

CUMBERLAND COUNTY COLLEGE

Course: CS 212 C++ Programming

Credits: 4

Prerequisites: CS 112 or permission from the instructor.

Description:

This course introduces programming in C++ from an object-oriented perspective to students with some prior exposure to programming. Students will specify, design, write, debug, and execute assigned programming projects. Topics include simple data types, control structures, array and string and file data structures, and pointers to dynamic memory structures. Sorting and search algorithms will be examined to further develop understanding and skills in C++ programming with a variety of data structures. The course emphasizes good software engineering principles and developing fundamental programming skills in the context of a language that supports the object-oriented paradigm.

Learning Outcomes

At the completion of this course, students will be able to:

- Develop algorithms and demonstrate a valid problem-solving process.
- Implement accurate and effective sequence, selection and repetition structures.
- Create viable functions.
- Create and manipulate arrays & strings.
- Create and manipulate sequential access files.
- Demonstrate an understanding of elementary Object-Oriented Programming.
- Use separate compilation and good programming style to develop an Object-Oriented solution to an assigned problem.
- Demonstrate how C++ pointers and dynamic memory structures are used to solve appropriate problems.

Topical Outline

Introduction to Computers, Problem Solving, and Programming

Overview of C++

Top-Down Design with Functions and Classes

Selection Structures: if and switch Statements

Repetition and Loop Statements

Modular Programming;

Simple Data Types

Streams and Files

Data Structures: Arrays and Structs
User-Defined Classes
Data Abstraction and Object-Oriented Design
Introduction to Recursion
Pointers and Dynamic Data Structures (time permitting)

Text:

Frank L. Friedman and Elliot B. Koffman,
[Problem Solving, Abstraction, and Design using C++](#) (6th Edition)
Addison-Wesley: 2011, ISBN-13: 978-0-13-607947-7

Student Assessment

(Assessment may be accomplished through projects, portfolios, exams, presentations and/or papers)

Academic Integrity

Plagiarism is cheating. Plagiarism is presenting in written work, in public speaking, and in oral reports the ideas or exact words of someone else without proper documentation.

Whether the act of plagiarism is deliberate or accidental [ignorance of the proper rules for handling material is no excuse], plagiarism is, indeed, a “criminal” offense.

As such, a plagiarized paper or report automatically receives a grade of **ZERO** and the student may receive a grade of **F** for the semester at the discretion of the instructor.

Tutoring & Project Assist

If you are having difficulty with work in this class tutoring is available through the Center for Academic & Student Success. If you think that you might have a learning disability, contact Project Assist at 856.691.8600 x 1282 for information on assistance that can be provided to eligible students.

Before Withdrawing From This Course

If a student experiences adverse circumstances while enrolled in this course and considers withdrawing, s/he should see an advisor (division or advisement center) BEFORE withdrawing from the class. A withdrawal may cause harmful repercussions to completion rate standards and overall GPA which can limit or eliminate future financial aid in addition to causing academic suspension.