Boston University Metropolitan College

Information Structures
MET CS 520
Course Format – Online
Summer2 Session 2016

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Office hours: after weekly online lecture

Course Description
This course covers the concepts of the object-oriented approach to software design and development using the Java programming language. It includes a detailed discussion of programming concepts starting with the fundamentals of data types, control structures methods, classes, applets, arrays and strings, and proceeding to advanced topics such as inheritance and polymorphism, interfaces, creating user interfaces, exceptions and streams. Upon completion of this course the students will be able to apply software engineering criteria to design and implement Java applications that are secure, robust, and scalable. 4 credits.

Prerequisites:
MET CS 200 or instructor's consent.
Note: This course is not an introduction to programming class. Prior programming experience is assumed. A lot of programming is involved in this six weeks course. If you have no prior programming exposure, please consult the department for alternatives.

Text Book
Absolute Java (6th edition), by Walter Savitch, Addison Wesley, 2015.
ISBN-10: 0134041674 (ISBN-13: 978-0134041674)

Course Website
https://onlinecampus.bu.edu

Class Policies
1) **Attendance & Absences** – Active online attendance is expected, and it is your class discussions grade by being active through discussion topics.
2) **Assignment Completion & Late Work** –
   - All student submissions of required course work must be submitted to the course website on or before the published due date.
   - You are strongly encouraged to add comments throughout the program. This will assist your facilitator in understanding your programming logic and in grading your assignment.
   - You must work on your assignments individually; you are NOT ALLOWED to share answers with others. However, you are encouraged to discuss any difficulties or

obstacles to your approach to the assignment with the classmates and the facilitator in your group.

- Each assignment has a strict deadline. However, you are still allowed to submit your assignment within 2 days after the deadline. Late submissions will have 15% of the credit deducted unless you have made previous arrangements with your facilitator and the instructor. Any submission 48 hours after the deadline will not be graded.
- No credit will be given for any missing work or work submitted after published due dates, after late time period, or after solutions have been posted, whichever comes first. 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 make sure all assignments submission are successful and have backups of work submitted.

3) **Quizzes and Exams** – There will be weekly quizzes and a comprehensive Final Exam. The Final Exam is proctored. You will be responsible for scheduling your own appointment with an approved proctoring option. Detailed instructions about setting up an appointment will be forthcoming from the proctored exam coordinator approximately two weeks into the course. No makeup quizzes or exams would 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.

4) **Online Ethics Expectations** – It is expected that you conduct yourself in a professional manner when you are online with faculty, staff, facilitators, and other students.

5) **Academic Conduct Code** – It is assumed that students' have reviewed and agreed to follow the MET academic conduct code. Violations may result in failing the course. The following is 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."

Course Objectives

By reading the lessons, participating in discussions, and completing the assignments, you will be able to:

- Understand the hardware and software organization of modern computers in their historical perspective.
- Design and implement programs in the Java programming language based on the object-oriented paradigm for software development.
- Analyze the application and create classes that are best suited to implement the required functionality.

- Program applets, applications, and create graphical user interfaces.
- Use the constructs Java provides for composition, inheritance, and polymorphism to create programs that are scalable, stable, readable, and easy to maintain and understand.

Course Requirements
- Class participation through discussion topics
- Reading and study
- Assignments
- Quizzes and Exam

Tools Requirements
- Broadband Internet
- PC, Mac, or Linux with comfortable screen size for editing source code
- Internet Browser (IE, Chrome, Firefox, Free Download)
- A Zip Compression Utility (7-Zip, Free Download)
- PDF Reader (Adobe Reader or Foxit Reader, Free Download)
- Integrated Development Environment (IDE) (Eclipse, Free Download)
- Java Development kit (JDK) (Free Download)

Additional information for the tools
Links and instructions on how to select, setup, and work in an Integrated Development Environment (IDE) and Java Development kit (JDK) will be given in detail in Module 1 lecture. We will be using the latest Eclipse IDE 64-bit and the latest JDK 1.8 64-bit for the course. Both the IDE and JDK are free and can be downloaded from their respective companies' website. All assignments must be implemented using Eclipse IDE and JDK required for the course. Note that no other IDE or JDK will be accepted.

Assignments naming convention
When submitting your assignments, it is required to create and submit one zip file, zipping the entire development folder for that specific assignment. Please use the following naming convention and use the same name for the folder and for the zip file:

Folder name: HW#_Lastname
Zip Filename: HW#_Lastname.zip

For example, development folder for homework 1 for the student named John Smith would be "HW1_Smith", and zip file containing this folder would be "HW1_Smith.zip"

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Grading Criteria

The grade that a student receives in this class will be based on assignments, discussions, quizzes and final exam. The grade is breakdown as shown below. All percentages are approximate and the instructor reserves the right to make necessary changes.

Grade Distribution	
Discussions	10%
Assignments	30%
Weekly Quizzes	30%
Comprehensive Final Exam	30%

Letter grade/numerical grade conversion is shown below:

Final Average	Letter Grade
95-100	A
90-94	A-
85-89	B+
80-84	B
75-79	B-
70-74	C+
65-69	C
60-64	C-
50-59	D
< 50	F

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Class Meetings, Lectures & Assignments:
Note: This is a tentative schedule and a live document. Lectures, Readings, and Assignments subject to change at the instructor's discretion. This page may not be updated once the course begins. You will receive updated information from your instructor via course announcements, email and/or the discussion board.

Date	Topic	Readings Due	Assignments Due
July 5-11	Module 1: • Introduction to Java • Data types, variables, expressions, and statements • Control Structures	Chapters 1, 2, 3	
July 12-18	Module 2: • Defining Classes • Object-Oriented Programming • Inheritance, Interfaces, and Polymorphism	Chapters 4, 5, 7, 8	Due July 12 @23:59 ET - Homework 1 - Quiz 1 - Discussion 1
July 19-25	Module 3: • Strings • Exception Handling • File I/O	Chapters 9, 10	Due July 19 @23:59 ET - Homework 2 - Quiz 2 - Discussion 2
July 26-August 1	Module 4: • Data Structures (Arrays, Lists, Maps, and Iterators) • Graphics (SWING)	Chapter 14, 16, 17, 18	Due July 26 @23:59 ET - Homework 3 - Quiz 3 - Discussion 3
August 2-8	Module 5: • Advanced Data structures (Linked Lists, Stacks, and Queues) • Databases (JDBC)	Chapters 15, 19	Due August 2 @23:59 ET - Homework 4 - Quiz 4 - Discussion 4
August 9-15	Module 6: • Multithreading and synchronization • Networking • Functional Programming	Chapter 19	Due August 9 @23:59 ET - Homework 5 - Quiz 5 - Discussion 5
August 16-22	Final Exam August 17-20 (Proctored)	Cumulative—covers all course material. Multiple choice, closed book.	Due August 16 @23:59 ET - Homework 6 - Quiz 6 - Discussion 6