

SWE 510 Spring 2019 – Syllabus

Object-Oriented Programming in Java

Instructor: Dr. Socrates Dimitriadis

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Office Hours: Thursday 1–3 pm, ENGR 4508

Course Information

Description

This course introduces students to object oriented programming with the Java language. Topics include, algorithmic problem solving, data structures, file I/O, exception handling, concurrency, and object-oriented design (inheritance, polymorphism, etc).

Objectives and Learning Outcomes

After completing this course students should be able to

1. Solve programming problems using the Java language
2. Understand and use Object Oriented concepts to develop reusable, reliable, and maintainable software

Prerequisites

Undergraduate courses or equivalent knowledge in programming in a high-level language.

Textbook

Java: How to Program (Early Objects), 11th Edition, by Paul Deitel and Harvey Deitel, Pearson. Also available online via GMU library

Meeting Times and Location

Thursday 7:20 P.M. - 10:00 PM, Innovation Hall 206

Assessment

Programming languages are learned by practice. Therefore, to reinforce your learning, there will be frequent assignments. In order to pass the course you must have a passing grade in all three sections (projects, quizzes, final). There will be no make-up or extra-credit assignments at the end of the semester; your grade will be a measure of your semester-long progress.

Class Attendance and Participation (bonus)

Although attendance is not mandatory you are expected to attend all classes. There is lecture material you will be tested on that is not covered in the textbook. If you are about to miss a class you must inform the instructor one day in advance at least. Class participation is highly encouraged and of great importance for your training.

Projects (50%)

Five projects, 10% each. Individual work only, no collaboration is allowed. You should start working on the assignments early so that you have enough time to get help from the instructor if you have any questions. Submission via BlackBoard only – emails and late submissions will be ignored.

Quizzes (20%)

Four in-class programming quizzes, 5% each. They will involve some kind of programming interview problem that you must solve in 20-30 min.

Final exam (30%)

Paper and pencil test taken in class. There will be no makeup for a missed final exam.

Grade scale

A+ ($\geq 98.0\%$) A ($\geq 92.0\%$) A- ($\geq 90.0\%$)

B+ ($\geq 88.0\%$) B ($\geq 82.0\%$) B- ($\geq 80.0\%$)

C+ ($\geq 78.0\%$) C ($\geq 72.0\%$) C- ($\geq 70.0\%$)

D ($\geq 60.0\%$)

F ($< 60.0\%$)

Course Schedule

Date	Topic	Textbook
Jan. 24	Introduction to Computers, the Internet and Java Introduction to Java Applications; Input/Output and Operators	1, 2
Jan. 31	Introduction to Classes, Objects, Methods, and Strings Control Statements: Part 1; Assignment, ++ and - Operators	3, 4
Feb. 7	Control Statements: Part 2; Logical Operators Methods: A Deeper Look	5, 6
Feb. 14	Arrays and ArrayLists Classes and Objects: A Deeper Look	7, 8
Feb. 21	Inheritance	9
Feb. 28	Polymorphism and Interfaces	10
Mar. 7	Exception Handling	11
Mar. 14	<i>Spring break - no class</i>	
Mar. 21	Graphical User Interfaces, JavaFX	12, 13, 22
Mar. 28	Strings, Characters, and Regular Expressions Files, Streams, and Object Serialization	14, 15
Apr. 4	Collections	16
Apr. 11	Recursion Searching, Sorting, and Big O	18, 19
Apr. 18	Generic Classes and Methods Custom Generic Data Structures	20, 21
Apr. 25	Concurrency	23
May 2	Lambdas and Streams	17
May 9	Final Exam (7:30 - 10:15pm)	

Honor code

- All students must abide by [GMU's Honor Code](#). The honor code at George Mason is an important part of our academic culture. A degree from this institution should be a direct measure of your own progress and abilities, and as such at all times we must ensure that all work that should be your own is your own.
- If you are caught cheating, you and every other involved student will be turned in to the honor committee. We take the honor code quite seriously. Any attempts at copying or sharing code, algorithms, or other violations of the honor code simply will not be tolerated. This includes using code found on the internet.
- See the [CS Honor Code Policies](#) to understand better what constitutes cheating in the CS setting. It clarifies some scenarios that are unique to our sorts of assignments. There are definitely opportunities to study and learn together throughout this course, but you will need to work independently for your projects and any sort of "test" (quiz, final exam).
- We use automated software to flag suspicious cases, and then review them by hand to find the cases that must be submitted to the Office of Academic Integrity. As seductively simple as it may seem to just copy and paste work from a friend, or even to just work on the project on your own machines next to each other, remember that it is just as easy to compare your work automatically and electronically, and discover the similarities in text and structure. It's not worth trying to cheat. We will catch it, and sadly but surely, we will turn it in.
- The penalty for cheating will always be far worse than a zero grade, to ensure it's not worth taking the chance. Confirmed cases of cheating almost always translate into course failure.