***MET CS 520 -- Information Structures***

***This version of the syllabus is subject to changes: Please use the online version as official***

***Instructor***

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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.

***Course Grading Policy***

The course grade will be based on active class participation (10%), programming assignments (30%), quizzes (30%), and a final exam (30%). 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.

**Note:** This course is not an introduction to programming class. Prior programming experience is assumed.

***Course Web Site***

[**http://lms.bu.edu**](http://lms.bu.edu/)

***References***

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

***Student Conduct Code***

[**Please review the academic conduct code**](http://www.bu.edu/met/metropolitan_college_people/student/resources/conduct/code.html)

***Tentative Course Schedule***

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| **Module 1** | **Readings** |
| -- Introduction to Java -- Data types, variables, expressions, and statements -- Control Structures  | Weeks 1, 2, 3 | Chapters 1, 2, 3 |
| **Module 2** |
| -- Defining Classes -- Object Oriented Programming -- Inheritance, Interfaces, and Polymorphism | Weeks 4, 5 | Chapters 4, 5, 7, 8 |
| **Module 3** |
| -- Strings -- Exception Handling -- File I/O | Weeks 6, 7 | Chapters 9, 10 |
| **Module 4** |
| -- Data Structures (Arrays, Lists, Maps, and Iterators)  -- Graphics (SWING)  | Weeks 8, 9 | Chapters 14, 16, 17, 18 |
| **Module 5** |
| -- Advanced Data structures (Linked Lists, Stacks, and Queues) -- Databases (JDBC) | Weeks 10, 11 | Chapters 15, 19 |
| **Module 6** |
| -- Multithreading and synchronization -- Networking -- Functional Programming | Weeks 12, 13 | Chapter 19 |
| **Final: Form TBD** |