

Data Structures with C++
CS 341 A1
Course Format: On Campus Face-to-Face

Summer Term 2

Monday, Wednesday 6:00-9:30PM

Instructor: John S. Maslanka, Ph.D.
email: maslanka@bu.edu
Office hours: by appointment
Home phone: 781-784-6232

Course Description

The student is expected to gain an Object-Oriented understanding of Data Structures using the C++ Programming Language. Topics include data abstraction, encapsulation, information hiding, and the use of recursion, also creation and manipulation of various data structures: lists, stacks, queues, trees, hashing, graphs, and searching and sorting algorithms. Programming methods for accessing these structures are at the heart of understanding the subject matter of this course. The course covers the same topics as CS341 during the regular academic year with the same depth.

Preliminary Expectations:

All students have successfully completed MET CS 231 or the equivalent in an academic environment. Also, all students are expected to be acquainted with the usage of a full-capability IDE such as MS Visual Studio, Oracle NetBeans or IBM Eclipse.

Homework assignments are to be completed on a system such as Windows-2000, -NT or -XP or Windows-7 or a UNIX or linux-based system or Apple OS system, which supports the ANSI-98 Standard version of C++ or higher. The current version is C++11, ratified and published in 2011.

TextBook:

DATA STRUCTURES & Other Objects Using C++, 4th edition, by Michael Main and Walter Savitch, Pearson Addison-Wesley, ISBN13: 978-0-13-212948-0.

References:

- **Introduction to Programming in C++**, edition 1, by John Maslanka, publisher Kendall-Hunt, 2009, ISBN 978-0-75475-6465-7.
- **C++ How To Program**, 6th edition, by Harvey and Paul Deitel.

Courseware:

Online **Blackboard** will be used in conjunction with this course. The CS341 Summer 2013 website will be self-enrolling and you are expected to review its contents frequently.

Course Policies

1) Attendance & Absences – All students are expected to attend every class. Please inform me by email as soon as possible if you need to be absent from a class. The student is expected to make up all work from the missed class or classes including class notes, exams and homework assignments.

2) Assignment Completion & Late Work – All homework assignments are due on the dates specified in the attached course calendar. The Midterm exam will be distributed in class and made available on Blackboard on the date specified in the course calendar, and will be due on the date specified in the calendar. The Final Exam will be given in class on the date during the Final Exam period of the semester, which is specified in the course calendar. All other course work and assignments must be completed and submitted before the date of the Final Exam.

3) Academic Conduct Code – Cheating and plagiarism will not be tolerated in any Metropolitan College course. They will result in no credit for the assignment or examination and may lead to disciplinary actions. Please take time to review the Student Academic Conduct Code at: http://www.bu.edu/met/metropolitan_college_people/student/resources/conduct/code.html. The Academic Code of Conduct should not be understood as a discouragement for discussing the course material or your particular approach to a problem with other students in the class or for forming and participating in study groups. On the contrary – you may share your thoughts, questions and solutions with your classmates. Nevertheless, if you choose to work in a group, you as the individual student will be expected to produce your own original solutions to homework and exam problems.

Grading Criteria:

Midterm Exam: 30%, Final Exam 30%, Assigned Homework Problems: 40%. The Midterm Exam will be a **take-home exam, and it will be administered on the dates specified in the attached course calendar**. The Final Exam will be an **in-class exam. It will be administered on the date specified in the course calendar**. There will be four homework/lab assignments, for which the due dates are specified in the course calendar. The problem statements for these assignments will be provided by the Professor. Completed **source** programs for the homeworks, Midterm and Final Exam will be emailed to the professor. All homework assignments and the Midterm should be emailed to the professor prior to 6:00PM on the due dates listed in the course calendar.

Dr. Maslanka is a professional writer of computer language compilers and run-time systems. He is retired from Hewlett Packard Company/Compaq Computer Corporation/ Digital Equipment Corporation, having worked in their Marlboro, MA, and Nashua, NH, facilities from 1975 to 1984 and from 1991 until his retirement in 2002. Also, he has been Adjunct Faculty in the BU MET College Computer Science Department since 1973 and at Bridgewater State University since 2006.

Course Calendar Summer 2013: Class Meetings, Lectures & Assignments

Date	Topic	Readings	Assignments due
July 1	Course Introduction, Phases of Software Development, Overview of Course, Academic Integrity	Ch 1, Appendices A-L	none
July 3	Abstract Data Types and C++ classes, Container classes	Ch 2, 3	none
July 8	Pointers and Dynamic Arrays, Recursion	Ch 4, 9	Homework 1 due in email by 6:00PM
July 10	Sorting Algorithms; Derived classes using Inheritance; Hashing Procedures	Ch 12, 13, 14	None
July 15	Software Development with Templates, Iterators and the C++ Standard Template Library	Ch 6	Homework 2 due in email by 6:00PM
July 17	Linked Lists and Stacks, Hashing	Ch 5, 7	Midterm Exam take-home distributed
July 22	Doubly Linked Lists, Queues	Ch 5,8	Midterm Exam due in email by 6:00PM
July 24	Trees, especially Binary Trees	Ch 10,11	None
July 29	More Binary Trees	Ch 10, 11	Homework 3 due in email at 6:00PM
July 31	Graphs	Ch 15	None
Aug 5	More Graphs	Ch 15	Homework 4 due in email at 6:00PM
Aug 7	Final Exam in-class 6:15 – 8:15PM	All	Final due date for all outstanding assignments*

- Note: All outstanding assignments are due to the professor in email by 6:00PM on the evening of the Final Exam. Any gradables which are received after that time will not be graded. My final course grades are due to the Registrar by 5:00PM on May 10.