

Biology AS-T AS-T - Active

Department: Biology

Approval: March 2015

Biology is the scientific study of life through the observation of structure, function, reproduction, growth, origin, evolution, and behavior of living organisms and their relation to each other and their environment. Biologists have deepened our understanding of processes and interactions on all levels of biological organization from elucidating cellular processes to fight cancer to assessing interactions in communities that might help prevent the extinction of species. Studying biology provides a background for students to evaluate and understand new discoveries and to make informed decisions about the use of scientific knowledge to benefit all living organisms. The Associate of Science in Biology for Transfer (AS-T) prepares student for upper division biology courses, including general biology, cell or molecular biology, organism biology, marine biology, botany, zoology, ecology, evolution, genetics, anatomy, physiology, microbiology, and agricultural sciences. The AS-T in Biology is designed to prepare students for transfer to a baccalaureate degree program in biology, particularly at the California State University

Learning Outcomes

Upon completion of this program, students will be able to:

- Successfully participate in upper division coursework including general biology, cell or molecular biology, organism biology, marine biology, botany, zoology, ecology, evolution, genetics, anatomy, physiology, microbiology, and agricultural sciences
- Define and correctly use scientific terminology relevant to biological organisms and processes.
- Apply the theory of evolution and use examples from biochemistry and all levels of biological organization to explain the unity and diversity of living forms.
- Explain how form relates to function in both small scale (molecules and subcellular parts) and large scale (animal and plant physiology) systems.
- Evaluate how the expression of genetic information in context activates various elements of organism growth and behavior.
- Provide and evaluate evidence for the growth and change of biological systems through processes based upon chemical transformation pathways and governed by the laws of thermodynamics.
- Write clear, well organized essays or research papers that demonstrate synthesis of information, quantitative reasoning, and critical thinking.
- Apply the process of science and the skills necessary to successfully and safely carry out laboratory experiments

Degree Requirements: Students who wish to earn the Associate in Science in Biology for Transfer must complete 60 CSU transferable units with at least a 2.0 grade point average. This must include the units required for completion of either IGETC for STEM or CSU GE for STEM and the units for the major as specified below. Each course in the major must be completed with a grade of "C" or better. The IGETC for STEM and CSU GE for STEM options permit students completing the AS-T in Biology to follow the IGETC or CSU GE curriculum but delay one Arts or Humanities course and one Social or Behavioral Science course until after transfer. Courses used to meet the major requirement may also be used to meet IGETC or CSU GE requirements.

Assuming students start this AS-T with transfer-level math and English eligibility, the minimum time for completion is 4 semesters. Completion time will vary based on student preparation and number of units completed per semester.

Courses Required for the AS-T in Biology AS-T

Course	Units
Required courses:	
BIO 100A - General Biology	5.00
BIO 100B - General Biology	5.00
CHEM 101A - General College Chemistry	6.00
CHEM 101B - General College Chemistry	5.00
Total:	21.00
Choose one of the following Calculus courses:	
MATH 110A - Calculus I	5.00
MATH 100A - Short Calculus I	3.00
Total:	3.00 - 5.00
Complete one of the following Physics Series:	
OPTION 1:	
PHYC 2A - Introductory Physics	3.00
PHYC 2AL - Introductory Physics Laboratory	1.00
PHYC 2B - Introductory Physics	3.00
PHYC 2BL - Introductory Physics Laboratory	1.00
OPTION 2:	
PHYC 4A - Classical Mechanics for Scientists and Engineers	3.00
PHYC 4AL - Mechanics Laboratory for Scientists and Engineers	1.00
PHYC 4B - Electromagnetism for Scientists and Engineers	3.00
PHYC 4BL - Electromagnetism Laboratory for Scientists and Engineers	1.00
Total:	8.00
Choose one of the following electives:	
CHEM 208A - Organic Chemistry	4.00
ENGL 1B - Writing about Literature	4.00
ENGL 1C - Writing about Nonfiction	4.00
MATH 100B - Short Calculus II	3.00
MATH 110B - Calculus II	5.00
CMST 2 - Introduction to Rhetorical Criticism	3.00
Total:	3.00 - 5.00
Total:	35.00 - 39.00

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