

COMPUTER SCIENCE, ASSOCIATE IN SCIENCE DEGREE

Banner Code: 2_AS_CS
Financial Aid Eligible

The Computer Science Department provides students opportunities to study the computing environment for business and scientific solution automation. Students who enroll in the Associate in Science in Computer Science degree prepare for transfer education at a four-year university. An advanced degree such as a baccalaureate degree will prepare students for careers related to business and science programming solutions, and management. Computer Science Majors are introduced to computing history and evolution, software development, structures and procedures for data manipulation, object oriented methodology, symbolic logic tools for computational algorithms, and computing solutions at machine language level of implementation. Critical thinking and problem solving skills are acquired through individual and group project assignments. Students are encouraged to develop academic and programming skills enabling them to be successful in further study or employment. Students will be prepared to transfer in order to complete a baccalaureate degree in Computer Science.

Program Level Learning Outcomes

Upon completion of this program, students will be able to:

1. Design software components and specification to satisfy small business and scientific problem requirements.
2. Design and implement algorithms that include basic computation techniques, simple I/O, conditional and iterative structures, and the definition of functions.
3. Utilize object oriented principles for class hierarchies and inheritance.
4. Implement programs at machine language level using fundamental high-level programming constructs.
5. Describe formal tool of symbolic logic as they relate to real-life situation, program correctness, database queries, and algorithms.

Review Graduation Requirements (<https://catalog.cccd.edu/golden-west/graduation-requirements/associate-degree/>) and General Education (<https://catalog.cccd.edu/golden-west/general-education/>).

Course	Title	Units
Required Courses		
CS G153	Java Programming 1	3
CS G154	Java Programming 2	3
or CS G189	C++ Programming 2	
CS G242	Computer Architecture and Organization	3
CS G262	Discrete Structures	3
MATH G180	Calculus 1	4
MATH G185	Calculus 2	4
PHYS G185	Calculus Based Physics: Mechanics	4
PHYS G280	Calculus Based Physics: Electricity/ Magnetism	4
Major Total		28

Course	Title	Units
GE Pattern (Local, CSU GE-Breadth, or IGETC)		18-39
Total Units		60

Recommended Program Sequence

These sequences are general course maps for students to finish all major and general education requirements for two-year completion of degrees, completion of short-term certificates, and/or fulfillment of transfer requirements. However, this may not be an appropriate path for all students. The two-year sequence is based on English and Math placement and meeting other course prerequisites. **Students are advised to meet with a GWC Counselor to review course selections and sequences to ensure that completion of this program will meet a student's transfer and career goals.**

Year 1:

Course	Title	Units
Semester 1		
CS G175	C++ Programming 1	3
or CS G153	Java Programming 1	
MATH G180	Calculus 1	4
ENGL G100	Freshman Composition [^]	4
Elective coursework for a total of 3 units		3
Units		14

Course	Title	Units
Semester 2		
CS G189	C++ Programming 2	3
or CS G154	Java Programming 2	
PHYS G185	Calculus Based Physics: Mechanics	4
Area E: Lifelong Understanding and Self-Development or Area A: English Language, Area B: Natural Sciences, Area C: Arts & Humanities, Area D: Social & Behavioral Sciences		3
Area C: Arts & Humanities course		3
Elective coursework for a total of 3 units		3
Units		16

Year 2:

Course	Title	Units
Semester 3		
CS G242	Computer Architecture and Organization	3
MATH G185	Calculus 2	4
Area D: Social & Behavioral Sciences course		3
Elective coursework for a total of 3 units		3
Units		13

Course	Title	Units
Semester 4		
CS G262	Discrete Structures	3
PHYS G280	Calculus Based Physics: Electricity/ Magnetism (Spring)	4
Cultural Diversity requirement [#]		3
Elective coursework for a total of 3 units		3

Course	Title	Units
<i>Units</i>		<i>13</i>
Total minimum units required		60

[^] Program sequence may not be recommended for students who self-place into ENGL G100S. Students should see a Counselor for appropriate advisement.

[#] Cultural Diversity requirement (<https://catalog.cccd.edu/golden-west/general-education/associate-degree/>) list of approved courses.