

# Physical Science

Physical science, the study of the nature and properties of energy and nonliving matter, is an interdisciplinary field that includes astronomy, geology, physics, and chemistry. Students take physical science courses to explore the discipline, satisfy general education requirements, and meet one of the science requirements for the liberal studies (K-5) teaching major.

Academic and Career Pathway: Math and Sciences

Contact Information

**Chairs:** Kristine Arquero (Chemistry), Erika Peters (Physical Sciences)  
**Dean:** Michael Fino  
<https://www.miracosta.edu/academics/degree-and-certificate-programs/math-and-sciences/physical-science/index.html>

**Department:** Chemistry and Physical Sciences  
**Office:** Building OC3600, 760.757.2121 x6924

Certificates

Certificate of Achievement  
Sustainability Studies

Sustainability entails lifelong behaviors that ensure societal well-being and survival in the natural world. This certificate prepares students to make sustainability decisions regarding the physical, social, and economic environments in which they live. Students are strongly encouraged to work with a MiraCosta counselor to ensure that this pathway certificate is incorporated into their selected general education pattern.

Program Student Learning Outcome Statement

- ▶ Upon completion of this program, the student will be able to analyze sustainability issues and evaluate the effect on physical, social, and economic environments.

Select one course:		3
EART 106	Earth and Space Science	
EART 106H	Earth and Space Science (Honors)	
GEOG 101	Physical Geography	
PHSN 106	Introduction to Physical Science: Physics and Chemistry	
PHSN 108	Introduction to Climate Change	
PHSN 108H	Introduction to Climate Change (Honors)	
Select one combined lecture and lab course or a correlating lecture and lab course.		3-4
BIO 102	Introductory Biology: Ecology and Environmental Biology	
BIO 108 & 108L	Introductory Biology: Ocean Ecology and Sustainability and Introductory Biology: Ocean Ecology and Sustainability Lab	
HORT 115	Soil Science	
Complete the courses below.		6

DESN 107	History of Western Architecture-A Sustainable Perspective	
GEOG 108	Environmental Sustainability and Society	
<b>Total Units</b>		<b>12-13</b>

Courses

PHSN 106: Introduction to Physical Science: Physics and Chemistry

Units: 3  
Prerequisites: None  
Advisory: ACE 150, ENGL 50, ESL 150, or eligibility determined by the English placement process.  
Acceptable for Credit: CSU, UC  
Lecture 3 hours.  
Course Typically Offered: Fall, Spring

This course introduces the non-scientist to the fundamental concepts of physics and chemistry. Physics topics include motion, force, work, energy, gravity, electricity, magnetism, light, and subatomic particles and forces. Chemistry topics include chemical and physical properties of elements and compounds, the periodic table, atomic theory and structure, chemical bonding, and nuclear structure and processes. This course also teaches students how to analyze and solve problems using critical thinking and the scientific method. UC CREDIT LIMITATION: No credit if taken after college course in chemistry or physics.

PHSN 108: Introduction to Climate Change

Units: 3  
Prerequisites: None  
Enrollment Limitation: Not open to students with prior credit in PHSN 108H.  
Acceptable for Credit: CSU, UC  
Lecture 3 hours.  
Course Typically Offered: Fall or Spring

This course 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. UC CREDIT LIMITATION: Credit for PHSN 108 or PHSN 108H.

### **PHSN 108H: Introduction to Climate Change (Honors)**

Units: 3

Prerequisites: None

Enrollment Limitation: Not open to students with prior credit in PHSN 108.

Acceptable for Credit: CSU, UC

Lecture 3 hours.

Course Typically Offered: Fall or Spring

This course offers highly motivated students an enriched opportunity to explore 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. Students investigate and evaluate various possible responses to climate change, including alternative energy production, policy responses, and adaptation. UC CREDIT LIMITATION: Credit for PHSN 108 or PHSN 108H.

### **PHSN 292: Internship Studies**

Units: 0.5-3

Prerequisites: None

Corequisite: Complete 75 hrs paid or 60 hrs non-paid work per unit.

Enrollment Limitation: Instructor, dept chair, and Career Center approval. May not enroll in any combination of cooperative work experience and/or internship studies concurrently.

Acceptable for Credit: CSU

Course Typically Offered: To be arranged

This course provides students the opportunity to apply the theories and techniques of their discipline in an internship position in a professional setting under the instruction of a faculty-mentor and site supervisor. It introduces students to aspects of the roles and responsibilities of professionals employed in the field of study. Topics include goal-setting, employability skills development, and examination of the world of work as it relates to the student's career plans. Students must develop new learning objectives and/or intern at a new site upon each repetition. Students may not earn more than 16 units in any combination of cooperative work experience (general or occupational) and/or internship studies during community college attendance.