Associate in Science in Biology for Transfer (AS-T)

The Associate in Science in Biology for Transfer (AS-T in Biology) is designed to provide a clear pathway to a CSU institution for students who plan to transfer and complete a CSU major or baccalaureate degree in Biology. California Community College students who are awarded an Associate in Science in Biology for Transfer (AS-T in Biology) are guaranteed admission with junior standing somewhere in the CSU system and given priority admission consideration to their local CSU institution or to a program that is deemed similar to their community college major. This priority does not guarantee admission to specific majors or institutions. The Associate in Science in Biology for Transfer (AS-T in Biology) offered by Mission College is designed to prepare students who successfully complete the coursework outlined below. Through intensive training in organismal, molecular, and environmental biology, students will develop the ability to think critically and abstractly, as well as acquire the problem-solving and laboratory skills necessary for success in any field of biological science. Students completing this program will have a solid foundation in basic biology, evolutionary theory, and the scientific method, as well as strong preparation in the supporting fields of mathematics, chemistry, and physics.

Program Learning Outcomes:

- Students will apply the scientific method to investigate biological questions by collecting and quantitatively analyzing data.
- Students will identify and apply the central concepts, hypotheses, and theories that comprise the major areas of the biological sciences, including cell and organism structure and function.
- Students will explain the genetic or evolutionary connections between biological structures and their function, and between organisms and their environment.

Career/Transfer Opportunities:

Students who successfully complete the Associate in Science in Biology for Transfer (AS-T Biology) will be prepared for a seamless transfer to a CSU to pursue a Bachelor's degree in Biology. Through intensive training in organismal, molecular, and environmental biology, students will develop the ability to think critically and abstractly, as well as acquire the problem-solving and laboratory skills necessary for success in any field of biological science. Students completing this program will have a solid foundation in basic biology, evolutionary theory, and the scientific method, as well as strong preparation in the supporting fields of mathematics, chemistry, and physics.

To earn this degree, students must meet the following requirements:

1. Completion of the following major courses with grades of C or better
2. Completion of a maximum of 60 CSU-transferable semester units with a grade point average of at least 2.0; and
3. Certified completion of either California State University General Education-Breadth (CSU GE-B) for STEM or the Intersegmental General Education Transfer Curriculum (IGETC) for STEM.

<table>
<thead>
<tr>
<th>Required Core Curriculum</th>
<th>Units</th>
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<tbody>
<tr>
<td>BIO 001A General Biology: Cells OR</td>
<td>5.0</td>
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<tr>
<td>BIO 001AH General Biology: Cells-Honors</td>
<td>5.0</td>
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<tr>
<td>BIO 001B General Biology: Organisms</td>
<td>5.0</td>
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<tr>
<th>List A - Complete all courses listed (24-25 units)</th>
<th>Units</th>
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<tbody>
<tr>
<td>CHM 001A General Chemistry I OR</td>
<td>5.0</td>
</tr>
<tr>
<td>CHM 001AH General Chemistry I - Honors AND</td>
<td>5.0</td>
</tr>
<tr>
<td>CHM 001B General Chemistry II OR</td>
<td>5.0</td>
</tr>
<tr>
<td>CHM 001BH General Chemistry II - Honors AND</td>
<td>5.0</td>
</tr>
<tr>
<td>MAT 003A Analytic Geometry and Calculus I OR</td>
<td>5.0</td>
</tr>
<tr>
<td>MAT 003AH Analytic Geometry and Calculus I - Honors AND</td>
<td>5.0</td>
</tr>
<tr>
<td>PHY 002A General Physics - Mechanics and Thermodynamics</td>
<td>5.0</td>
</tr>
<tr>
<td>PHY 002B General Physics - Electricity, Magnetism and Optics OR</td>
<td>5.0</td>
</tr>
<tr>
<td>PHY 004A Engineering Physics-Mechanics</td>
<td>5.0</td>
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<tr>
<td>PHY 004B Engineering Physics-Electricity and Magnetism</td>
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<thead>
<tr>
<th>List B - Complete listed course (3 units)</th>
<th>Units</th>
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</thead>
<tbody>
<tr>
<td>PSY 001 General Psychology OR</td>
<td>3.0</td>
</tr>
<tr>
<td>PSY 001H General Psychology - Honors</td>
<td>3.0</td>
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</tbody>
</table>

Required Units for the Major: 37.0-38.0

Completion of General Education Requirements and electives as needed to reach 60 units.

Total Required Units: 60.0

Note: Completing courses that satisfy CSU’s U.S. History, Constitution and American Ideals requirement prior to transfer is highly recommended.
Associate in Science in Biological Sciences

The Associate in Science in Biological Sciences is designed for students interested in acquiring a solid foundation in basic biology, evolutionary theory, and the scientific method. This program is appropriate for students seeking entry-level positions in the life sciences.

Program Learning Outcomes:
- Students will apply the scientific method to investigate biological questions by collecting and quantitatively analyzing data.
- Students will identify and apply the central concepts, hypotheses, and theories that comprise the major areas of the biological sciences, including cell and organism structure and function.
- Students will explain the genetic or evolutionary connections between biological structures and their function, and between organisms and their environment.

Career/Transfer Opportunities:
A solid background in the life sciences is required for many careers, including work in the allied health professions, biotechnology, horticulture, land management, and education.

To earn this degree, students must meet the following requirements:
1. Completion of 60 degree applicable units with an overall GPA of 2.0.
2. Completion of a minimum of 18 semester units in the major with a grade of C (or P) or better.
3. Completion of the Associate in Science graduation requirements.

Required Units for the Major: 18.0-23.0

Completion of General Education Requirements and electives as needed to reach 60 units.

Total Required Units: 60.0
Associate in Science in Human Biology

The Human Biology Associate in Science degree provides a solid foundation in the biological sciences for students who are seeking entry to nursing and related health occupations. Completion of this degree meets all Biology and Chemistry prerequisites for admission to the LVN and LVN-RN programs, and fulfills many of the lower-division requirements for a variety of baccalaureate degrees in Health Sciences. This degree is not intended for pre-medical, pre-dental, or pre-pharmacy students (see A.S. or AS-T in Biological Sciences instead).

Program Learning Outcomes:
Upon successful completion of the program, students will be able to:
• Students will describe the gross and microscopic structure of the major organs of the human body.
• Students will describe homeostatic control mechanisms of the different body systems, and how they relate to the maintenance of good health.
• Students will compare and contrast commensal, opportunistic, and pathological relationships between humans and microorganisms.

Career/Transfer Opportunities:
A solid background in human biology is required for many undergraduate majors and careers in the allied-health field.

Required Courses:    Units
BIO 004  Microbiology  5.0
BIO 047  Human Anatomy  5.0
BIO 048  Human Physiology OR 5.0
BIO 048H  Human Physiology - Honors  5.0

Select 9 units from the following courses: Units
AHL 003  Medical Terminology  3.0
ANT 001  Physical Anthropology  3.0
BIO 011  Human Biology  4.0
BIO 012  Emerging Infectious Diseases  3.0
BIO 014  Introductory Neuroscience  3.0
BIO 017  Genetics and Society OR 3.0
BIO 017H  Genetics and Society - Honors  3.0
BIO 022  Anatomy and Physiology for Allied Health Workers  4.0
CHM 001A  General Chemistry I OR 5.0
CHM 001AH  General Chemistry I - Honors  5.0
CHM 030A  Fundamentals of Chemistry  4.0
CHM 030B  Fundamentals of Chemistry OR 4.0
CHM 060  Survey of General, Organic, and Biological Chemistry  4.0
NTR 015  Human Nutrition  3.0
NTR 040  Nutrition and Disease  3.0
NTR 052  Nutrition for Children  3.0

Required Units for the Major:  24.0

Completion of General Education Requirements and electives as needed to reach 60 units.

Total Required Units:  60.0