

Physical Science

Physical Science

Program Description

Solano Community College offers a two-year Associate in Science Degree in Physical Science that provides students the opportunity to investigate methods of scientific inquiry, and to gain scientific knowledge, through specialization in one or more Physical Science disciplines that align with their personal interests, such as Physics, Chemistry, Astronomy, and Geology. Crucially, students taking this degree will also gain an understanding of the factors that affect the Earth's climate, and will thereby develop a deep understanding of the important issue of Climate Change, which will allow them to be knowledgeable global citizens. Students will develop critical thinking skills, learn to communicate effectively in writing, and acquire an understanding of major scientific concepts. Through course options, students will employ methods of scientific inquiry to understand the world around them. Completion of the degree requirements will prepare students with the skills and resources needed to facilitate academic and career decisions.

Associate in Science Degree

An Associate in Science Degree can be obtained by completing the 34-unit major, SCC General Education - Option A, and electives. All courses for the major must be completed with a minimum grade of C or a grade of P if the course is taken on a Pass/No Pass basis.

Program Outcomes

1. Describe physical phenomena in multiple forms (verbal, pictorial, graphical, and mathematical).
2. Qualitatively and quantitatively predict, analyze and/or explain the behavior of physical systems using fundamental physical principles and models.
3. Develop and implement a plan of collecting and/or accessing experimental data, and performing data analysis

REQUIRED COURSES Units

CIS 001 Introduction to Computer Science	3
MATH 011 Elementary Statistics	4
PHSC 013 Weather and Climate	3
PHSC 014 Atmospheric Science Laboratory	1
Option 1 or 2	10
13 Units from List A	13

Required Major Total Units 34

Option 1 Units

CHEM 001 General Chemistry I	5
CHEM 002 General Chemistry II	5

Option 2 Units

PHYS 002 General Physics (Non-calculus)	5
PHYS 004 General Physics (Non-calculus)	5

List A (select 13 units) Units

Any course(s) not used from Option 1 or 2	
ASTR 010 General Astronomy	3
ASTR 020 Astronomy Laboratory	1
ASTR 040 Stars, Galaxies, and Cosmology	3
ASTR 045 Introduction to Astrobiology and the Search for Life in the Universe	3
ASTR 050 Astronomical Optics	1
CHEM 010 Intermediate Chemistry	4
GEOL 001 Physical Geology	3
GEOL 002 Geology Laboratory	1
GEOL 006 Earth Science	3
GEOL 006L Earth Science Laboratory	1
PHSC 012 Introduction to Principles of Physical Science	4
PHSC 015 Global Climate Change	3
PHSC 016 Natural Disasters	3

Solano General Education 21

Electives (as needed to reach 60 units) 5

Total Degree Units Solano GE 60

Physical Science

PHSC 012

4.0 Units

Introduction to Principles of Physical Science

General Education: Option A: Area A; Option B: Area 5A, 5C;

Option C: Area B1, B3

Transferable to UC/CSU

Hours: 48-54 lecture, 48-54 lab

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. Meets the physical science requirement for general education for non-science majors. Field trips may be required.

PHSC 013 Weather and Climate

3.0 Units

Corequisite: PHSC 014

General Education: Option B: Area 5A; Option C: Area B1

Transferable to UC/CSU

Hours: 48-54 lecture

An introduction to modern meteorology. Topics include air circulation, pressure and wind, temperature, moisture, fronts, storm systems, cloud types, and air stability. The course will also include an introduction to interpreting weather maps, synoptic weather forecasting, and climate change.

PHSC 014 Atmospheric Science Laboratory 1.0 Unit

Corequisite: PHSC 013, PHSC 015 or PHSC 016

General Education: Option B: Area 5C; Option C: Area B3

Transferable to UC/CSU

Hours: 48-54 lab

Emphasizes the practical concepts of physical science and weather using demonstration and experimentation. Topics include the scientific method, Newton's laws of motion, heat and energy transfer, the gas law, and fluid dynamics. Other experiments will demonstrate weather observation techniques, collection and analysis of atmospheric data, weather map study, cloud identification, interpretation of satellite imagery, and basic forecasting skills. This course includes a field trip to a local forecasting facility.

PHSC 015 Global Climate Change

3.0 Units

Course Advisory: Concurrent enrollment in PHSC 014

General Education: Option B: Area 5A; Option C: Area B1

Transferable to UC/CSU

Hours: 48-54 lecture

Explores the principles underlying the interdisciplinary and rapidly growing field of climate science and climate change. Topics include the Earth's climate system and climate history, the physics and chemistry of greenhouse gases, and evidence for climate change. The course investigates human influences on the climate system, including greenhouse gas emissions, and potential impacts of climate change. It also considers various possible responses to climate change, including alternative energy production, policy responses, and adaptation. Field trips may be required.

PHSC 016 Natural Disasters

3.0 Units

Course Advisory: Concurrent enrollment in PHSC 014

General Education: Option B: Area 5A; Option C: Area B1

Transferable to UC/CSU

Hours: 48-54 lecture

An introduction to the hazards created by the earth's natural and physical processes covering a broad scientific understanding of earthquakes, volcanoes, hurricanes, tsunamis, tornadoes, flooding, wildfires, and other disasters. Other topics will include threats from the earth's changing climate and potential impacts from asteroids and comets. Atmospheric and geological processes that create these catastrophes will also be discussed. The concept of science and the scientific method will be introduced and applied to the course material. Field trips may be required.