C++ Programming: Program Design Including Data Structures, Fourth Edition

Spring, 2011

General Course Information

Instructor: Preetam Ghosh
Office: TEC 336
Office Hours: M/W: 11:00-12:00 pm
T/Th: 9:30 am-11:00 am
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Web site: http://www.cs.usm.edu/~pghosh/
Classroom: TEC 202
Class Times: 1:00-2:15 pm

Prerequisites:


Course Objectives
This course covers the two-semester CS1/CS2 curriculum using C++. The course begins with core computer science concepts and moves into data structures in the second half. OOD methodology is stressed, as are searching and sorting algorithms, and basic coverage of abstract classes. Each new concept is introduced in the textbook with complete programming examples, extensive exercise sets, and clear visual diagrams.

Specific topic coverage includes:
- An Overview of Computers and Programming Languages
- Basic Elements of C++
- Input/Output
- Control Structures I (Selection)
- Control Structures II (Repetition)
- User-Defined Functions I
- User-Defined Functions II
- User-Defined Simple Data Types, Namespaces, and the string Type
- Arrays and Strings
- Records (structs)
- Classes and Data Abstraction
- Inheritance and Composition
- Pointers, Classes, Virtual Functions, and Abstract Classes
- Overloading and Templates
- Exception Handling
- Recursion
- Linked Lists
- Stacks and Queues
- Searching and Sorting Algorithms
- Binary Trees
- Graphs
- Standard Template Library (STL)

**Web Site**

Supplementary information for the course is available at [http://www.cs.usm.edu/~pghosh/]. The Web site contains class notes, PowerPoint slides, class announcements, the course syllabus, test dates, and other information for the course.

**E-Mail**

All students are requested to obtain an e-mail account. If you have any questions about the course or need assistance, please contact me in person or by telephone during office hours; or by e-mail at any time.

**Grading and Evaluation Criteria**

60% of the grade is based on 3 examinations.

10% of the grade is based on quizzes. Quizzes are announced one day in advance and may vary from five to ten questions that may be in any format.

30% of the grade is based on programming assignments.