BOSTON UNIVERSITY
Metropolitan College
MET CS 341, Data Structures with C++
Course Syllabus

Summer Term 2, 2016   Tuesday and Thursday Evenings July 5 – Aug 11, 6:00-9:30PM
John S. Maslanka, Ph.D.   Charles River Campus classroom TBD
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Course Objectives:
   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. Students are encouraged to assist in the enhancement and development of the course materials.

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, IBM Eclipse or MacOS Homework assignments are to be completed on a system which supports Windows-2000, -NT or –XP or Windows-7 or Windows-10 or a UNIX or linux-based system or a MacOS system, which supports the ANSI-2000 Standard version of C++ or higher.
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Gradables:
   Midterm Exam: 30%, Final Exam 20%, Assigned Homework Problems: 50%. 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 five 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 and Midterm will be emailed to the Professor, and should be emailed prior to 6:00PM on the due dates listed in the course calendar. Source code for solutions of the problems on the Final Exam will be emailed to the professor at the rnd of the final exam session.

Textbook:
   DATA STRUCTURES & Other Objects Using C++, 4th edition, by Michael Main and Walter Savitch, Pearson Addison-Wesley, 2011, ISBN13: 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**, 11th edition, by Harvey and Paul Deitel
   ▪ Online **Blackboard** will be used in conjunction with this course.

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. He has also been Adjunct Faculty in the BU MET College Computer Science Department since 1973.

Dates	Topics	Read in Text
July 5	Course Introduction, Phases of Software Development, Overview of Course Topics, Review of C++ keyboard IO and C++ classes	Ch 1, Appendixes A – L
July 7	Pointers and Dynamic Arrays, Recursion, Sorting Algorithms Abstract Data Types and C++ classes, Container Classes **Homework 1 due in email at 6:00 PM**	Ch 4, 9, 12, 13 Ch 2
July 12	Container classes, Hashing Procedures	Ch 3, 14
July 14	Linked Lists **Homework 2 due in email at 6;00 PM**	Ch 5
July 19	Doubly Linked Lists,	Ch 5
July 21	Stacks and Queues **Midterm Exam take-home distributed.** **Homework 3 due in email at 6;00 PM**	Ch 7, 8
July 26	Templates, Iterators, C++ Standard Template Library **Midterm Exam due in email at 6:00 PM**	Ch 6
July 28	Trees, especially Binary Trees	Ch 10, 11
Aug 2	More Binary Trees – Balancing **Homework 4 due in email at 6:00 PM**	Ch 10, 11
Aug 4	More Binary Trees / Graphs	Ch 10,11, 15
Aug 9	Graphs Review for Final Exam **Homework 5 due in email at 6:00 PM**	Ch 15
Aug 11	**Final Exam in class 6:15 – 8:15PM**	

All previous course work is ultimately due by 6:00PM on the night of the final exam. I cannot promise to grade any previous papers which are due before that date which are received after that time. The time which I have available for producing final course grades is very brief. My grades are due to the BU Registrar by 5:00PM on Aug 13.