

# PHYSICS, ASSOCIATE OF ARTS OR SCIENCE (AA/AS)

PHYS 123	Heat, Light and Modern Physics	5
<b>Total Units</b>		<b>50.00-51.00</b>

## Overview

Physics is the foundation discipline which must be incorporated into the education of anyone preparing for a career in engineering, or science. It is equally true for the non-scientist having the responsibility to make meaningful decisions in society – the citizen in politics, the business person or social scientist who deals with problems of a society strongly linked to technology based on application of physical principles. A truly educated person preparing for life in the 21st century can hardly afford not to be aware of the statements of contemporary physics.

## Requirements

### Associate Degree Graduation Requirements

Complete all of the following:

- All Department Requirements listed below with a "C" or better or "P" in each course (at least 20% of the department requirements must be completed through SBCC).
- One of the following three General Education options:
  - OPTION 1: A minimum of 18 units of SBCC General Education Requirements (<https://catalog.sbccc.edu/degrees-certificates-awards/#associateddegreestext>) (Areas A-D) and Institutional Requirements (Area E) and Information Competency Requirement (Area F) OR
  - OPTION 2: IGETC (<https://catalog.sbccc.edu/transfer-curricula/#igetctext>) Pattern OR
  - OPTION 3: CSU GE Breadth (<https://catalog.sbccc.edu/transfer-curricula/#csugebtext>) Pattern
- A total of 60 degree-applicable units (SBCC courses numbered 100 and higher).
- Maintain a cumulative GPA of 2.0 or better in all units attempted at SBCC.
- Maintain a cumulative GPA of 2.0 or better in all college units attempted.
- A minimum of 12 units through SBCC.

Code	Title	Units
<b>Department Requirements</b>		
CHEM 155	General Chemistry I	5
CHEM 156	General Chemistry II	5
CS 105	Theory and Practice I	3-4
or CS 107	Computer Architecture and Organization	
or CS 137	C Programming	
or CS 140	Object-Oriented Programming Using C++	
MATH 150	Calculus with Analytic Geometry I	5
MATH 160	Calculus with Analytic Geometry II	5
MATH 200	Multivariable Calculus <sup>1</sup>	4
MATH 210	Linear Algebra <sup>1</sup>	4
MATH 220	Differential Equations <sup>1</sup>	4
PHYS 121	Mechanics Of Solids And Fluids	5
PHYS 122	Electricity and Magnetism	5

<sup>1</sup> MATH 250 and MATH 260 will also satisfy MATH 200 Multivariable Calculus and MATH 210 Linear Algebra and MATH 220 Differential Equations requirements.

## Learning Outcomes

- Demonstrate proficiency, both conceptually and mathematically with calculus, in solving static and dynamic mechanical problems involving both solids and fluids.
- Demonstrate proficiency, both conceptually and mathematically with calculus, in solving mechanical wave problems.
- Demonstrate proficiency, both conceptually and mathematically with calculus, in solving thermodynamic problems.
- Demonstrate proficiency, both conceptually and mathematically with calculus, in solving electric, magnetic and electromagnetic problems.
- Demonstrate proficiency, both conceptually and mathematically with calculus, in solving ray and wave optics problems.
- Demonstrate proficiency, both conceptually and mathematically with calculus, in solving modern physics problems.
- Demonstrate proficiency in construction and assembly of experimental apparatuses; conduct and analyze measurements of physical phenomena; assess experimental uncertainty; make meaningful comparisons between experiment and theory; and interpret results.

## Recommended Sequence

Make an appointment with your SBCC academic counselor through Starfish to create a Student Education Plan that reflects a recommended course sequence for this program that is tailored to your individual needs.

How to schedule an Academic Counseling appointment (<https://www.sbccc.edu/counselingcenter/counselingappointments.php>).