

COMPUTER SCIENCE (CSCI)

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 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

Equivalent Course: CSCI 106

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.