

Northwest Arkansas Community College
Business and Computer Information Systems Division

Discipline Code

PROG

Course Number

2203

Course Title

C++ Programming II

Catalog Description

(S) 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, 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.

Prerequisites

PROG 1203

Credit Hours

3 Credit Hours

Contact hours

45 Lecture/Lab Contact Hours

Load hours

3 Load Hours

Semesters Offered

Spring

ACTS Equivalent

None

Grade Mode

A-F

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

General Education Outcomes Supported

None

Standard Practices

None

Topics List

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

Learning activities

- Assignments and Projects
- This course requires some in class, hands-on work and also additional hands-on work in a virtual or on-campus computer lab.

Assessments

Homework, Projects, Quizzes, and Exams

Grading guidelines

- A = 90-100%
- B = 80-89%
- C = 70-79%
- D = 60-69%
- F = 0-59%