

## Biological Science

A.S. DEGREE: 60 units

### DESCRIPTION

The Biological Science Program at Gavilan Community College provides a quality education that emphasizes critical thinking skills for all students (Majors and Non-majors). Our primary goals are to prepare students to transfer to a 4-year college, enter programs that require our courses as prerequisites, and prepare students for possible employment upon completing certificate and/or graduating with an A.S. degree. It is also our intent to encourage our students to gain practical experience in biological science by working with our faculty and local industry. Students completing the courses will have satisfied requirements for physical and biological sciences.

Recommended preparation for the major requirements listed.

1. One year of high school chemistry or CHEM30A (Elementary Chemistry) or equivalent, and/or BIO10 or equivalent.
2. At a minimum be eligible to enter ENGL250 and ENGL260.
3. Two years of high school math or MATH233.

### PROGRAM LEARNING OUTCOMES

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

- ▶ Use raw experimental data to conduct statistical analysis, and present conclusions in a graphical and narrative form.
- ▶ Find, select and evaluate various types of scientific information including primary research articles, mass media sources and world-wide web information.
- ▶ Effectively communicate scientific concepts in both written and oral formats.
- ▶ Identify the evolutionary processes that lead to adaptation and biological diversity.
- ▶ Describe the relationship between life forms and their environment and ecosystems.
- ▶ Explain the basic structures and fundamental processes of life at molecular, cellular and organismal levels.
- ▶ Demonstrate the correct operating procedures in the use of common lab equipment such as compound microscopes, spectrophotometer, pH meter, electrophoresis gel apparatus, micropipettes, and centrifuges.

### PROGRAM REQUIREMENTS: (30 UNITS)

CHEM1A	General Chemistry . . . . .	5
CHEM1B	General Chemistry . . . . .	5
BIO1	Cell and Molecular Biology . . . . .	4
BIO4	General Zoology . . . . .	4

BIOS	General Botany . . . . .	4
PHYS2A	General Physics I . . . . .	4
PHYS2B	General Physics II . . . . .	4

### RECOMMENDED ELECTIVES:

BIO7	Human Anatomy . . . . .	4
AH8 or	General Microbiology . . . . .	5
BIO8	General Microbiology . . . . .	5
AH9 or	Human Physiology . . . . .	5
BIO9	Human Physiology . . . . .	5
BIO13	Marine Biology . . . . .	4
AH15 or	Survey of Human Anatomy and Physiology . . . . .	5
BIO15	Survey of Human Anatomy and Physiology . . . . .	5
BIO21	Field Ecology . . . . .	1 - 4
ECOL1	Conservation of Natural Resources . . . . .	4
MATH1A	Single-Variable Calculus and Analytic Geometry. . . . .	4
MATH18	Single-Variable Calculus and Analytic Geometry. . . . .	4

### GENERAL EDUCATION REQUIREMENTS: (35-39)

A student may complete the Gavilan College A.A./A.S. general education, the CSU-GE Breadth or the IGETC pattern, plus sufficient electives to meet a 60 unit total. See a counselor for details.

NOTE: A course may be used to satisfy both general education and major courses. See "Double Counting Rule".

## Biotechnology

CERTIFICATE OF ACHIEVEMENT: 17 units

### DESCRIPTION

This certificate program allows students to attain essential skills in biotechnology and provides opportunities to learn basic laboratory procedures, how to record data, perform basic calculations and write laboratory reports. Students also learn about careers and ethical issues in biotechnology. Career Options: Careers for those with a Biotechnology Certificate of Achievement would be animal care technician, assay analyst, laboratory assistant or technician, manufacturing technician, QA/QC technician. In addition to the biotechnology industry, jobs for technicians may be found in environmental testing labs, forensic labs, hospitals, plant pathology labs, research labs and wineries.

### REQUIREMENTS: UNITS: (17 UNITS)

BIOT103	Biotechnology Lab Skills and Instrumentation . . . . .	4
BIOT104	Seminar in Biotechnology . . . . .	1
BIO10	Principles of Biology . . . . .	4
CHEM30A	Elementary Chemistry . . . . .	4
CHEM30B	Elementary Organic and Biochemistry . . . . .	4

**TOTAL: 17**