Boston University Metropolitan College

Advanced Programming Techniques

MET CS 622
Course Format -> On Campus
Tuesdays 6:00 PM – 8:45 PM
Spring 2019

Instructor: Dr. Mehrdad (Mike) Nourai
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Office hours: after class

Course Description
Comprehensive coverage of object-oriented programming with cooperating classes. Implementation of polymorphism with inheritance and interfaces and in Java library containers. Programming with exceptions, stream input/output and graphical AWT and Swing components. Threads, sockets, datagrams, and database connectivity are also covered in this course. Laboratory course. 4 credits.

Prerequisites:
MET CS 342 or equivalent knowledge of Java. Or MET CS 521 and MET CS 526. Or instructor's consent.

Text Book
Java How to Program (11th Edition), by Deitel and Deitel, published by Pearson, 2018, ISBN-13: 9780134743356

Courseware
Blackboard website: https://learn.bu.edu/

Class Policies

1) **Attendance & Absences** – Attendance is expected at all class meetings and it is part of class participation grade. The student is responsible for all materials discussed in class.
2) **Assignment Completion & Late Work** – All coursework for this class have due dates and are to be submitted paperless via Blackboard on or before their due dates. *Late work, paper or email submissions will be graded as zero.*
3) **Assessments** – No make-up quizzes or exams will be scheduled except in emergency cases. *Missed quizzes or exams will be graded as zero.*
4) **Incomplete and withdrawal** – An incomplete grade is rarely given, and the instructor reserves all the rights for its consideration. If student is unable to complete the course requirements, it is student's responsibility to file withdrawal form with the registrar office by the deadline specified in the academic calendar.

5) **Classroom Expectations** – Please respect your classmates by turning off your phone or other electronic devices before class begins, and do not use them during class. I encourage you to participate in class discussions and ask questions.
6) **Academic Conduct Code** – It is your responsibility to comply with the Academic Conduct Code policy. The following is an important message from the MET Dean: "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

By the end of the course, the students are expected to:

- Understand the fundamental concepts of object-oriented programming.
- Develop hands-on experience in advanced programming techniques.
- Expand students' knowledge of modern Java programming language.
- Learn to use modern IDE to develop and debug code.

Course Requirements

- Class discussions and participation
- Reading and studying
- Assignments
- Term-Project & Presentation
- Assessments
- Additional reading materials (if assigned)

Strategies for Learning

We will cover many materials that require careful thinking and practice to master. The following are strategies for learning all the materials:

- Attend class and take notes.
- Read the textbook and any additional materials covered in class.
- Explore online resources, e.g., articles, tutorials, source code, documentation, etc.
- Form a study group.
- Participate in class discussions.
- The more time and effort you expend; the more benefits you will receive.

Grade Calculation:
Grades will be weighed as follows.

Item	Percentage of Grade
Assignments & Class Participation	15
Term-Project & Presentation	15
Quiz 1	35
Quiz 2	35
Total	100

The number grade calculated will be converted to a letter grade using the following table.

Calculated Grade (G)	Letter Grade	Calculated Grade (G)	Letter Grade
$95 \le G \le 100$	A	$70 \le G < 75$	C+
$90 \le G < 95$	A-	$65 \le G < 70$	C
$85 \le G < 90$	B+	$60 \le G < 65$	C-
$80 \le G < 85$	B	$50 \le G < 60$	D
$75 \le G < 80$	B-	$0 \le G < 50$	F

Programming Evaluation Criteria

Programs will be graded based on components shown below. All percentages are approximate and the instructor reserves the rights to make changes.

- 50% program correctness (e.g. output is correct and is consistent with the guidelines)
- 10% structure (e.g., modularization, information hiding)
- 10% insightful programming (e.g., developing reusable class components)
- 10% readability (e.g., consistent style, capitalization, indenting, naming components)
- 10% approach (e.g., appropriate solution to the problem)
- 10% documentation (e.g., appropriate commenting and style, file header information)

Programming courses can be very time-consuming. Hence, it is expected that you devote a certain amount of time and effort to coursework and understanding of the materials each week. Considering that learners have different backgrounds, motivations, learning styles, time commitments, and aptitudes. Therefore, it is hard to precisely estimate the exact amount of time you'll require to succeed. In general, a four credits course would require devoting twelve hours per week. Though some of you will take longer, and others will take less. Use your judgment of how much time you will need to complete the coursework by meeting the deadline, and avoid doing the work at the last minutes.

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Class Meetings, Lectures & Assignments:

This is a tentative schedule & a live document. The instructor reserves the rights to make changes.

Date	Topic	Readings Due	Assignments Due
January 22	Introduction	Chapters 1-7	
January 29	Classes, Methods, Objects	Chapter 8	Blackboard
February 5	Inheritance, Polymorphism, Exception Handling	Chapters 9, 10, 11	Blackboard
February 12	GUI, Graphics	Chapters 12, 13	**Term-Project Topic & Abstract Due**
February 19	No class – Substitute Monday schedule of classes		Blackboard
February 26	Quiz 1		**(Chapters 1-13)**
March 5	Regular Expressions, Files and Streams, Object Serialization	Chapters 14, 15	Blackboard
March 12	Spring Recess		
March 19	Generic Collections, Lambdas and Streams	Chapters 16, 17	**Term-Project Technical Specifications Due**
March 26	Generic Classes and Methods, JavaFX	Chapters 20, 22	Blackboard
April 2	Accessing Databases with JDBC	Chapters 24	Blackboard
April 9	Concurrency, Networking	Chapter 23, 28	Blackboard
April 16	Quiz 2		**(Chapters 14-17, 20, 22-24, 28)**
April 23	Term-Project Presentations		**Term-Project Sources & Slides Due**
April 30	Term-Project Presentations		