Santa Monica College
Physics 2.0 AS-T
Effective Fall 2026

The Associate in Science in Physics for Transfer Degree focuses on a scientific understanding of mechanics, electromagnetism, optics, thermodynamics, and fluid dynamics. Students majoring in physics will study Newton's Laws of Motion, Conservation Principles, Maxwell's Equations, image formation, diffraction, heat transport, and the arrow of time. The program will focus on the application of scientific methods to perform precise experiments and construct complete models of natural phenomena.

Upon completion of the Associate in Science in Physics for Transfer (AS-T), students will have a strong academic foundation in the field and be prepared for upper division baccalaureate study. Completion of the degree indicates that the student will have satisfied the lower division requirements for transfer into physics or similar major for many campuses in the California State University system.

Associate Degree for Transfer Requirements:

- Completion of 60 semester units or 90 quarter units of degree-applicable courses,
- Minimum overall grade point average of 2.0,
- Minimum grade of "C" (or "P") for each course in the major, and
- Completion of Cal-GETC

Program Learning Outcomes:
Outline a logical process based on well-established physics principles and demonstrate the ability to use basic mathematical techniques when presented with a physical situation to solve a particular physics problem.
Apply the scientific method to construct a clear and testable hypothesis, collect and record accurate measurements, calculate and evaluate uncertainties, and interpret experimental data to draw evidence-based conclusions consistent with scientific principles in both laboratory experiments and written lab reports.

Required Core	**Units: 15.0**
PHYSCS 21 Mechanics with Lab	5.0
PHYSCS 22 Electricity and Magnetism with Lab	5.0
PHYSCS 23 Fluids, Waves, Thermodynamics, Optics with Lab	5.0

Math Requirements	**Units: 21.0**
MATH 7 Calculus 1	5.0
MATH 8 Calculus 2	5.0
MATH 11 Multivariable Calculus	5.0
MATH 13 Linear Algebra	3.0
MATH 15 Ordinary Differential Equations	3.0

Programming Concepts and Methodologies	**Units: 3.0**
CS 30 MATLAB Programming	3.0
or	
CS 52 C++ Programming	3.0
or	
CS 55 Java Programming	3.0
or	
CS 87A Python Programming	3.0

Total: 39.0