CS 2020 : INTERMEDIATE PROGRAMMING

**Semester Hours:** 3.0
**Contact Hours:** 3

**Coordinator:** Ronald Conway

**Text:**
Starting Out with C++ from Control Structures through Objects

**Author(s):** TONY GADDIS

**Year:** 2014

SPECIFIC COURSE INFORMATION

**Catalog Description:**
Introduction to object-oriented programming techniques. Constructors, destructors, operator overloading. Inheritance and polymorphism. Elementary data structures including linked lists. Dynamic storage allocation concepts. Prerequisite: Corequisite of MATH 1260 or MATH 1280 or MATH 1300 (Precalculus) or higher and grade of C or better in CS 2010. Approved for distance education.

**Course type:** REQUIRED

SPECIFIC COURSE GOALS

- I can understand and can implement search and sorting algorithms.
- I can implement programs using arrays and linked lists.
- I can use dynamic memory techniques in implementing programming design.
- I can use fundamental object-oriented programming techniques, including encapsulation, inheritance, polymorphism, and virtual functions.

STUDENT OUTCOMES ADDRESSED BY THIS COURSE

- B.1 Analyze a given problem, and identify and define the computing requirements appropriate to its solution
- B.2 Use current techniques, skills, and tools in computing practice
- B.3 Apply mathematical foundations, algorithmic principles, and computer science theory as appropriate in modeling and solving real-world problems
• B.5 Apply design and development principles in the construction of software systems of varying complexity

LIST OF TOPICS COVERED

• Arrays (2 weeks)
• Intro To Unix (0.5 weeks)
• Searching and Sorting (1.5 weeks)
• Structured Data (2 weeks)
• Pointers (1 week)
• Linked Lists (2.5 weeks)
• File Operations (0.5 weeks)
• Classes (2 weeks)
• Composition, Friend Classes and Friend Functions (0.5 weeks)
• Operator Overloading (1.5 weeks)
• Polymorphism, Virtual Functions (2 weeks)