I. BIOLOGY FOR TRANSFER (AS-T)
The Associate in Science in Biology for Transfer presents the diverse, dynamic study of life through a required core of biology and supporting courses. This degree is specifically designed to prepare students for transfer to a California State University, where a baccalaureate degree may be earned in Biological Sciences or a closely related field.

The following is required for the AS-T in Biology for Transfer degree:
1. 60 semester or 90 quarter CSU-transferable units;
2. The Interssegmental General Education Transfer Curriculum (IGETC) for Science, Technology, Engineering and Mathematics (STEM) pattern for the CSU*;
3. Minimum of 18 semester or 27 quarter units in the major or area of emphasis;
4. Minimum grade point average (GPA) of 2.0;
5. Grade of “C” or better in all courses required for the major or area of emphasis.

Program Learning Outcomes
Upon successful completion of this program, students will be able to:
• Explain the basic structures and fundamental processes of life at the molecular, cellular, and organismal levels.
• Identify the evolutionary processes that lead to adaptation and biological diversity.
• Describe the relationship between life forms and their environment and ecosystems.
• Collect, organize, analyze, interpret and present quantitative and qualitative data and incorporate them into the broader context of biological knowledge.
• Effectively apply current technology and scientific methodologies for problem solving.
• Find, select and evaluate various types of scientific information including primary research articles, mass media sources and World Wide Web information.
• Communicate effectively in written and oral formats.
• Effectively apply current technology and scientific methodologies for problem solving.
• Find, select and evaluate various types of scientific information including primary research articles, mass media sources and World Wide Web information.

CAREER OPPORTUNITIES
* Aquatic Biologist
* Athletic Trainer
* Biologist
* Biochemical Engineer
* Biological Technician
* Biomedical Equipment Technician
* Biotechnologist
* Botanist
* Clinical Lab Technician
* Cytologist
* Ecologist
* Environmental Engineer
* Environmental Technician
* Environmental Microbiologist
* Genetic Engineering Technician
* Greenhouse Assistant
* Laboratory Technician
* Physical Therapist
* Public Health Biologist
* Purification Technician
* Research Assistant
* Safety Specialist
* Teacher
* Technical Writer
* Waste Management Technician

* Bachelor Degree or higher required

List A:
CHEM 141 General Chemistry I 5
CHEM 142 General Chemistry II 5
MATH 180 Analytic Geometry and Calculus I 5
PHYC 130 Fundamentals of Physics 4
PHYC 131 Fundamentals of Physics 4
or
PHYC 190 Mechanics and Heat 5
PHYC 200 Electricity and Magnetism 5

List B:
MATH 160 Elementary Statistics 4
Total Required 36-38
Double-Counted Units 10
General Education Requirements (IGETC-CSU for STEM)* 31
Electives 1-3
Total Degree Units 60

*Completion of IGETC-CSU for STEM allows for completion of 6 units of non-STEM GE work after transfer. One Area 3 course (Fine Arts and Humanities) and one Area 4 course (Social and Behavioral Sciences) may be deferred until after transfer.

II. BIOLOGICAL SCIENCES
This degree program is designed to provide a two-year transfer program with emphasis on the uniformity and diversity of life. The curriculum fulfills the lower division requirements for majors in biology, dentistry, medicine, nursing, pharmacy, environmental health, microbiology, and ecology.

Program Learning Outcomes
Upon successful completion of this program, students will be able to:
• Explain the basic structures and fundamental processes of life at the molecular, cellular, and organismal levels.
• Identify the evolutionary processes that lead to adaptation and biological diversity.
• Describe the relationship between life forms and their environment and ecosystems.
• Collect, organize, analyze, interpret and present quantitative and qualitative data and incorporate them into the broader context of biological knowledge.
• Effectively apply current technology and scientific methodologies for problem solving.
• Find, select and evaluate various types of scientific information including primary research articles, mass media sources and World Wide Web information.
• Communicate effectively in written and oral formats.

CAREER OPPORTUNITIES
* Athletic Trainer
* Biologist
* Biochemical Engineer
* Biological Technician
* Biomedical Equipment Technician
* Biotechnologist
* Botanist
* Clinical Lab Technician
* Cytologist
* Ecologist
* Environmental Engineer
* Environmental Technician
* Environmental Microbiologist
* Genetic Engineering Technician
* Greenhouse Assistant
* Laboratory Technician
* Physical Therapist
* Public Health Biologist
* Purification Technician
* Research Assistant
* Safety Specialist
* Teacher
* Technical Writer
* Waste Management Technician

* Bachelor Degree or higher required

List A:
CHEM 141 General Chemistry I 5
CHEM 142 General Chemistry II 5
MATH 180 Analytic Geometry and Calculus I 5
PHYC 130 Fundamentals of Physics 4
PHYC 131 Fundamentals of Physics 4
Total Required 40
Plus General Education Requirements

III. BIOLOGICAL SCIENCES: PRE-ALLIED HEALTH
This program provides students with a pathway into allied health programs at baccalaureate institutions. Required science courses provide training in the methods of scientific inquiry, the fundamental principles of natural science, and the principle laws and theories governing the behavior and interactions of living organisms. Recoordinated general education courses expose students to the necessary base of knowledge that will serve them well in any of the allied health fields. This degree prepares students for transfer to a baccalaureate institution or for advanced studies in an allied health major.

Prior to enrolling in several courses in this major, students must take general biology and general biology laboratory as prerequisites. It is recommended that students check with transfer institutions for specific program requirements.

Program Learning Outcomes
Upon successful completion of this program, students will be able to:
• Explain the principles and laws of living systems with particular reference to human disease and human performance, including the role of scientific inquiry in life/medical science, cell theory, the hierarchy of structure and function in living organisms and principles of heredity.
• Describe the normal relationships between structure and function of humans, alterations in normal structure/function that characterize disease; the structure, function, classification and epidemiology of pathogenic microorganisms; and normal and nutritional biochemistry.
• Exhibit competency in the methods used to study living systems, with a focus on human biology including applying principles and procedures of research and experimental design, and in gathering, organizing interpreting, evaluating and communicating data.
• Exhibit confidence and ability to function as a health care professional including the ability to conduct independent and collaborative investigation skills, communicate scientific information effectively in oral and written form, and utilize technology effectively and appropriately.
• Exhibit the ability to integrate the content, skills and abilities gained in courses and practice independent, self-directed learning.

Associate in Science Degree Requirements:
Course Title Units
BIO 140 Human Anatomy 5
BIO 141 Human Physiology 3
BIO 141L Laboratory in Human Physiology 1
BIO 152 Paramedical Microbiology 5
CHEM 101 Introduction to General, Organic and Biological Chemistry 5
CHEM 102 Introduction to General, Organic and Biological Chemistry 5
CHEM 116 Introductory Organic and Biochemistry 4
COMM 102 Public Speaking 3
PSY 120 Introductory Psychology 3
SOC 120 Introductory Sociology 3
Total Required 28-31
Plus General Education Requirements

Recommended Electives: CD 125 or PSY 165; MATH 160