

# MATHEMATICS, ASSOCIATE OF SCIENCE (AS)

## Overview

The Mathematics department strives to provide our students with the educational background necessary to pursue a successful career and to successfully transition into a baccalaureate institution. Each year, the list of careers demanding familiarity with basic mathematical skills grows. Environmental sciences, architecture, business management, nursing, dentistry, computer programming, electronics, forestry management, psychology and photography represent only a small sample from this list.

## Requirements

### Associate Degree Graduation Requirements

Complete all of the following:

1. 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).
2. One of the following three General Education options:
  - a. OPTION 1: A minimum of 18 units of SBCC General Education Requirements (<https://catalog.sbccc.edu/degrees-certificates-awards/#associateddegreeestext>) (Areas A-D) and Institutional Requirements (Area E) and Information Competency Requirement (Area F) OR
  - b. OPTION 2: IGETC (<https://catalog.sbccc.edu/transfer-curricula/#igetctext>) Pattern OR
  - c. OPTION 3: CSU GE Breadth (<https://catalog.sbccc.edu/transfer-curricula/#csugebtext>) Pattern
3. A total of 60 degree-applicable units (SBCC courses numbered 100 and higher).
4. Maintain a cumulative GPA of 2.0 or better in all units attempted at SBCC.
5. Maintain a cumulative GPA of 2.0 or better in all college units attempted.
6. A minimum of 12 units through SBCC.

Code	Title	Units
<b>Department Requirements</b>		
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
Complete two courses from the following:		6-10
CHEM 155	General Chemistry I	
CS 104	Introduction to Programming	
CS 105	Theory and Practice I	
CS 106	Theory and Practice II	
CS 107	Computer Architecture and Organization	
CS 108	Discrete Structures	
CS 133	Introduction to Programming for Engineers	

CS 137	C Programming
CS 140	Object-Oriented Programming Using C++
MATH 180	Transition to Advanced Mathematics
PHYS 121	Mechanics Of Solids And Fluids
PHYS 122	Electricity and Magnetism
PHYS 123	Heat, Light and Modern Physics
<b>Total Units</b>	<b>28.00-32.00</b>

<sup>1</sup> MATH 250/MATH 260 will also satisfy these requirements.

## Learning Outcomes

1. Use symbolic, graphical, numerical and written representations to describe mathematical ideas.
2. Use mathematical reasoning to solve problems and apply a variety of problem-solving approaches to find and interpret solutions.
3. Use mathematics to model and solve problems in the sciences.
4. Use appropriate technology to enhance mathematical thinking and understanding, solve mathematical problems, and interpret their results.
5. Use the language and notation of differential and integral calculus correctly and use appropriate style and format in written work.
6. Recognize the roles of definitions, axioms and theorems, and identify and construct valid deductive arguments.

## 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>).