NorthWest Arkansas Community College
Business & Computer Information Systems Division

Computer Information Department Course Outline

PROG 2203 C++ Programming II (S)

Catalog Description

This course is a continuation of PROG 1203 (C++ Programming). After a review, the student is introduced to more advanced programming concepts essential for students seeking a career in software development. Topics include: Object oriented programming and design, database access, lists, queues, trees, hash tables, graphs, recursion, and searching/sorting algorithms. Big O notation will also be discussed. (Outside lab time will be required.)

Prerequisites

PROG 1203 C++ Programming, or prior equivalent programming experience with Instructor Approval

Credit hours/Contact hours/Load hours

3/3/3

Target Audience/Transferability

This course is for students seeking training in application development, and is applicable to students seeking self-improvement or an AAS Degree in Computer Information.

Student Learning Outcomes

The student will:

- Create Classes incorporating the related data and the methods used to manipulate them given any program manipulating data.
- Create a program to read/write complex data to/from external file into a collection of objects
- Create a program to read/write complex data to/from a database into a collection of objects
- Manipulate Objects to create Linked Lists, Stacks, Queues, Trees, and Graphs
- Create and use pointers internal to the class to arrange the data into a List, Queue, Stack or Tree interchangeable as needed
- Identify, explain, and apply searching and sorting algorithms
- Describe the running time of algorithms using Big O notation
- Determine the Big O notation of user-defined function

Topics

- Object Oriented Programming
- Big O notation
- Classes: design, creation, and use
- Database access and manipulation
- Complex manipulation of objects using Arrays, Linked Lists, Stacks, Queues, Trees and Graphs
- Manipulation of dynamically-created data structures using pointers

Forms of Assessment

Chapter quizzes
Programming projects
Final programming project