial/Technological</b>		
		7
CCIS 103	Scientific Comp. for Simu,Ana & 103L and Scientific Comp. for Simu Lab	
CCIS 223	Data Structures & Lab & 223L and Data Structures Lab	
CBUS 250	Personal Finance	
<b>Total Hours</b>		<b>32-33</b>

## Other University Requirements

Code	Title	Hours
CGED 100	First Year Seminar <sup>1</sup>	1
CGED 101	1st-Year Seminar <sup>2</sup>	1
<b>Total Hours</b>		<b>2</b>

**Free Electives:** 6 Credits

**Note:** Free Electives should be chosen in consultation with faculty advisor.

## Plan of Study for Bachelor of Science Degree in Biology

(Students who are not prepared to complete calculus in their first year of study should arrange a revised plan of study in consultation with an advisor.)

Course	Title	Hours
<b>First Year</b>		
<b>First Semester</b>		
CBIO 111 & 111L	General Biology I & Lab and	4
CCHE 111 & 111R	Gen Chem 1 & Recitation and	4

CCHE 111L	General Chemistry Lab	0
Select one of the following:		4
CMAT 106	Pre-Calculus II (Area C)	
CMAT 107	Precalculus (Accelerated) (Area C)	
CMAT 111	Calculus I (Area C)	
CENG 105	College Composition I (Area D)	3
CGED 100	First Year Seminar	1

**Hours** **16**

### Second Semester

CBIO 112 & 112L	General Biology II & Lab and General Biology II Lab	4
CCHE 112 & 112R	Gen Chem II Lec & Recitation and	4
CCHE 112L	General Chemistry II Lab	0
CMAT 111 or CMAT 112	Calculus I (Area C) or Calculus II	4
CENG 106	College Composition II (Area D)	3
CGED 101	1st-Year Seminar	1

**Hours** **16**

### Second Year

#### First Semester

CBIO 233	Microbiology and Lab <sup>1</sup>	4
CCHE 231 & 231R	Organic Chemistry and Organic Chemistry Recitation	4
CCHE 231L	Organic Chemistry Lab	0
CBUS 250	Personal Finance (Area E)	3

Select one of the following:

CHUM 228	Area A	3
CHUM 230	Area A	
CART 150	Art Appreciation (Area A)	
CMUS 120	Music Appreciation (Area A)	
CSCJ 215 or CSCJ 216	Intro. to Sociology (Area B) or Intro. to Anthropology	3

**Hours** **17**

#### Second Semester

CBIO 200	Biology Elective (200 Level)	3
CCHE 232 & 232R	Organic Chemistry and Organic Chemistry Recitation	4
CCHE 232L	Organic Chemistry Lab	0
CENG 201 or CENG 202	Intro to World Literature I (Area D) or Intro to World Literature II	3
CPSY 211	General Psychology	3
CCIS 253 & 253L	Intro to Comp Sim/Anal & Lab and Intro. to Comp. Sim/Analy(Lab) (Area E)	4

**Hours** **17**

### Third Year

#### First Semester

CBIO 312 & 312R	Genetics I and Genetics Recitation	3
CBIO 390	Introductory Biochemistry	3
CPHY 111 & 111L	General & Modern Physics I and Gen. & Modern Physics I Lab	4

CBIO 331 & 331L	Plant Biology & Lab and Plant Morphology Lab	4
C XXX	Free Elective	3
<b>Hours</b>		<b>17</b>
<b>Second Semester</b>		
CBIO 375	Cell and Molecular Biology	3
CPHY 122 & 122L	Physics II: Elec & Magnetism and Physics II:Electricity&Mag.Lab	4
CBIO 480 & CBIO 482	Research in Biology and Seminar in Biology <sup>1</sup>	4
CBIO 492	Biochemistry (or CBIO Elective)	3
<b>Hours</b>		<b>14</b>
<b>Fourth Year</b>		
<b>First Semester</b>		
CBIO 478L	Capstone	3
CBIO XXX	Biology Elective	3
CBIO XXX	Biology Elective	3
CBIO XXX	Biology Elective	3
<b>Hours</b>		<b>12</b>
<b>Second Semester</b>		
CBIO XXX	Biology Elective	3
CBIO XXX	Biology Elective	3
STEM Elective	Elective for Minor or Stackable Credential <sup>2</sup>	4
CXXX	Free Elective	3
<b>Hours</b>		<b>13</b>
<b>Total Hours</b>		<b>122</b>

<sup>1</sup> CBIO 480 Research in Biology is offered each semester. This course may be repeated for varying credit hours up to 12 hours. Prerequisite: Permission of department chair and faculty research supervisor

<sup>2</sup> Free electives are any courses of interest to the student, provided prerequisites are met