CS 163 – Introduction to Programming in C++

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Course Description:
A general introduction to the design of computer software. Object-oriented design and implementation techniques including abstraction, encapsulation, and inheritance are emphasized. Applications chosen from mathematics, science, and business are used to demonstrate and motivate understanding of object-oriented programming.

Credits: 3

Prerequisites: none.

Learning Resources:

Evaluation
Lab & Homework: 50 %
Midterm Exam: 25 %
Final Exam: 25 %

Course Content
• Introduction to Computing
• Algorithms
• C++ basics, data types
• Programming constructs, conditionals, loops
• Software design principles – stepwise refinement
• Composite data types, e.g., arrays and structs.
• Searching and sorting.
• Functions (including operator overloading)
• Classes – Objects and Interface.
• Exception Handling
• Pointers and memory allocation
• File and Text I/O

Course Outcomes
• Use the characteristics of an object-oriented programming language in a program.
• Use the basic object-oriented design principles in computer problem solving.
• Analyze the given problem statements to create basic program designs.
• Implement different functions for input and output, various data types, basic operators, files and functions.
• Implement programming techniques to solve problems in the C++ programming language.
• Apply the concepts and principles of the programming language to the real-world problems and solve the problems through project-based learning.

American Disability Act
Any student who has a disability and is in need of classroom accommodations, please contact the instructor and the Services for Students with Disabilities Office in Old Library 2136 at the beginning of the semester.

Scholastic Dishonesty
Asking for help in understanding a problem or lending assistance to explain difficult points is encouraged. However, the copying of another student’s assignment, or the common solution of written or programming assignments, or changing variable names of programming assignments, will be considered as cheating, unless group solution is specifically allowed. The purpose of assignments is to provide individual evaluation as well as a tool for learning and exploration of material. Note that the operational word in the definition of cheating is copying, not submission.

Students found guilty of academic dishonesty will be subjected to disciplinary action as prescribed by the Computer Science Department’s prescribed disciplinary procedures. Disciplinary action for this course includes, but is not limited to, failure for the course.