CS 2020: OBJECT-ORIENTED PROGRAMMING

Semester Hours: 3.0
Coordinator: Ronald Conway
Text: Starting Out with C++ from Control Structures through Objects
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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.

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)