

# Information Structures with Java

## MET CS 520

On Campus and Blended

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### 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, arrays and strings, and proceeding to advanced topics such as inheritance and polymorphism, interfaces, creating user interfaces, exceptions and generics. 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.

### Books

*"Absolute Java (6th edition)"*, by Walter Savitch, Addison Wesley, 2015.  
ISBN-10: 0134041674 (ISBN-13: 978-0134041674) **(Required book)**

### Courseware

<http://learn.bu.edu>

### Class Policies

- 1) **Attendance & Absences** – All students in the On Campus section are expected to be in class in person. All students in the Blended section are expected to be in class on the 4 designated dates in the class calendar and otherwise attend online. Please notify the instructor ahead of time if you plan to be absent.
- 2) **Assignment Completion & Late Work** – Assignments are to be submitted by their respective due dates. A late submission is acceptable if there is a valid, documented reason, submitted prior to the deadline, explaining why submittal on time was impossible. Assignments are reviewed in class after the due date hence there is no credit for assignments submitted after the review.
- 3) **Academic Conduct Code** – 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](http://www.bu.edu/met/metropolitan_college_people/student/resources/conduct/code.html).

NOTE: [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.]

**Grading Criteria**

The course grade will be based on:

- (30%) programming assignments
- (30%) quizzes
- (10%) project
- (30%) final exam

**Class Meetings, Lectures & Assignments**

*Lectures, Readings, and Assignments subject to change, and will be announced in class as applicable within a reasonable time frame. **Each module has a Quiz and an Assignment due prior to the start of the next Module.** Due dates are in the class calendar and are discussed each week.*

| Module 1  |                | Readings            |
|---|----------------|---------------------|
| -- Introduction to Java, review Eclipse<br>-- Data types, variables, expressions, and statements<br>-- Control Structures | Jan 23, Jan 30 | Chapters 1, 2, 3    |
| Module 2  |                |                     |
| -- Defining Classes<br>-- Object Oriented Programming<br>-- Inheritance, Interfaces, and Polymorphism                     | Feb 6, Feb 13  | Chapters 4, 5, 7, 8 |
| Module 3  |                |                     |
| -- Strings<br>-- Exception Handling<br>-- File I/O  | Feb 27, Mar 13 | Chapters 9, 10      |



|   |                          |                            |
|---|--------------------------|----------------------------|
| <b>Module 4</b>   |                          |                            |
| -- Data Structures (Arrays, Lists, Maps, and Iterators)<br>-- Graphics (SWING)        | Mar 20, Mar 27           | Chapters 14, 16,<br>17, 18 |
| <b>Module 5</b>   |                          |                            |
| -- Advanced Data structures (Linked Lists, Stacks, and Queues)<br>-- Databases (JDBC) | Apr 3, Apr 10,<br>Apr 17 | Chapters 15, 19            |
| <b>Module 6</b>   |                          |                            |
| -- Multithreading and synchronization<br>-- Networking<br>-- Functional Programming   | Apr 24, May 1            | Chapter 19                 |
| <b>Review for Final on May 1</b><br><b>Final: Form TBD</b>                            |                          |                            |