

GENERAL STUDIES: SCIENCE

Program Description

Because of the increasingly technological nature of our society, science majors will find an impressive array of options and exciting opportunities. A science major can provide preparation for a career in fields related to biology, chemistry, mathematics, physics, astronomy or engineering.

Learn more about the program on the [Physical Sciences, Mathematics & Engineering website](#).

Program Learning Outcomes

- Students will be able to integrate the various fields of science in order to critically evaluate and interpret scientific information.
- Students will be able to assess how relevant scientific information could be used to inform their own personal economic, political and social decisions.

Career Opportunities

There is a need for scientifically trained people in non-traditional areas such as marketing and sales, scientific information, patent law, and health and safety.

Award Type(s)

- AS = Associate in Science Degree

Units Required

- Major: 39.5

Additional Information

Note: Courses used to meet the major requirements may be used to satisfy any graduation general education requirement.

Associate Degree Requirements

Code	Title	Units
English Proficiency		
Select one of the following:		
ENGL 1A	COMPOSITION & READING	5
ENGL 1AH	HONORS COMPOSITION & READING	5
ENGL 1S & ENGL 1T	INTEGRATED COMPOSITION & READING and INTEGRATED COMPOSITION & READING	8
or equivalent		
Mathematics Proficiency		
Select one of the following:		
MATH 105	INTERMEDIATE ALGEBRA	5
MATH 180	QUANTITATIVE REASONING	5
or any MATH course approved for Foothill GE Area V, Communication & Analytical Thinking		

A minimum of 90 units is required¹ to include:

- Completion of one of the following general education patterns:
Foothill General Education, CSU General Education Breadth

Requirements or the Intersegmental General Education Transfer Curriculum (IGETC)

- Core courses (39.5 units)

¹ Additional elective course work may be necessary to meet the 90-unit minimum requirement for the associate degree.

Note: All courses pertaining to the major must be taken for a letter grade. In addition, a grade of "C" or better is required for all core and support courses used for the degree.

Core and Support Courses

Select 20 units from Category I and 19.5 units from Category II.

Code	Title	Units
Core Courses		
Category I: Biology		
Select at least one course each from Area A and Area B. At least one course in this category must include a laboratory: 20		
<i>Area A</i>		
BIOL 1C	EVOLUTION, SYSTEMATICS & ECOLOGY ¹	
BIOL 9	ENVIRONMENTAL BIOLOGY ²	
BIOL 9L	ENVIRONMENTAL BIOLOGY LABORATORY ³	
BIOL 10	GENERAL BIOLOGY: BASIC PRINCIPLES ¹	
BIOL 14	HUMAN BIOLOGY ¹	
<i>Area B</i>		
BIOL 1A	PRINCIPLES OF CELL BIOLOGY ¹	
BIOL 1B	FORM & FUNCTION IN PLANTS & ANIMALS ¹	
BIOL 8	BASIC NUTRITION	
BIOL 12	HUMAN GENETICS	
BIOL 13	MARINE BIOLOGY ¹	
BIOL 40A	HUMAN ANATOMY & PHYSIOLOGY I ¹	
BIOL 40B	HUMAN ANATOMY & PHYSIOLOGY II ¹	
BIOL 40C	HUMAN ANATOMY & PHYSIOLOGY III ¹	
BIOL 41	MICROBIOLOGY ¹	
BIOL 45	INTRODUCTION TO HUMAN NUTRITION	
Category II: Physical Sciences, Computer Science, Mathematics & Engineering		
Select at least five units from Area A, at least 4.5 units from Area B, at least five units from Area C, and at least five units from Area D: 19.5		
<i>Area A: Chemistry</i>		
CHEM 1A	GENERAL CHEMISTRY or CHEM 1AII HONORS GENERAL CHEMISTRY	
CHEM 1B	GENERAL CHEMISTRY or CHEM 1BII HONORS GENERAL CHEMISTRY	
CHEM 1C	GENERAL CHEMISTRY & QUALITATIVE ANALYSIS	
CHEM 9	CHEMISTRY OF COOKING	
CHEM 12A & 12AL	ORGANIC CHEMISTRY and ORGANIC CHEMISTRY LABORATORY	
CHEM 12B & 12BL	ORGANIC CHEMISTRY and ORGANIC CHEMISTRY LABORATORY	
CHEM 12C & 12CL	ORGANIC CHEMISTRY and ORGANIC CHEMISTRY LABORATORY	

or CHEM 12(ORGANIC CHEMISTRY
& CHEM 13C and HONORS ORGANIC CHEMISTRY LABORATORY

CHEM 25 FUNDAMENTALS OF CHEMISTRY

CHEM 30A SURVEY OF INORGANIC & ORGANIC CHEMISTRY

CHEM 30B SURVEY OF ORGANIC & BIOCHEMISTRY

Area B: Engineering/Computer Science/Astronomy/PSE

ASTR 10A GENERAL ASTRONOMY: SOLAR SYSTEM

ASTR 10B GENERAL ASTRONOMY: STARS, GALAXIES,
COSMOLOGY

or ASTR 10B HONORS GENERAL ASTRONOMY: STARS, GALAXIES,
COSMOLOGY

ASTR 10L ASTRONOMY LABORATORY

ASTR 54H HONORS INSTITUTE SEMINAR IN ASTRONOMY

C S 1A OBJECT-ORIENTED PROGRAMMING
METHODOLOGIES IN JAVA

C S 1B INTERMEDIATE SOFTWARE DESIGN IN JAVA

C S 1C ADVANCED DATA STRUCTURES & ALGORITHMS
IN JAVA

C S 1M INTERMEDIATE ALGORITHM & DATA STRUCTURE
METHODOLOGIES IN JAVA

C S 2A OBJECT-ORIENTED PROGRAMMING
METHODOLOGIES IN C++

C S 2B INTERMEDIATE SOFTWARE DESIGN IN C++

C S 2C ADVANCED DATA STRUCTURES & ALGORITHMS
IN C++

C S 2M INTERMEDIATE ALGORITHM & DATA STRUCTURE
METHODOLOGIES IN C++

C S 3A OBJECT-ORIENTED PROGRAMMING
METHODOLOGIES IN PYTHON

C S 3B INTERMEDIATE SOFTWARE DESIGN IN PYTHON

C S 3C ADVANCED DATA STRUCTURES & ALGORITHMS
IN PYTHON

C S 3M INTERMEDIATE ALGORITHM & DATA STRUCTURE
METHODOLOGIES IN PYTHON

C S 10 COMPUTER ARCHITECTURE & ORGANIZATION

C S 20A PROGRAMMING IN C#

C S 21A PYTHON FOR PROGRAMMERS

C S 21B INTERMEDIATE PYTHON PROGRAMMING

C S 22A JAVASCRIPT FOR PROGRAMMERS

C S 26A RUBY & FUNCTIONAL PROGRAMMING

C S 30A INTRODUCTION TO LINUX

C S 30B LINUX SHELL PROGRAMMING

C S 30C LINUX SYSTEM ADMINISTRATION

C S 30D ADVANCED LINUX SYSTEM ADMINISTRATION

C S 30E LINUX SYSTEM ADMINISTRATION: NETWORK
SERVICES

C S 31A INTRODUCTION TO DATABASE MANAGEMENT
SYSTEMS

C S 40A SOFTWARE ENGINEERING METHODOLOGIES

C S 48A DATA VISUALIZATION

C S 49 FOUNDATIONS OF COMPUTER PROGRAMMING

C S 50A NETWORK BASICS (CCNA)

C S 55A INTRODUCTION TO CLOUD COMPUTING IN
AMAZON WEB SERVICES

C S 55B DATABASE ESSENTIALS IN AMAZON WEB
SERVICES

C S 55C COMPUTE ENGINES IN AMAZON WEB SERVICES

C S 55D SECURITY IN AMAZON WEB SERVICES

C S 55G AWS CLOUD PRACTITIONER CERTIFICATION
PREPARATION

C S 55J AWS CERTIFIED SOLUTIONS ARCHITECT
ASSOCIATE PREPARATION

C S 63A DEVELOPING APPLICATIONS FOR IOS

C S 64A WRITING APPS FOR THE ANDROID IN JAVA

C S 71A DATA ANALYTICS & MANAGEMENT

C S 80A OPEN SOURCE CONTRIBUTION

C S 81A 3-D GRAPHICS PROGRAMMING

C S 82A INTRODUCTION TO SOFTWARE QUALITY
ASSURANCE

C S 84A DATABASE-DRIVEN WEB APPLICATION
DEVELOPMENT

C S 84B DISTRIBUTED DATABASES

ENGR 6 ENGINEERING GRAPHICS

ENGR 10 INTRODUCTION TO ENGINEERING

ENGR 11 PROGRAMMING & PROBLEM-SOLVING IN
MATLAB

ENGR 35 STATICS

ENGR 37 INTRODUCTION TO CIRCUIT ANALYSIS

ENGR 40 INTRODUCTION TO CLEAN ENERGY TECHNOLOGY

ENGR 45 PROPERTIES OF MATERIALS

ENGR 47 DYNAMICS

ENGR 49 ENGINEERING PROFESSION

PSE 20 INTRODUCTION TO PHYSICAL SCIENCE

Area C: Mathematics

MATH 1A CALCULUS

or MATH 1A I HONORS CALCULUS I
& 1AHP and HONORS CALCULUS I SEMINAR

MATH 1B CALCULUS

or MATH 1B H HONORS CALCULUS II
& 1BHP and HONORS CALCULUS II SEMINAR

MATH 1C CALCULUS

MATH 1D CALCULUS

MATH 2A DIFFERENTIAL EQUATIONS

MATH 2B LINEAR ALGEBRA

MATH 10 ELEMENTARY STATISTICS

MATH 12 CALCULUS FOR BUSINESS & ECONOMICS

MATH 17 INTEGRATED STATISTICS II

MATH 22 DISCRETE MATHEMATICS

or C S 18 DISCRETE MATHEMATICS

MATH 42 MATH FOR ELEMENTARY SCHOOL TEACHERS

MATH 44 MATH FOR THE LIBERAL ARTS

MATH 48A PRECALCULUS I

MATH 48B PRECALCULUS II

MATH 48C PRECALCULUS III

MATH 67 ENHANCED MATHEMATICS LEARNING WITH
MATHEMATICA

Area D: Physics

PHYS 2A GENERAL PHYSICS

PHYS 2AM	GENERAL PHYSICS: CALCULUS SUPPLEMENT
PHYS 2B	GENERAL PHYSICS
PHYS 2BM	GENERAL PHYSICS: CALCULUS SUPPLEMENT
PHYS 2C	GENERAL PHYSICS
PHYS 2CM	GENERAL PHYSICS: CALCULUS SUPPLEMENT
PHYS 4A	GENERAL PHYSICS (CALCULUS)
PHYS 4B	GENERAL PHYSICS (CALCULUS)
PHYS 4C	GENERAL PHYSICS (CALCULUS)
PHYS 4D	GENERAL PHYSICS (CALCULUS)
PHYS 6	INTRODUCTORY PHYSICS
PHYS 12	INTRODUCTION TO MODERN PHYSICS or PHYS 12H-HONORS INTRODUCTION TO MODERN PHYSICS

Total Units **39.5**

- ¹ Course includes a laboratory component.
- ² May be taken with BIOL 9L to satisfy laboratory requirement.
- ³ Only if taken with BIOL 9.