95-712 Section B – Object Oriented Programming in Java   **Fall 2021**
Tuesday and Thursday 10:10 – 11:10, A301 Hamburg Hall

Syllabus

Instructor
Professor Marty Barrett (martinba@andrew.cmu.edu)
3040 Hamburg Hall
Office Hours: Monday and Wednesday 10:30 AM-12:00; Thursday 12:00-1:00 PM

Teaching Assistants
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Course Information	Course Title: **95-712 Object Oriented Programming in Java** Instructor: Marty Barrett (martinba@andrew.cmu.edu)
Prerequisites	None
Description:	This course is an in-depth look at the popular programming language Java. It is not intended for first time programmers. An exemption exam is given to students during orientation. After some preliminaries devoted to basic syntax and program structure, classes, composition, inheritance and polymorphism are examined. The Java collection classes are studied in some detail, as is the rather complex set of I/O classes. Additional topics include exception handling, building GUIs with JavaFX, and multi-threading. Throughout the second half of the course, a series of homework problems develops a non-toy application, illustrating by example how larger object-oriented programs are organized.
Course Materials:	Reference Textbook (supplemental): • *Core Java Vol 1 - Fundamentals, 10th or 11th Edition*. Horstmann & Cornell. Prentice Hall. • *Thinking in Java. 4th Edition*. Eckel. Prentice Hall. Software (required): • Java JDK: You *must* use at JDK 16 or higher https://www.oracle.com/java/technologies/javase-jdk16-downloads.html • IntelliJ Ultimate: students can get Ultimate for free with proof https://www.jetbrains.com/community/education/#students https://www.jetbrains.com/idea/download
Evaluation Method:	The grading weight breakdown is:

Activity	Weight	Note
Self-assessments	5%	Best 1 of 2 scores each week
Homework	25%	3 assignments
Labs	12.5%	One per lecture; drop lowest score
Quizzes	12.5%	One per week; drop lowest score

	Midterms	30%	Three midterm exams			
	Final Exam	15%	During final exam week			

Learning/Course Objectives:	1. Use a Java IDE as well command line to test code snippets and author professional programs. 2. Learn Java language basics, including types, operators and program control. 3. Develop problem solving skills through practice and understanding of the divide-and-conquer and top-down approaches. 4. Form and manipulate collections of data (such as lists, dictionaries, tuples). 5. Learn the principles of object oriented programming in Java with usage of classes, inheritance, polymorphism, interfaces, containers and design patterns - with the goal of understanding code reuse and building scalable programs. 6. Be exposed to the SDLC (software development lifecycle) to understand how software applications are authored in industry. This includes basic UML usage and design concepts.
Grading Scale:	97.5 - 100 A+ 80.0 - 82.4 B- 92.5 - 97.4 A 77.5 - 79.9 C+ 90.0 - 92.4 A- 72.5 - 77.4 C 87.5 - 89.9 B+ 70.0 - 72.4 C- 82.5 - 87.4 B 00.0 - 69.9 R

Course Schedule/Topical Outline: (subject to change)

Week	Date	Tuesday	Date	Thursday	Readings	HW
1	31-Aug	Intro; Data Types	2-Sept	Strings, I/O	E4, 14; H1,2	
2	7-Sept	No class	9-Sept	If, switch	E5	
3	14-Sept	Loops	16-Sept	Classes	E3, 5; H3	
4	21-Sept	Methods	23-Sept	Relationships	E6; H4	**HW 1**
5	28-Sept	**MIDTERM 1**	30-Sept	Inheritance	E8; H5	
6	5-Oct	Encapsulation	7-Oct	Polymorphism	E9,10; H5	
7	12-Oct	Patterns	14-Oct	* No class	-	
8	19-Oct	Java FX	21-Oct	Collections	E12, 17; H9	**HW 2**
9	26-Oct	**MIDTERM 2**	28-Oct	Collections	E18	
10	2-Nov	Exceptions	4-Nov	Generics	E13, 16	
11	9-Nov	I/O	11-Nov	I/O	E19; H8	
12	16-Nov	Sockets	18-Nov	**MIDTERM 3**	-	
13	23-Nov	Mutlithreading	25-Nov	No class	E22; H12	**HW 3**
14	30-Nov	Mutlithreading	2-Dec	Reflection	E15; H5	
Week of 6-Dec	**FINAL EXAM** (Date TBD)					

* No class on 14-Oct, BUT: you are responsible for the topic that day, Intro to JavaFX

No class on 7-Sept and 25-Nov; no topics those days

Readings: E = Eckel; H = Horstmann and Cornell

Self-assessments due each Sunday at 11:59 PM EDT (no self-assessment for week 1)

Quiz: Each week, due on Friday night 11:59 PM EDT

Lab: After each lecture, in 48 hours

HW: Homework due on Fridays at 11:59 PM EDT. Due dates are:

   Homework 1: Friday, September 24

   Homework 2: Friday, October 22

   Homework 3: Friday, November 26

Course Policies & Exceptions	**Policies** 1. **Videos & Self-assessments**: There is a significant part of course-content provided in the form of videos that you must watch before coming to the class each week. This will introduce you to the week's content. After watching each week's videos before Sunday midnight, complete the weekly self-assessment based on the video-content

for which you will get two attempts. The higher of the two scores will be considered for grading.

2. **Weekly Quiz**: There are short multiple-choice quizzes through the semester. Lowest quiz score will be dropped.

3. **Lab assignments**: There are lab exercises after each lecture through the semester. Each lab exercise is a short programming problem related to a topic discussed in the previous class for which you will submit a Java program before the end of the class. Lowest score will be dropped. Consider labs as a practice exam. You will have full access to all the references, but you will have to produce the final solution individually. You can consult with me, the TAs or your classmates during labs. Submissions dates and times are marked on each lab assignment, this is two days after being assigned.

4. **Homework**: There are 3 homework assignments and all three will be considered for your final grade. They will be due on Fridays at 11.59 PM of the week in which they are listed.

5. **Mid-Exams**: There are 3 mid-exams during the semester comprising questions and a programming test.

6. **Final Exam:** The format of final exam is similar to mid-exams but longer, and is mandatory.

Others

7. **Class Attendance**: As evident from all the activities listed above, labs, quizzes, and exams require your presence in the class. If you miss any lab / quiz / exam, it will be adjusted as the lowest score. No makeup lab / quiz / exam will be accepted unless there is an emergency, in which case a documented evidence may be required. Job interviews do not count as an emergency. You are expected to be present in-person in class for the labs and MUST be present for the exams. Attempts to take the exams from outside the class without instructor's written permission will be considered as integrity violation and will be dealt with as per university policies.

Grades

8. Grade disputes, if any, must be reported to the TA or the instructor within one week from the day of grade-distribution.

9. While you will have the flexibility to take help from your classmates on lab exercises, all other activities– quiz, homework, and exams – are meant to be your individual work. **Copying from any source without citation, sharing your work with other students, or copying from other students will be considered as cheating and plagiarism and will be addressed according to the university policies http://www.cmu.edu/academic-integrity/.**

10. All work must be submitted in Canvas by the due date/time.

If you experience upload problems with Canvas, email me your work for grading IMMEDIATELY, AND PRIOR TO, THE DUE DATE/TIME, along with a screenshot of the upload error. When emailing me your work, I also need you to email technical information to validate the issue (type out what the error message is that you are receiving, computer information, network information, file information, date/time of attempted upload, and screenshot of error) prior to the due date/time via email to me or you will receive a 0% on the corresponding assignment. I need the error information so I can validate your excuse with Canvas administration – it must be validated by error logging. If you contact me about Canvas submission issues after the due/date time, I cannot help you.

11. Late Policy:

Unless otherwise stated, no assignments will be accepted late. On the rare occasion that an assignment is announced that it can be submitted late, the assignment will be accepted with a penalty of 10% of the total worth of the assignment per day late, up to and including the late deadline announced. Do *not* ask me to make special exceptions for you and you alone – that is NOT fair to the rest of the class. NO assignments may ever be delivered by email. Please do not ask to have a Canvas assignment re-opened online for late submission. Budget for upload time to Canvas. All assignments are due by the start time of the class which it is due (unless otherwise noted).

OTHER POLICIES
Students with Disabilities:

Our community values diversity and seeks to promote meaningful access to educational opportunities for all students. CMU and your instructors are committed to your success and to supporting Section 504 of the Rehabilitation Act of 1973 as amended and the Americans with Disabilities Act (1990). This means that in general no individual who is otherwise qualified shall be excluded from participation in, be denied benefits of, or be subjected to discrimination under any program or activity, solely by reason of having a disability.

If you believe that you need accommodations for a disability, please contact us ASAP, and we will work together to ensure that you have the correct access to resources on campus to assist you through your coursework and time at CMU.

Academic Integrity:

Carnegie Mellon University sets high standards for academic integrity. Those standards are supported and enforced by students, including those who serve as academic integrity hearing panel members and hearing officers. The presumptive sanction for a first offense is course failure, accompanied by the transcript notation "Violation of the Academic Integrity Policy." The standard sanction for a first offense by graduate students may be suspension or expulsion. Please see http://www.cmu.edu/academic-integrity/ for any questions.

Cell Phones, Smartphones and other handheld wireless devices:

Other than during class breaks, please silence ring tones and refrain from engaging in calls, messaging or other use during class time. All devices must not be visible during quizzes.

Policy Regarding Students Using English as a Foreign Language:

Assignments in this course are graded with reference to evidence of the acquisition of concepts, presentation format, and accuracy of information. Having done business in countries that use languages other than English, we understand that the use of an unfamiliar language can result in unusual word choices or grammatical errors that are not critical to the overall understanding of the information. Therefore, we will take into account your need to

function in a language that may be unfamiliar to you. We will provide feedback as appropriate if we feel that language or grammar you have used in assignments would be best if it were configured in a different way.

Use of Canvas System for this course:

The Heinz School uses Carnegie Mellon University's Canvas system to facilitate distance learning as well as to enhance main campus courses. In this course, we will use the Canvas system generally to post lecture notes and related documents and to receive assignments electronically from students.

Take care of yourself:

Do your best to maintain a healthy lifestyle this semester by eating well, exercising, avoiding drugs and alcohol, getting enough sleep and taking some time to relax. This will help you achieve your goals and cope with stress.

All of us benefit from support during times of struggle. You are not alone. There are many helpful resources available on campus and an important part of the college experience is learning how to ask for help. Asking for support sooner rather than later is often helpful. If you or anyone you know experiences any academic stress, difficult life events, or feelings like anxiety or depression, we strongly encourage you to seek support. Counseling and Psychological Services (CaPS) is here to help: call 412-268-2922 and visit their website at http://www.cmu.edu/counseling/. Consider reaching out to a friend, faculty or family member you trust for help getting connected to the support that can help.

If you or someone you know is feeling suicidal or in danger of self-harm, call someone immediately, day or night:

CaPS: 412-268-2922
Re:solve Crisis Network: 888-796-8226
If the situation is life threatening, call the police:
On campus: CMU Police: 412-268-2323
Off campus: 911

If you have questions about this or your coursework, please let me know.