

Programming with C++

MET CS 231

Course Format – On Campus

Mondays 6:00 pm – 8:45 pm

Spring 2017

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 and it will be factored into the class participation grade. Programming Labs will be given in class throughout the semester. You are responsible for ALL the materials covered and discussed in class. Coming to class late, leaving early, or being absent would result in missing important topics that was covered and discussed in class which negatively affects your final grade.
- 2) Assignment Completion & Late Work** – **No late work will be accepted.** Any late or missed assignment will be graded as zero. Exceptions may be made in case of an illness or an emergency condition only when a verifiable documentation is submitted within reasonable timeframe. All assignment submissions must be electronically submitted to the class Blackboard website on or before the published due date (No paper/e-mail submission). It is students' responsibility to make sure all assignments submissions are successful and make backups of work submitted.
- 3) Quizzes and Exams** – **No makeup quizzes or exams will be given.** Any missed quizzes or exams will be graded as zero. 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 (calculator is OK) can be used during quizzes and exams. 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; participate, ask questions, and interact with your professor.
- 5) **Academic Conduct Code** – An important message from the Dean's Office: "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
- Class Participation (Attendance, Labs, Discussions)
- 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.

Class Participation	5%
Projects	25%
Mid-term Exam	30%
<u>Final Exam</u>	<u>40%</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):

- 60% execution correctness (e.g. output is correct and is consistent with guidelines)
- 10% 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- (75-79)
C+ (70-74)	C (65-69)	C- (60-64)
D (50-59)		
F (< 50)		

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 23	Introduction to the Syllabus Intro to C++ Programming Intro to C++ Basics	Chapters 1,2	
January 30	Flow of Control, Functions	Chapters 3,4	Lab
February 6	Functions for All Subtasks, I/O Streams	Chapters 5,6	Lab
February 13	I/O Streams , Arrays	Chapters 6,7	Lab
February 20	Holiday, classes suspended		
February 27	Strings and Vectors	Chapter 8	Lab Project 1 - Due 2/27
March 6	Spring recess		
March 13	Pointers and Dynamic Arrays	Chapter 9	Lab
March 20	Midterm Exam		Covers Chapters 1-9
March 27	Defining Classes Friends, Overloaded Operators, and Arrays	Chapters 10,11	Lab
April 3	Arrays, Separate Compilation, Linking, and Namespaces	Chapters 11,12	Lab
April 10	Pointers and Linked Lists	Chapter 13	Lab Project 2 - Due 4/10
April 17	Recursion, Inheritance	Chapters 14,15	Lab
April 24	Inheritance , Exception Handling	Chapters 15,16	Lab
May 1	Templates, Standard Template Library	Chapters 17,18	Project 3 - Due 5/1
May 8 'Tentative'	Final Exam		Cumulative—covers all course material. Multiple choice, closed book.