

# SUBJECT MATTER PROGRAM (BIOLOGY)

Units required for Subject Matter Program: 61-65

## Program Description

The Science Subject Matter Program (in biology, chemistry, physics, or foundational level general science) is designed to meet the California Commission on Teacher Credentialing (CTC) subject matter requirement for students to enter a California Single Subject teaching credential program. Meeting the subject matter requirement is a credential program admission requirement, and can be met either through a subject matter program (such as those described below) or by taking a state approved content exam (currently the California Subject Exam for Teachers, the CSET). In order to meet the subject matter program requirement, all courses must be completed with a grade of "C-" or better. In order to teach public school in California, you must also complete a teaching credential program.

Subject matter programs are not degrees or concentrations; instead they are a series of courses that allow a student to meet the requirements for admission to a teaching credential program. Students must also complete a BA or BS degree (with any major) to fulfill the credential requirements.

Science majors who intend to pursue a teaching credential should see a faculty advisor or the department chair in the department of their academic major. It is recommended that they do so early as it is critical that their science coursework be carefully planned and coordinated to include the required subject matter program courses. In addition, students are encouraged to become involved with education related activities like grading, assisting in labs, tutoring K-12 students, and visiting schools; please speak with the subject matter advisors in your area for more information.

## Program Requirements

Code	Title	Units
ASTR 4A	Introduction to the Solar System	3
ASTR 4B	Introduction to Stars, Galaxies, and Cosmology	3
BIO 1 & BIO 2	Biodiversity, Evolution and Ecology Cells, Molecules and Genes <sup>1</sup>	10
CHEM 1A	General Chemistry I <sup>1</sup>	5
CHEM 1B	General Chemistry II	5
ENVS 10	Introduction to Environmental Science <sup>1</sup>	3
GEOL 10	Physical Geology <sup>1</sup>	3
Select one of the following:		8 - 12
PHYS 5A & PHYS 5B	General Physics: Mechanics, Heat, Sound General Physics: Light, Electricity and Magnetism, Modern Physics <sup>1</sup>	
PHYS 11A & PHYS 11B & PHYS 11C	General Physics: Mechanics General Physics: Heat, Light, Sound, Modern Physics General Physics: Electricity and Magnetism <sup>1</sup>	

### Required Upper Division Core Courses (21 Units)

BIO 121	Molecular Cell Biology	3
BIO 131	Systemic Physiology	4

BIO 139	General Microbiology	4
BIO 160	General Ecology	3
BIO 184	General Genetics	4
BIO 188	Evolution	3

**Total Units** 61-65

<sup>1</sup> Course also satisfies General Education (GE)/Graduation Requirement.

### Note:

- BIO 195T is highly recommended for students interested in pursuing a biology credential in the CSU system; 45 hours of documented work with the target school age is required prior to admission in a credential program.