

Science, General

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Program Description

This program is designed to provide students with a basic science background, preparing them to move into a curriculum at a four-year institution leading to a degree in such fields as chemistry, biology, physics, geology, or health sciences. This program is a path for immediate entry into science-based technology careers.

Associate in Arts Degree

The Associate in Arts Degree can be obtained by completing a total of 60 units, including a minimum of 18 units in the major, the general education requirements, and electives. The major consists of courses selected from the lists below and must include twelve (12) units in courses with laboratory work and at least one course in each of the areas Biological Science and Physical Science. All courses for this major must be completed with a grade of C or better or a P if the course is taken on a Pass/No Pass basis.

Program Outcomes

Students who complete the Science, General Associate Degree will be able to:

1. Demonstrate analytical and/or conceptual problem solving skills.
2. Carry out experiments and critically assess their data.
3. Learn the role of hypotheses, measurement and analysis in the development of scientific theory as evidence by laboratory reports.
4. Learn how to write a laboratory report or give an oral presentation.

BIOLOGICAL SCIENCE

BIO 002 * Principles of Cell and Molecular Biology
BIO 003 * Evolution, Ecology & Biodiversity
BIO 004 * Human Anatomy
BIO 005 * Introductory Physiology
BIO 012 Environmental Science
BIO 012L * Environmental Science Laboratory
BIO 014 Principles of Microbiology
BIO 015 * Introduction to Biology
BIO 016 Introduction to Human Biology
BIO 016L * Human Biology Laboratory
BIO 018 Biology of Sex
BIO 019 * Marine Biology
ANTH 001 Physical Anthropology

PHYSICAL SCIENCE

ASTR 010 General Astronomy
ASTR 020 * Astronomy Laboratory
ASTR 030 The Solar System
ASTR 040 Stars, Galaxies, and Cosmology
CHEM 001 * General Chemistry
CHEM 002 * General Chemistry
CHEM 003 * Organic Chemistry I
CHEM 004 * Organic Chemistry II
CHEM 010 * Intermediate Chemistry
CHEM 011 * Basic Organic Chemistry and Biochemistry
CHEM 051 Chemistry for the Health Sciences
GEOG 001 Physical Geography
GEOG 001L * Physical Geography Laboratory
GEOL 001 Physical Geology
GEOL 002 * Geology Laboratory
GEOL 005 Geology of California
PHSC 012 * Introduction to Principles of Physical Science
PHYS 002 * General Physics (Non-Calculus)
PHYS 004 * General Physics (Non-Calculus)
PHYS 006 * Physics for Science and Engineering
PHYS 007 * Physics for Science and Engineering
PHYS 008 * Physics for Science and Engineering
PHYS 010 Descriptive Physics

*Laboratory Class

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Astronomy

ASTR 010 **3.0 Units** **General Astronomy**

Course Advisory: Eligibility for English 001; SCC minimum Math standard. An introductory study of the universe, including the properties and evolution of galaxies, stars, pulsars, black holes, quasars, the sun, planets, and life in the universe. Field trip may be required. *Three hours lecture.*

ASTR 020 **1.0 Unit** **Astronomy Laboratory**

Prerequisite: ASTR 010, 030, or 040 (courses may be taken concurrently). Course Advisory: Eligibility for English 001, SCC Minimum Math standard. Students will gain familiarity with the sky, telescopes, and other astronomical equipment. They will do experiments in Physics related to Astronomy. Topics will cover the moon, planets, stars, galaxies, and cosmology. Field trips may be required. *Three hours lab.*

ASTR 030 **3.0 Units** **The Solar System**

Course Advisory: Eligibility for English 001; SCC minimum Math standard. An introductory study of solar system astronomy, the physics related to that astronomy, the planets and their moons, the sun, solar system debris, and the possibility of extraterrestrial life. Field trips may be required. *Three hours lecture.*

ASTR 040 **3.0 Units** **Stars, Galaxies, And Cosmology**

Course Advisory: Eligibility for English 001; SCC minimum Math standard. An introductory study of stars, galaxies, the universe, and the physics related to these topics. This includes an examination of the facts relating to the sun, stellar lifetimes, supernovae, black holes, and cosmology. Field trip may be required. *Three hours lecture.*

Geology

GEOL 001 **3.0 Units** **Physical Geology**

Course Advisory: Eligibility for English 001 and SCC minimum Math standard. An introduction to the principles of geology with emphasis on Earth processes. This course focuses on the internal structure and origin of the Earth and the processes that change and shape it. Online work may be required. C-ID GEOL 100. *Three hours lecture.*

GEOL 002 **1.0 Unit** **Geology Laboratory**

Prerequisite: GEOL 001 or 005 (either course may be taken concurrently). Course Advisory: SCC minimum English and Math standards. Topics include the identification of rocks and minerals as hand specimen and the study of geologic maps, landforms, and structures. Field trips will be taken to areas of geologic interest. Laboratory projects, written assignments and reports, and examinations will be used to evaluate student success. C-ID GEOL 100L. *Three hours lab.*

GEOL 005 **3.0 Units** **Geology Of California**

Course Advisory: Eligibility for ENGL 001 and SCC minimum math standard. An introductory course on the geology of California covering its geologic provinces, minerals (including gold), rocks, geologic hazards including earthquakes, and the development of scenic landscapes. Field trips will be taken to areas of geologic interest. A field trip report will be required. However, if a student cannot attend the trip, there will be an optional research paper assignment. *Three hours lecture.*

GEOL 010 **3.0 Units** **Introduction To Geographic Information Systems**

Course Advisory: Eligibility for English 001 and SCC minimum Math standards. Basic computer literacy is desirable. Study of Geographic Information Systems (GIS) science and its applications to spatial data management. Identification and acquisition of GIS data. Assessment of vector and raster systems, scale, resolution, map projection, coordinate systems, georeferencing and Global Positioning Systems (GPS). Spatial analysis and modeling with GIS. Same as GEOG 010. Not open to students who have completed GEOG 010. C-ID GEOL 155. *Three hours lecture.*

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GEOL 049 Geology Honors

1.0 to 3.0 Units

Prerequisite: Completion of 24 units of college credit with a minimum GPA of 3.0; completion of GEOL 001, GEOL 005, or GEOL 010 with a minimum grade of B; an ability to work independently; and permission of the School Dean based on instructor availability. Course Advisory: Eligibility for English 001. Requires students to engage in an independent student project. The project may be a laboratory or field study or a library study that leads to a thesis. In all cases, the final written product should show integration and synthesis of ideas. This project requires the approval of a faculty member sponsor. Students may take this course up to the maximum number of units over multiple semesters. *Three to nine hours by arrangement.*

Physical Science

PHSC 012

4.0 Units

Introduction to the Principles of Physical Science

Course Advisory: Eligibility for ENGL 001; SCC minimum Math standard. An introduction to the physical universe from atomic particles to the stars, with emphasis on the basic principles of physics, chemistry, astronomy, and the geo-sciences. This is a general education course in the physical science area for non-science majors that satisfies the physical science requirement for most universities and colleges. Field trips may be required. *Three hours lecture, three hours lab.*