

# BIOLOGY

## Associate in Science

### Transfer Preparation\* (Major Code: 01510)

Lower-division requirements are not the same for all universities, and there are differences among the areas of specialization. However, the courses listed below meet the lower-division requirements for most universities offering a bachelor's degree with a major in one of the biological sciences.

Students should start with mathematics and chemistry during the first year, as these are required for other science courses. Some of the courses may be applied toward the general education requirement.

Courses offered in biology, other than those listed below, are intended as general education courses for nonscience majors. They are not the acceptable courses for biology majors. Biology majors will take similar but more intensive courses as part of their upper-division requirements.

## Program Student Learning Outcomes

- Upon successful completion of the Biology Program, students will be able to communicate clearly in a way that reflects knowledge and understanding of biological processes and structures.
- Upon successful completion of the Biology Program, students will be able to approach and examine issues related to the biological sciences from an evidence-based perspective and communicate this information in a clear manner.
- Upon successful completion of the Biology Program, students will be able to demonstrate information literacy skills to access, evaluate, and use resources.
- Upon successful completion of the Biology Program, students will be able to use and apply the scientific method to critically evaluate hypotheses.

Course	Title	Units
<b>First Semester</b>		
BIOL 210	GENERAL ZOOLOGY	4
MATH 121 or MATH 250	APPLIED CALCULUS I *** or ANALYTIC GEOMETRY AND CALCULUS I	3-5
CHEM 170	PREPARATION FOR GENERAL CHEMISTRY	4
<b>Units</b>		<b>11-13</b>
<b>Second Semester</b>		
MATH 122 or MATH 251	APPLIED CALCULUS II *** or ANALYTIC GEOMETRY AND CALCULUS II	3-4
CHEM 200	GENERAL CHEMISTRY I	5
PHYS 150 & PHYS 151	FUNDAMENTALS OF PHYSICS I and FUNDAMENTALS OF PHYSICS LABORATORY I	4
<b>Units</b>		<b>12-13</b>
<b>Third Semester</b>		
BIOL 211	INTRODUCTION TO CELL AND MOLECULAR BIOLOGY	4
CHEM 210	GENERAL CHEMISTRY II	5

PHYS 152 & PHYS 153	FUNDAMENTALS OF PHYSICS II and FUNDAMENTALS OF PHYSICS LABORATORY II	4
<b>Units</b>		<b>13</b>
<b>Fourth Semester</b>		
BIOL 212	BIOLOGY OF PLANTS	4
BIOL 215	BIOSTATISTICS	3
CHEM 240	ORGANIC CHEMISTRY I	5
<b>Units</b>		<b>12</b>
<b>Total Units</b>		<b>48-51</b>

\* Students planning to transfer to a four-year college or university should complete courses specific to the transfer institution of choice. University requirements vary from institution to institution and are subject to change. Therefore, it is important to verify transfer major preparation and general education requirements through consultation with a counselor in either the Counseling Center or Transfer Center. See catalog Transfer Courses Information (<http://catalog.swccd.edu/student-success-support-program/student-services-and-college-services/other-services/transfer-courses/>) section for further information.

- \*\* If you do not meet the prerequisites for CHEM 200, take CHEM 170 in your first semester, then CHEM 200 in the second semester, and CHEM 210 in the third semester.
- \*\*\* Students who plan to pursue a graduate degree in medicine or veterinary studies at a four-year college or university are advised to substitute MATH 250, MATH 251, and MATH 252 for MATH 121 and MATH 122.

To earn an associate degree, additional general education and graduation requirements (<http://catalog.swccd.edu/certificates-certifications-degrees-csuuc-requirements/>) must be completed.

Some courses within this program may require additional coursework that must be completed prior to enrollment in these courses. Please consult the individual course listings for prerequisites and any other limitations on enrollment.

## To Transfer to UCSD and SDSU

Beginning in Fall 2000 all students majoring in biology who wish to transfer to UCSD or SDSU must have satisfied all biology pre-major requirements prior to admission to the biology major. In the event that a transfer student has been unable to complete all required courses prior to enrolling at UCSD, he/she will be allowed a maximum of three quarters at UCSD to complete any remaining required pre-major coursework. For more information please contact School of Mathematics, Science, and Engineering at 619-482-6344.

**Note:** Two calculus-based physics course sequences are now available for biology majors:

Code	Title	Units
<b>Sequence One</b>		
PHYS 170	COLLEGE PHYSICS I	
PHYS 172	COLLEGE PHYSICS II	
PHYS 174	COLLEGE PHYSICS III	
<b>Sequence Two</b>		

PHYS 270	PRINCIPLES OF PHYSICS I	3
PHYS 272	PRINCIPLES OF PHYSICS II	3
PHYS 274	PRINCIPLES OF PHYSICS III	3

Check with your transfer institution for specific requirements.

**Websites for biology majors:**

**SDSU:** [www.sci.sdsu.edu](http://www.sci.sdsu.edu) (<http://www.sci.sdsu.edu>)

**UCSD:** [www.biology.ucsd.edu](http://www.biology.ucsd.edu) (<http://www.biology.ucsd.edu>)

**CSU, San Marcos:** [www.csusm.edu/biology](http://www.csusm.edu/biology) (<http://www.csusm.edu/biology/>)

**Articulation:** [www.assist.org](http://www.assist.org) (<http://www.assist.org>)