

# COMPUTER SCIENCE (CSCI)

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**CSCI 123 F Introduction to Programming Concepts in C++ 4 Units**

**Prerequisite(s):** MATH 141 F or MATH 141HF or MATH 142 F, or MATH 143 F, with a grade of C or better.

72 hours lecture per term. This course is an introduction to the basic principles of programming using C++ as the development tool. Topics include the structure and design of algorithms, input/output, branching structures, functions, recursion, built-in data types, arrays, structures, files, pointers and elementary operations on linked structures. The object-oriented programming paradigm will be introduced. Topics include encapsulation, polymorphism, libraries, streams, inheritance and abstract data types. Students will design algorithms, write external and internal documentation and design and write source code in C++. (Degree Credit) (CSU) (UC) AA GE (C-ID: COMP 122)

**CSCI 133 F Data Structures in C++ 4 Units**

**Prerequisite(s):** CSCI 123 F with a grade of C or better

72 hours lecture per term. This is a course in algorithm design and data structures implemented using C++. Data structures examined are arrays, linked lists, stacks, queues, trees, tables, and graphs. Algorithm topics include hashing, sorting, heaps, searches and algorithm efficiency using Big-O notation. Students will create and modify class libraries to implement these structures. (Degree Credit) (CSU) (UC) (C-ID: COMP 132)

**CSCI 223 F C Language for Math and Science 4 Units**

**Prerequisite(s):** CSCI 123 F with a grade of C or better or one prior programming language

72 hours lecture per term. This course is an introduction to the C programming language. One of the latest C compilers will be used on a personal computer. Topics include data types, functions, pointers, bit manipulation and file I/O. Students will design, code and test program applications in the mathematics, scientific and engineering environments. (Degree Credit) (CSU) (UC)

**CSCI 241 F Computer Organization and Assembly Language Programming 4 Units**

**Prerequisite(s):** CSCI 133 F or CSCI 223 F with a grade of C or better.

72 hours lecture per term. This course is an introduction to assembly language programming. It includes reviews of computer organization, programming techniques and concepts, addressing techniques, input/output, hardware architecture, and data structures. (Degree Credit) (CSU) (UC) (C-ID: COMP 142)