

BS IN COMPUTER SCIENCE

Units required for Major: 81

Program Description

The Bachelor of Science degree in Computer Science is accredited by the Computing Accreditation Commission (CAC) of ABET, Inc. (<http://www.abet.org>), providing majors with a sound educational base in Computer Science.

Note: Students graduating with a Bachelor of Science Computer Science will not be subject to the University's Foreign Language Graduation Requirement. Students who change major may be subject to the University's Foreign Language Graduation Requirement.

Course Repeat Policy: Please see University Repeat Policy for more information.

Note: Useful information can also be found in the College of Engineering and Computer Science section.

Work Experience: Students may receive a limited amount of academic credit for relevant work experience in Computer Science. There are many opportunities for students to work part-time in the federal, state, and local governments. A significant number of positions in private industry are also available in both well-established and new companies in the Sacramento area. Such work experiences often lead to permanent positions upon graduation.

Pre-Major Requirements

All students are admitted as pre-Computer Science majors. Registration in upper-division courses numbered 133 and above is restricted to Computer Science and Computer Engineering majors. Other students need to obtain approval from the CSC Department Chair.

To change to the Computer Science major, students who have completed the following lower division (pre-major) requirements are required to complete and submit a Change of Major form to the Computer Science Department Office along with transcript copies:

Code	Title	Units
CSC 15	Programming Concepts and Methodology I	3
CSC 20	Programming Concepts and Methodology II	3
CSC 28	Discrete Structures for Computer Science	3
CSC 35	Introduction to Computer Architecture	3
CSC 60	Introduction to Systems Programming in UNIX	3
MATH 26A/30	Calculus I for the Social and Life Sciences	3
MATH 26B/31	Calculus II for the Social and Life Sciences	3

Minimum Grade Requirement

Grade of "C-" or better required in all courses applied to the Computer Science major.

Program Requirements

Code	Title	Units
Required Lower Division Courses (15 Units)		
CSC 15	Programming Concepts and Methodology I	3
CSC 20	Programming Concepts and Methodology II	3

CSC 28	Discrete Structures for Computer Science	3
CSC 35	Introduction to Computer Architecture	3
CSC 60	Introduction to Systems Programming in UNIX	3

Required Mathematics and Science Courses (24 Units)

MATH 26A or MATH 30	Calculus I for the Social and Life Sciences Calculus I	3
MATH 26B or MATH 31	Calculus II for the Social and Life Sciences Calculus II	3
STAT 50 or ENGR 115	Introduction to Probability and Statistics Statistics For Engineers	4
PHYS 5A or PHYS 11A	General Physics: Mechanics, Heat, Sound General Physics: Mechanics	4
Select 10 units of the following: ¹		10
Any MATH or STAT course with calculus as a prerequisite		
CHEM 1A	General Chemistry I	
CHEM 1E	General Chemistry for Engineering	
CSC 148	Modeling and Experimental Design	
PHIL 160	Deductive Logic II	
PHYS 5B	General Physics: Light, Electricity and Magnetism, Modern Physics	
PHYS 11B	General Physics: Heat, Light, Sound, Modern Physics	
PHYS 11C	General Physics: Electricity and Magnetism	
PHYS 106	Introduction to Modern Physics	
PHYS 162	Scientific Computing: Basic Methods	
PHYS 163	Scientific Computing: Modeling, Simulation, and Visualization	

Required Upper Division Courses (33 Units)

CSC 130	Data Structures and Algorithm Analysis	3
CSC 131	Computer Software Engineering	3
CSC 133	Object-Oriented Computer Graphics Programming	3
CSC 134	Database Management Systems	3
CSC 135	Computing Theory and Programming Languages	3
CSC 137	Computer Organization	3
CSC/CPE 138	Computer Networks and Internets	3
CSC 139	Operating System Principles	3
CSC 190	Senior Project: Part I	2
CSC 191	Senior Project-Part II	2
PHIL 103	Business and Computer Ethics	3
Select two units from the following:		2
CSC 192	Career Planning	
CSC 194	Computer Science Seminar	
CSC 195	Fieldwork in Computer Science	
CSC 195A	Professional Practice	
CSC 198	Co-Curricular Activities in Computer Science	
CSC 199	Special Problems	

Electives (9 Units)

Select 9 units of CSC courses 140 or above excluding the following: ²		
CSC 192	Career Planning	9
CSC 194	Computer Science Seminar	
CSC 195	Fieldwork in Computer Science	
CSC 195A	Professional Practice	
CSC 198	Co-Curricular Activities in Computer Science	

CSC 199	Special Problems	
Total Units		81

- ¹ In addition to the math and science courses (minimum 14 units), students must choose elective courses to bring the total number of math and science units to a minimum of 24.
- ² In addition to the required lower-division and upper-division Computer Science courses, Computer Science majors must take additional elective courses, totaling at least nine (9) units, from undergraduate Computer Science courses numbered CSC 140 or above (excluding the listed courses).

Note: To satisfy the requirement of CAC, the Computing Accreditation Commission of ABET, which accredits computer science programs, one or more electives must be from MATH (<http://catalog.csus.edu/courses-a-z/math>), STAT (<http://catalog.csus.edu/courses-a-z/stat>) or PHIL (<http://catalog.csus.edu/courses-a-z/phil>) (MATH 100 Recommended). Courses may not be selected with significantly overlapping topics. Students who select MATH 26A and MATH 26B for their calculus sequence must take STAT 50 and PHYS 5A. The following are recommended for students considering graduate school or an engineering major:

Code	Title	Units
MATH 30	Calculus I	4
MATH 31	Calculus II	4
PHYS 11A	General Physics: Mechanics	4
PHYS 11C	General Physics: Electricity and Magnetism	4

The following are recommended for students considering a math or statistics minor:

Code	Title	Units
MATH 30	Calculus I	4
MATH 31	Calculus II	4
STAT 50	Introduction to Probability and Statistics	4

The following are recommended for students considering a scientific computing and simulation certificate and willing to take PHYS 163 as an additional course:

Code	Title	Units
Select one of the following:		4
PHYS 5B	General Physics: Light, Electricity and Magnetism, Modern Physics	
PHYS 11B	General Physics: Heat, Light, Sound, Modern Physics	
PHYS 11C	General Physics: Electricity and Magnetism	
PHYS 162	Scientific Computing: Basic Methods	3

If CSC 148 is chosen as an elective to meet the math and science requirements, it cannot be used for a computer science elective. An undergraduate handbook with further course selection advice is available at the department website.

Course choices should be made with advisor consultation. With advance written approval from their advisor, the course instructor, and the Department Chair, students with a GPA of 3.0 or greater may take graduate courses as electives. In any case students must meet the prerequisite stated in the catalog prior to taking any elective course.