COURSE OUTLINE

CMSY-181

Introduction to C++ Programming

4 Credits

HOWARD COMMUNITY COLLEGE

Course Description

This course provides an introduction to the C++ programming language—from basic algorithm development to object-oriented programming. Upon successful completion, students will be able to write C++ programs of moderate complexity and length which include standard data types, control structures, user written and library functions, arrays, pointers, structures, recursion, stream I/O, and simple classes and objects. Prerequisite: CMSY-121 or CMSY-190. (3 hours lecture, 2 hours lab)

Overall Course Objectives

Upon completion of this course, the student will be able to:

1. Demonstrate the use of an IDE to create a C++ program.
2. Declare and use variables of different data types.
3. Prepare programs which process input received from the keyboard and/or a text file and write output to the screen and/or a text file.
4. Demonstrate the use of selection constructs: if/else, conditional operator, and switch.
5. Demonstrate the use of looping constructs: while, do while, and for loop.
6. Create programmer-defined functions and use functions from the C++ standard library.
7. Demonstrate an understanding of arrays and how to use them using both array notation and pointer notation.
8. Demonstrate a basic understanding of recursive functions.
9. Demonstrate an understanding of pointers and the use of pointers in dynamic memory allocation.
10. Create programmer-defined structures, unions, and enumerations.
11. Prepare programs using classes and objects.
12. Demonstrate an understanding of constructors, destructors, instance and static members, friends of classes, and basic operator overloading.

Major Topics

I. Using an IDE
II. C++ Programming Basics (defining variables, data I/O, arithmetic expressions, etc.)
III. Selection Constructs (if/else, conditional operator, and switch)
IV. Repetition (while, do while, and for loop)
V. Functions
VI. Arrays
VII. Recursion
VIII. Pointers
IX. Structures, Unions, and Enumerations
X. Introduction to Classes, Objects, and Object-Oriented Programming (OOP)

Course Requirements

Grading/exams: Grading procedures will be determined by the individual faculty member but will include at least eight projects and two exams.

Other Course Information

Meets the College definition of an Arts and Science Elective and a Business Elective.

This course is cross-listed as CMSY 141. Students majoring in ISM –Programming should sign up for CMSY 181. Students majoring in Computer Science should sign up for CMSY 141.