COMPUTER SCIENCE

Computer Science is the study of the design and use of computer software and hardware. Computer Science students will be offered an introductory foundation for the field of Computer Science through the study of object-oriented programming, discrete math and the functionality, organization, and implementation of computer systems. The student will acquire the knowledge and skill sets necessary for success in a baccalaureate-level Computer Science program.

Contact Information

Mathematics and Engineering Division Chair

Chris Keen | (559) 737-4858 | chriske@cos.edu
Kaweah: 202D | Visalia Campus

Dean of Science, Mathematics, and Engineering

Francisco Banuelos | (559) 730-3942 | franciscob@cos.edu
John Muir: 133 | Visalia Campus

Related Areas of Study: Computer (https://catalog.cos.edu/areas-study/computer/) and Information Communications Technology (https://catalog.cos.edu/areas-study/information-communications-technology/)

Associate Degrees

- Associate in Science in Computer Science for Transfer (AS-T) (https://catalog.cos.edu/areas-study/computer-science/associate-science-computer-science-transfer-as-t/)

For a complete list of courses and descriptions visit: COURSES (https://catalog.cos.edu/course-descriptions/)

CSCI 001 Programming Concepts/Method 1   **4unit(s)**
Hours: 3 Lecture/Discussion Hours:
        3 Lab

Introduction to object-oriented programming and problem solving using C++. Algorithm development and object-oriented program design implemented through coding, debugging and documentation of this high level programming language. (C-ID COMP122)
Advisory on Recommended Preparation: COMP 006 or equivalent college course with a minimum grade of C.
Prerequisites: MATH 070 or [MATH 035 and MATH 054] or equivalent college (Precalculus) course with a minimum grade of C or eligibility for MATH 065 as determined by COS Placement Procedures (https://catalog.cos.edu/placement-procedures/).

CSCI 002 Programming Concepts/Method 2   **4unit(s)**
Hours: 3 Lecture/Discussion Hours:
        3 Lab

Data structures and object-oriented programming using C++. Application of software engineering techniques to the design and development of large programs; data abstraction, structures and associated algorithms. Approved for Distance Learning format. (C-ID COMP132)
Prerequisites: CSCI 001 or equivalent college course with a minimum grade of C.

CSCI 005 Computer Architecture and Organization   **3unit(s)**
Hours: 3 Lecture/Discussion
Equivalent Course: CSCI 105
The organization and behavior of real computer systems at the assembly-language level. The mapping of statements and constructs in a high-level language onto sequences of machine instructions is studied, as well as the internal representation of simple data types and structures. Numerical computation is examined, noting the various data representation errors and potential procedural errors.

CSCI 006 Discrete Structures   **3unit(s)**
Hours: 3 Lecture/Discussion
This course is an introduction to the discrete structures used in Computer Science with an emphasis on their applications. Topics covered include: Functions, Relations and Sets, Basic Logic, Proof Techniques, Basics of Counting, Graphs and Trees, and Discrete Probability.
Prerequisites: CSCI 001 or equivalent college course with a minimum grade of C.

CSCI 020 MATLAB Programming   **3unit(s)**
Hours: 2 Lecture/Discussion Hours:
        3 Lab

Equivalent Course: ENGR 020
This course utilizes the MATLAB environment to provide students with a working knowledge of computer-based problem-solving methods relevant to science and engineering. It introduces the fundamentals of procedural and object-oriented programming, numerical analysis, and data structures. Examples and assignments in the course are drawn from practical applications in engineering, physics, and mathematics. (C-ID: ENGR 220)
Prerequisites: MATH 065 or equivalent college course with a minimum grade of C.

CSCI 030 Python Programming with Applications   **3unit(s)**
Hours: 2 Lecture/Discussion Hours:
        3 Lab

This course presents an introduction to computer programming using Python. It covers the basics of implementing code as well as applications to various applications. Topics include variables, functions, conditions and iteration, input and output, classes, the software life cycle, and selected algorithms. No prior coding experience is required.

Computer Science

Jones, David
B.S., University of California, Merced
M.S., University of California, Santa Cruz

Redden, John
B.A., California State University, Northridge
M.S., California State University, Northridge