

# DATA SCIENCE, CERTIFICATE OF ACHIEVEMENT (C)

## Overview

The Data Science Certificate of Achievement will prepare students for today's data-driven world. The program is designed to enhance career opportunities in data science areas, including data and system analysis, data science research, business analytics, data engineering, database administration, statistical assistance, software engineering, and management. The core sequence covers data science foundational concepts, core programming practices, database management and an introduction to version control software. Skills mastered in this sequence of courses can be a first step toward a career in data science.

## Requirements

### Certificate of Achievement Requirements

Complete all Department Requirements for the Certificate of Achievement with a cumulative grade point average (GPA) of 2.0 or better. Candidates for a Certificate of Achievement are required to complete at least 20% of the department requirements through SBCC.

Code	Title	Units
<b>Department Requirements</b>		
<b>Core Courses</b>		
CIS 107 or CIS 117	Introduction to Database Systems Introduction to SQL Programming	2-4
CS 106 or CS 114	Theory and Practice II Intermediate Python	3
CS/MATH 118	Data Science for All	4
CS 134	Version Control with Git	2.5
Complete 3 courses from the following (not used to satisfy the Core Courses above)		8-14
COMM 288	Communication Research Methods	
CS 104	Introduction to Programming	
CS 105	Theory and Practice I	
CS 106	Theory and Practice II	
CS 108	Discrete Structures	
CS 114	Intermediate Python	
CS 133	Introduction to Programming for Engineers	
CS 137	C Programming	
CS 140	Object-Oriented Programming Using C++	
ERTH/GEOG 171	Introduction To Geographic Information Systems And Maps	
MATH 117 or PSY 150 or SOC 125	Statistics for the Behavioral Sciences Introduction to Statistics in Sociology	
MATH 150	Calculus with Analytic Geometry I	
MATH 160	Calculus with Analytic Geometry II	
MATH 180	Transition to Advanced Mathematics	
MATH 200	Multivariable Calculus	
MATH 210	Linear Algebra	

MATH 220	Differential Equations
PSY 200	Research Methods and Experimental Design in Psychology
SOC 115	Introduction To Social Research
<b>Total Units</b>	<b>19.50-27.50</b>

## Learning Outcomes

1. Apply foundational data science concepts including computing summary statistics, creating data visualizations, simulating experiments, and probability concepts.
2. Use foundational programming concepts to explore and analyze real-world datasets using problem decomposition, and code design strategies.
3. Design, create, query, and manage databases for analytic processing using SQL.
4. Understand and employ proper version-control configuration and operations using a version control system such as Git.
5. Understand limitations and issues surrounding data analysis in terms of bias, ethics, establishing causality and privacy.

## 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>).