

# Computer Science Courses

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## **COSC 1301 - Introduction to Computing**

Hours: 3

An introduction to computers, network communications, and information systems. This course provides the student with knowledge about hardware, software and data management systems. The student is provided experience with an operating system environment, application software including productivity tools, and the use of the internet to communicate and search for information. This course will not count toward a major or minor in computer science or computer information systems.

## **COSC 1436 - Introduction to Computer Science and Programming**

Hours: 4

Introduces the fundamental concepts of structured programming. Topics include software development methodology, data types, control structures, functions, arrays, files, and the mechanics of running, testing, and debugging. This course assumes computer literacy (CSCI 126 / COSC 1301).

## **COSC 1437 - Programming Fundamentals II**

Hours: 4

Review of control structures and data types with emphasis on structured data types. Applies the object-oriented programming paradigm, focusing on the definition and use of classes along with the fundamentals of object-oriented design. Includes basic analysis of algorithms, searching and sorting techniques, and an introduction to software engineering. Prerequisites: CSCI 151 or COSC 1436.

## **COSC 2325 - Introduction to Machine Language and Digital Logic.**

Hours: 3

This course teaches the concepts of assembly and machine language and digital logic as they relate to a modern digital computer. The machine representation of instructions and data are presented along with many of the fundamental concepts such as machine instruction addressing, stack operations, subroutines and procedures. The Digital Logic section of this course introduces elementary logic gates (AND, OR, NAND, NOR, XOR) and shows how they are used to construct more sophisticated working components of a modern digital computer (Flip Flops, Registers, Counters, Adders). Students will then learn how these components are used to implement the Hardware Machine Cycle which translates a software instruction into a series of hardware functions. Prerequisites: CSCI 151 or COSC 1436.

## **COSC 2336 - Data Structures and Algorithms**

Hours: 3

Further applications of programming techniques, introducing the fundamental concepts of data structures and algorithms. Topics include recursion, fundamental data structures (including stacks, queues, linked lists, hash tables, trees, and graphs), and algorithmic analysis. Prerequisites: CSCI 152 or COSC 1337 or COSC 1437.