

Syllabus

Instructor

Professor Marty Barrett (martinba@andrew.cmu.edu)
 3040 Hamburg Hall
 Office Hours: M W 11:00 – 12:20, T Th 2:00 – 3:20

Teaching Assistants

Anni Kang Office hours Tuesday 9:30-11:30 HbH A007B
 Kiramayi Anupindi hours Saturday 10-12 am
 Parth Lokhande hours Friday 1-3 pm

Course Information	Course Title: 95-712 Object Oriented Programming in Java Instructor: Marty Barrett (martinba@andrew.cmu.edu)																						
Prerequisites	None																						
Description:	<p>This course is an in-depth look at the popular programming language Java. It is not intended for first time programmers.</p> <p>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, 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.</p>																						
Course Materials:	<p>Reference Textbook (supplemental):</p> <ul style="list-style-type: none"> • <i>Core Java Vol 1 - Fundamentals, 10th or 11th Edition.</i> Horstmann & Cornell. Prentice Hall. • <i>Thinking in Java. 4th Edition.</i> Eckel. Prentice Hall. <p>Software (required):</p> <ul style="list-style-type: none"> • Java JDK: You <i>*must*</i> use at JDK 17 or higher. Download here: https://www.oracle.com/java/technologies/downloads/#java17 • v17 and v21 are recommended for Long-Term Support. • IntelliJ Ultimate (for free with CMU email address) https://www.jetbrains.com/community/education/#students https://www.jetbrains.com/idea/download 																						
Evaluation Method:	<p>The grading weight breakdown is:</p> <table border="1"> <thead> <tr> <th>Activity</th> <th>Weight</th> <th>Note</th> </tr> </thead> <tbody> <tr> <td>Self-assessments</td> <td>4%</td> <td>Best 1 of 2 scores each week</td> </tr> <tr> <td>Homework</td> <td>15%</td> <td>3 assignments (5% each)</td> </tr> <tr> <td>Labs</td> <td>12.5%</td> <td>One per lecture; drop lowest score</td> </tr> <tr> <td>Quizzes</td> <td>12.5%</td> <td>One per week; drop lowest score</td> </tr> <tr> <td>Midterms</td> <td>36%</td> <td>Three midterm exams (12% each)</td> </tr> <tr> <td>Final Exam</td> <td>20%</td> <td>During final exam week</td> </tr> </tbody> </table>		Activity	Weight	Note	Self-assessments	4%	Best 1 of 2 scores each week	Homework	15%	3 assignments (5% each)	Labs	12.5%	One per lecture; drop lowest score	Quizzes	12.5%	One per week; drop lowest score	Midterms	36%	Three midterm exams (12% each)	Final Exam	20%	During final exam week
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Learning/Course Objectives:	<ol style="list-style-type: none"> 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.
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Grading Scale:	<table> <tr> <td>97.5 - 100 A+</td> <td>80.0 - 82.4 B-</td> </tr> <tr> <td>92.5 - 97.4 A</td> <td>77.5 - 79.9 C+</td> </tr> <tr> <td>90.0 - 92.4 A-</td> <td>72.5 - 77.4 C</td> </tr> <tr> <td>87.5 - 89.9 B+</td> <td>70.0 - 72.4 C-</td> </tr> <tr> <td>82.5 - 87.4 B</td> <td>00.0 - 69.9 R</td> </tr> </table>	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
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Course Schedule/Topical Outline: (subject to change)	Week	Date	Monday	Date	Wednesday	Readings	HW
	1	26-Aug	Intro; Data Types	28-Aug	Strings and Simple I/O	E4, 14; H2,3	
	2	2-Sep	* No class	4-Sept	If, switch	E5	
	3	9-Sep	Loops	11-Sept	Classes	E3, 5; H3	
	4	16-Sep	Methods	18-Sept	Relationships	E6; H4	HW 1
	5	23-Sep	Inheritance	25-Sept	MIDTERM 1	E8; H5	
	6	30-Sep	Encapsulation	2-Oct	Polymorphism	E7,9; H5	
	7	7-Oct	Design Patterns	9-Oct	Exceptions	E13; H7	
		14-Oct	** No class	16-Oct	** No class		
	8	21-Oct	Collections 1	23-Oct	Collections 2	E17, 18; H9	HW 2
	9	28-Oct	Regex; enum	30-Oct	MIDTERM 2	E20	
	10	4-Nov	I/O 1	6-Nov	I/O 2	E19	
	11	11-Nov	Reflection; generics	13-Nov	Mutlithreading 1	E15; E16; E22; H12	
	12	18-Nov	MIDTERM 3	20-Nov	Mutlithreading 2	E22; H12	
	13	25-Nov	Sockets	27-Nov	***No class		
14	2-Dec	GUI programming 1	4-Dec	GUI programming 2		HW 3	
	Week of 9-Dec	Final exam – TBD (scheduled by Heinz)					

* No class on 2-Sept: Labor day
** No class on 14-Oct and 16-Oct: Fall Break
*** No class on 27-Nov: Thanksgiving Break
Readings: E = Eckel; H = Horstmann and Cornell
Self-assessments due each Sunday at 11:59 PM EDT (no self-assessment for week 1)
Quizzes: Each week, due on Friday night 11:59 PM EDT
Labs: After each lecture, in 48 hours (Monday lab due on Wednesday, Wednesday lab due on Friday)

	<p>Homework: due at 11:59 PM EDT. Due dates are: Homework 1: Friday, September 20 Homework 2: Friday, October 25 Homework 3: Monday, December 2</p> <p>Exams: Three midterms and one final exam Midterm 1: Wednesday, September 25 Midterm 2: Wednesday, October 30 Midterm 3: Wednesday, November 20 Final exam: During the week of December 9, TBD</p>
Course Policies & Exceptions	<p>Policies</p> <p>1. Collaboration, using ChatGPT, CoPilot, and other AI tools: Collaboration is permitted in Labs but not on any other assignments. Copying code without citing its source is cheating (including LLMs). Copying code from a fellow student is cheating.</p> <p>You may choose to use a large language model to assist with your programming work. Note that LLMs often make mistakes. You are responsible for any errors or problems that may be present in the code that you submit. The closed book exams are designed to test your knowledge and coding skills. So, if you do use a large language model, be sure to master the material and truly understand the code before taking an exam.</p> <p>However, your responsibilities as a student remain the same. You must follow the academic integrity guidelines of the university and of this class. If you use one of these generative AI tools to develop content for an assignment, you are required to cite the tool's contribution to your work, just as you should cite code acquired from any other source.</p> <p>If you copy code from the Web, be sure to provide a comment in the code with the exact URL where the code was copied from. In practice, cutting and pasting content from any source without citation is plagiarism. Likewise, paraphrasing content from a generative AI without citation is plagiarism. Similarly, using any generative AI tool without appropriate acknowledgement will be treated as plagiarism. The university's policy on plagiarism applies to all uncited or improperly cited use of work, whether that work is created by human beings alone or in collaboration with a generative AI. Provide as a comment in the code the exact URL where the code was copied from.</p> <p>Code that is provided by the instructors is allowed as long as the code is clearly cited as being provided by the instructors. Of course, if you have violated the spirit of the project, you will earn zero points.</p> <p>In addition to any penalties imposed by the instructor, all cheating and plagiarism infractions will be reported in writing to the Associate Dean for the program, the Associate Dean of Faculty, the Dean of Student Affairs, and the Dean. They will review and determine if expulsion should be recommended. The report will become part of the student's record.</p> <p>The appropriate people to refer to for help in homework projects are the TAs and the instructors. They can look at your code and help you with it. See them during office hours.</p>

2. 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.

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

4. 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.

5. 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.

6. Midterm Exams: There are 3 mid-exams during the semester comprising questions and a programming test.

Final Exam: The format of final exam is similar to mid-exams but longer and is cumulative.

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/>.

Any violations of academic integrity in this class will have the following consequences:
a. No credit for the assignment in question and lowering of the final grade by one letter (e.g. from B to C).

b. In more serious offenses, failing the class.

All incidents are reported to the Office of Community Standards & Integrity at Carnegie Mellon University. Additional penalties may be imposed.

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 no credit on the assignment in question and lowering the final grade by one letter, accompanied by the transcript notation “Violation of the Academic Integrity Policy.”

The standard sanction for a second offense is failing the course. Please see <http://www.cmu.edu/academic-integrity/> for any questions.

All incidents are reported to the Office of Community Standards & Integrity at CMU. Additional penalties may be imposed.

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.

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.