Computer Science
A.S. Degree Major or Certificate of Achievement
Effective Fall 2014

**Required Core Courses**
- CSCI 112 Programming Fundamentals I (4)
- CSCI 114 Programming Fundamentals II (4)
- CSCI 210 Data Structures (4)
- CSCI 212 Machine Organization & Assembler Language (4)
- CSCI 222 C++ & Object-Oriented Programming (4)

**Elective Courses (Select 3)**
- CSCI 130 Linux Fundamentals (3)
- CSCI 230 Java GUI Programming (3)
- CSCI 235 Android Development (3)
- CSCI 260 Video Game Programming I (3)
- CSCI 272 Objective C Programming for Mac (3)
- CSCI 275 iOS Development (3)
- CSNT 111 Networking Fundamentals (3)
- MATH 245 Discrete Math (3)
Computer Science Core Courses

CSCI 112 Programming Fundamentals I (4 units)
Introduction to the basic concepts of Computer Science, the fundamental techniques for problem solving, and the software development process. Includes the syntax and semantics of a high-level programming language focusing on basic control structures, data types, and input/output.

CSCI 114 Programming Fundamentals II (4 units)
Object-oriented programming, focusing on classes, instances, methods, interfaces, encapsulation, overloading, file I/O, inheritance, polymorphism, and exception handling.

CSCI 210 Data Structures (4 units)
A systematic study of data structures, including arrays, stacks, recursion, queues, linear and non-linear linked lists, b binary trees, hashing, comparative study of searching and sorting algorithms, graphs, Huffman codes, introductory analysis of algorithms, introduction to the complexity of algorithms including big "O" notation, time and space requirements, and object-oriented design of abstract data types. Focus on object-oriented programming and its principles of objects, classes, encapsulation, inheritance and its relationship to the Java programming language. Includes hands-on laboratory experience reinforcing the lecture material.

CSCI 212 Machine Organization & Assembler Language (4 units)
An introduction to Assembly Language programming. Language syntax is covered, together with a study of the instruction set mnemonics, segment, index, pointer, general purpose and flag registers. A variety of memory addressing techniques will be covered, as well as stack operations, particularly those associated with passing parameters to subroutine calls. Also includes I/O to screen, printer, and disk interfaces. Emphasis will be placed on interaction between the student's code and the operating system's supplied functions for I/O to peripheral devices. Use of editor and debugging tools will also be addressed.

CSCI 222 C++ & Object-Oriented Programming (4 units)
Detailed study of the C++ programming language and its support for data abstraction and object-oriented programming. Presents an introduction to the fundamental elements of object-oriented programming including encapsulation, classes, inheritance, polymorphism, templates, and exceptions.