

Programming with C++

MET CS 231

Course Format – On Campus

Wednesdays 6PM-9PM

Spring 2016

Instructor: Mehrdad (Mike) Nourai

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Office hours: after class

Course Description

Covers the elements of object-oriented programming and the C++ language. Data types, control structures, functions, library functions, classes, inheritance, and multiple inheritance. Use of constructors, destructors, function and operator overloading, reference parameters and default values, friend functions, input and output streams, templates, and exceptions. Laboratory course. 4 credits.

Prerequisites:

MET CS 201 or instructor's consent.

Text Book

Problem Solving with C++ 9th Edition, Savitch - Pearson

Courseware

Blackboard website: <https://learn.bu.edu/>

Class Policies

- 1) Attendance & Absences** – Attendance is expected at all class meetings. Programming Labs will be given in class throughout the semester. You are responsible for ALL the materials covered and discussed in class. Missing important topics that was covered and discussed in class would negatively affect your grade.
- 2) Assignment Completion & Late Work** – All student submissions of required course work must be submitted electronically (paperless) to the class Blackboard website on or before the published due date. Late work will not be accepted and no credit will be given for any missing work or work submitted after published due dates. Exceptions may be made in case of an illness or an emergency condition only when a verifiable documentation is submitted within reasonable timeframe. It is students' responsibility to keep secure backups of all required course work.
- 3) Exams** – No makeup exams will be given. Exceptions may be made in case of an illness or an emergency condition only when a verifiable documentation is submitted within reasonable timeframe. No electronic or computer devices such as Smartwatch, Smartphone, Tablet, laptop, or netbook can be used during exams, unless you are

instructed to use them. Violations results in no credit for the exams, see Academic Conduct Code.

- 4) **Classroom Expectations** – Please do: respect your classmates by silencing your cell phone or other electronic devices before class begins, and don't use them during class; be on time, lateness always disrupts learning; participate, ask questions, and interact with your classmates and your professor.
- 5) **Academic Conduct Code** – Please use the following wording, or an equivalent, in your syllabus: "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 the time to review the Student Academic Conduct Code:
http://www.bu.edu/met/metropolitan_college_people/student/resources/conduct/code.html. This should not be understood as a discouragement for discussing the material or your particular approach to a problem with other students in the class. On the contrary – you should share your thoughts, questions and solutions. Naturally, if you choose to work in a group, you will be expected to come up with more than one and highly original solutions rather than the same mistakes."

Objectives

To gain an understanding of the Object-Oriented paradigm, and of the "class" syntax of the generalized Object-Oriented programming language C++. Upon completion of this course the student is expected to be able to use the C++ language to design and write Object-Oriented computer programs to solve a selection of quantifiable problems.

Course Requirements

- Reading and study
- Homework/Lab Assignments
- Programming Projects
- Exams

Additional Notes

- Reading the relevant material in the textbook is essential for gaining a thorough understanding of the topics covered in the course.
- Not all of the material in each chapter will be covered during lecture/discussion, but the material should be read in any case.
- Besides the book chapters, additional reading materials may be assigned for each topic. Students are responsible for ALL the materials covered including any topics not in the textbooks.
- Assignments not turned in and exams missed will be recorded as grades of 0 and will significantly impact your final grade. Late work will not be accepted.
- All programming assignments must be done in C++.

Grading Criteria

The grade that a student receives in this class will be based on several components and is broken down as shown below. All percentages are approximate and the instructor reserves the right to make necessary changes.

Homework/Lab Assignments	10%
Programming Projects	30%
Mid-term Exam	30%
<u>Final Exam</u>	<u>30%</u>
Total	100%

Programming evaluation Criteria

Programs will be graded roughly as follows (all percentages are approximate and the instructor reserves the right to make necessary changes):

- 40% execution correctness
- 30% structure (e.g., modularization, information hiding, etc.)
- 10% insightful programming (e.g., developing reusable class components, etc.)
- 10% consistent style (e.g., capitalization, indenting, etc.)
- 10% appropriate commenting style

Programs submitted after the deadline will receive a 0. Late work will not be accepted.

Letter grade/numerical grade conversion is shown below:

A (95-100)	A- (90-94)	
B+ (85-89)	B (80-84)	B- (77-79)
C+ (74-76)	C (70-73)	C- (65-69)
D (60-64)		
F (0 – 59)		

Class Meetings, Lectures & Assignments:

Note: This is a tentative schedule and a live document. Lectures, Readings, and Assignments subject to change, and will be announced in class as applicable within a reasonable time frame.

Date	Topic	Readings Due	Assignments Due
January 20	Introduction to the Syllabus Intro to C++ Programming Intro to C++ Basics	Chapters 1,2	
January 27	Flow of Control, Functions	Chapters 3,4	Homework/Lab Project 1 Assigned
February 3	Functions for All Subtasks, I/O Streams	Chapters 5,6	Homework/Lab
February 10	I/O Streams , Arrays	Chapters 6,7	Homework/Lab
February 17	Strings and Vectors	Chapter 8	Homework/Lab Project 1 Due
February 24	Pointers and Dynamic Arrays	Chapter 9	Homework/Lab Project 2 Assigned
March 2	Defining Classes, Midterm Exam	Chapter 10	Midterm Exam (Chapters 1-9)
March 9	Spring recess		
March 16	Friends, Overloaded Operators, and Arrays	Chapter 11	Homework/Lab
March 23	Separate Compilation, Linking, and Namespaces	Chapter 12	Homework/Lab
March 30	Pointers and Linked Lists	Chapter 13	Homework/Lab Project 2 Due
April 6	Recursion, Inheritance	Chapters 14,15	Homework/Lab Project 3 Assigned
April 13	Inheritance , Exception Handling	Chapters 15,16	Homework/Lab
April 20	Substitute Monday schedule of classes		
April 27	Templates, Standard Template Library	Chapters 17,18	Homework/Lab Project 3 Due
May 4 'Tentative'	Final Exam		All Covered Material