

CS 2334: Programming Structure/Abstractions

Fall 2024

INSTRUCTOR: Sanjana Mudduluru (sanjana@ou.edu, Devon Energy Hall 251)

TEACHING ASSISTANTS: Farabee Islam (farabee.islam-1@ou.edu)

Reza Gheibi (rezagheibi@ou.edu)

Lecture Time & Location:

Section 001 **MWF 9:00 – 9:50 AM** **Dale Hall 112**

Section 002 **MWF 10:00 – 10:50 AM** **Dale Hall 112**

Prerequisites:

CS 1323 or 1321 or 1324, and MATH 1523 or higher.

Ambitious, Tentative List of Topics (not all topics necessarily covered, not necessarily in this order) The design and implementation of computer programs using disciplined methodologies. Use of several abstract data types. Software reuse through encapsulation, composition, aggregation, inheritance, polymorphism, and generics. Topics include recursion, GUI development, file processing, and unit testing. A program design tool will be used. Introduction to ethics in computer science, including philosophical ethics theories. Discussion of intellectual property rights and privacy.

LABS:

Section 011	Farabee Islam	11:00 – 12:50 PM	Sarkeys M207
Section 012	Farabee Istam	1:00 – 2:50 PM	Sarkeys M207
Section 013	Reza Gheibi	3:00 – 4:50 PM	Sarkeys M207
Section 014	Reza Gheibi	5:00 – 6:50 PM	Sarkeys M207

Labs are mandatory. Each lab grade has two parts.

1. (Manual grade) will be awarded by TAs after each lab.
 2. (Auto grade) The ZyBook autograder is used to test and grade your lab submission.
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Learning Objectives:

By the end of this course, you should be able to:

- Outline the process of encapsulation, inheritance, polymorphism, aggregation, recursion, generics & composition.
- Analyze simple computing problems and define the requirements that are appropriate to their solution.
- Create programming solutions to computing problems by application of design and development principles & tools (umlet). Specifically, implement a program in Java using abstract data types and objects.
- Apply GUI development and file processing techniques.
- Design and apply unit tests.
- Evaluate and analyze the professional, ethical, legal, security and social issues that are faced by computer scientists, specifically in the areas of intellectual property rights and privacy.

Required Textbooks and Resources:

- **Programming Structures and Abstraction (Zybooks)**

<https://zybooks.com>.

1. Sign in or create an account at learn.zybooks.com [must use your official OU email ID]

2. Enter zyBook code: **OUCS2334MudduluruFall2024**

3. Subscribe

When you create your Zybooks account, you must use your official OU email ID (the one with your full name, not your alias). We will otherwise be unable to match your Zybooks grades with your Canvas identity.

Students must read the assigned readings and complete the associated exercises and always make sure to have access to the textbooks since most of the assignments will be there.

- **Java SE Development Kit (JDK) Version 17**

<https://www.oracle.com/java/technologies/javase/jdk17-archive-downloads.html>

Note that just having the Java Runtime Environment (JRE) is not sufficient (which you may have installed for previous classes).

- **Eclipse integrated development environment (IDE)**

If you install the Java SDK before Eclipse, the installation process usually goes smoothly. We strongly recommend the latest version from <https://www.eclipse.org>

- **GitHub**

We will be relying on GitHub for labs and projects. Setup an account on <https://github.com/>

Grading Breakdown:

The following requirements may change during the semester. [Tentative breakdown and subject to change as we progress through the summer]

Required work	Percentage
<ul style="list-style-type: none">• Programming Projects<ul style="list-style-type: none">◦ About 4-5 projects	20%
<ul style="list-style-type: none">• In-class participation	10%
<ul style="list-style-type: none">• Zybooks Assignments	20%

<ul style="list-style-type: none"> • Labs 	25%
<ul style="list-style-type: none"> • Exams: Midterm1 & Midterm2: 5% each • Final Exam (15%) • Exams will be in-person 	25%

Late Work Policy:

There are no makeup assignments for Labs, but Projects have up to 2 days after deadline. If you have any emergencies, please do not hesitate to contact the instructor. Your request of appropriate accommodation will be reviewed case by case, for one of the following reasons:

- (a) Medical situation
- (b) Family emergency
- (c) University-approved business (for example, business travel including OU Athletics).

The lowest grade for labs and quizzes will be dropped, but not for projects & exams.

SCHEDULE FALL2024

MONTH	DAY	DATE	TOPIC	DEADLINES
August	M	Aug 19	Week 1: Introduction & Review of 1323	
	W	Aug 21		
	F	Aug 23		
	M	Aug 26	Week 2: Classes & Objects	
	W	Aug 28		
	F	Aug 30	No class	
September	M	Sep 02	No class: Labor Day	
	W	Sep 04	Week 3: Inheritance & Polymorphism	
	F	Sep 06		
	M	Sep 09	Week 4: Abstract Classes	
	W	Sep 11		
	F	Sep 13		
	M	Sep 16	Week 5: Java Interfaces	
	W	Sep 18		
	F	Sep 20		
	M	Sep 23	Week 6: Exception Handling	
	W	Sep 25		
	F	Sep 27		
	M	Sep 30	Week 7: Generics	Midterm 1
October	W	Oct 02		
	F	Oct 04		
	M	Oct 07	Week 8: Java Collections Framework	
	W	Oct 09		
	F	Oct 11	No class	
	M	Oct 14	Week 9: Java Collections Framework	
	W	Oct 16		
	F	Oct 18		
	M	Oct 21	Week 10: Recursion	
	W	Oct 23		

	F	Oct 25	Week 11: GUI	
	M	Oct 28		
	W	Oct 30		
November	F	Nov 01		Midterm 2
	M	Nov 04	Week 12: GUI Basics	
	W	Nov 06		
	F	Nov 08		
	M	Nov 11	Week 13: GUI Components	
	W	Nov 13		
	F	Nov 15		
	M	Nov 18	Week 14 : CS Ethics	
	W	Nov 20		
	F	Nov 22		
	M	Nov 25		
	W	Nov 27	Thanksgiving Break	
	F	Nov 29		
December			Dead week	
	TUE	DEC 10	8:00 – 10:00 AM @ Dale Hall 112	Final Exam Section 001
	WED	DEC 11	8:00 – 10:00 AM @ Dale Hall 112	Final Exam Section 002

Canvas Postings

Course materials, including videos, slides, homework assignments, programming project and announcements will be posted on Canvas. You should check the Canvas page at least twice a week, but daily is even better.

Communication channels

Often, we need to alert the class to an important issue or problem. You should check your outlook e-mail at least twice a week, but daily is even better. Course e-mails are sent to your official OU e-mail address.

Course Expectations:

- **Class attendance:** Attendance is mandatory and will be calculated using in-class activities and pop-up quizzes.
- **Helping each other:** We encourage you to discuss homework and programming projects with each other, to help each other with debugging, and to study for exams together. However, it is not acceptable to develop programs together, nor to copy each other's work, in whole or in part. We reserve the right to use automatic cheating detection software. Cheating can result in, and has resulted in, severe penalties up to and including expulsion from the University (see below).
- **Help from us:** If you have questions or you're having trouble with the material, we urge you to attend the office hours or to send us e-mails.
- **Working on programming projects:** Do not wait until the last minute to start your programming projects. Developing software takes a lot of time and might depend on the availability and reliability of systems that you have no control over. If the computers are down the night before a due date, do not count on that buying you extra debugging time — it certainly wouldn't in the real world.

University Policies:

- **Reasonable Accommodation Policy**

Students requiring academic accommodation should contact the Accessibility and Disability Resource Center for assistance at (405) 325-3852 or TDD: (405) 325-4173. For more information, please visit <http://www.ou.edu/drc/home.html>. Any student in this course who has a disability that may prevent him or her from fully demonstrating his or her abilities should contact me personally as soon as possible so we can discuss accommodations necessary to ensure full participation and facilitate your educational opportunities.

- **Title IX Resources and Reporting Requirement (required)**

Anyone who has been impacted by gender-based violence, including dating violence, domestic violence, stalking, harassment, and sexual assault, deserves access to resources so that they are supported personally and academically. The University of Oklahoma is committed to offering resources to those impacted, including: speaking with someone confidentially about your options, medical attention, counseling, reporting, academic support, and safety plans. If you would like to speak with someone confidentially, please contact [OU Advocates](#) (available 24/7 at 405-615-0013) or another confidential resource (see [“Can I make an anonymous report?”](#)). You may also choose to report gender-based violence and discrimination through other means, including by contacting the [Institutional Equity Office](#) (ieo@ou.edu, 405-325-3546) or police (911). Because the University of Oklahoma is committed to the safety of you and other students, I, as well as other faculty, Graduate Assistants, and Teaching Assistants, are mandatory reporters. This means that we are obligated to report gender-based violence that has been disclosed to us to the Institutional Equity Office. This includes disclosures that occur in: class discussion, writing assignments, discussion boards, emails and during Student/Office Hours. For more information, please visit the [Institutional Equity Office](#).

- **Adjustments for Pregnancy/Childbirth Related Issues (required)**

Should you need modifications or adjustments to your course requirements because of documented pregnancy-related or childbirth-related issues, please contact your professor or the Accessibility and Disability Resource Center at 405/325-3852 as soon as possible. Also, see the Institutional Equity Office [FAQ on Pregnant and Parenting Students' Rights](#) for answers to commonly asked questions

- **Religious Observance**

It is the policy of the University to excuse the absences of students that result from religious observances and to reschedule examinations and additional required classwork that may fall on religious holidays, without penalty. [OU Norman Campus Faculty Handbook](#)

- **Copyright**

Sessions of this course may be recorded or live-streamed. These recordings are the intellectual property of the individual faculty member and may not be shared or reproduced without the explicit, written consent of the faculty member. In addition, privacy rights of others such as students, guest lecturers, and providers of copyrighted material displayed in the recording may be of concern. Students may not share any course recordings with individuals not enrolled in the class, or upload them to any other online environment.

- **Academic Misconduct**

All cases of academic misconduct will be reported to the Dean of the appropriate College for adjudication. For clarification of OU's policies on academic misconduct, see <http://integrity.ou.edu/>

It is your responsibility to be familiar with these policies and to comply with them. Ignorance of these policies is **not** an excuse for violating them. Cheating is strictly prohibited at the University of Oklahoma, because it devalues the degree you are working hard to get. As a member of the OU community, it is your responsibility to protect your educational investment by knowing and following the rules. To be successful in this class, all work on all assignments, including programming projects, quizzes and exams, must be yours and yours alone. You may not receive outside help in composing your programming solutions and/or quiz/exam responses. On quizzes and exams, you will never be permitted to use any study aid that isn't explicitly approved for that quiz or exam. (For example, you **are** allowed to use materials such as lecture slides, your own graded assignments, etc., unless explicitly stated otherwise.). Should you see someone else engaging in this behavior, I encourage you to report it to myself, or directly to the Office of Academic Integrity Programs. That student is devaluing not only their degree, but yours, too. Be aware that it is my professional obligation to report academic misconduct, which I will not hesitate to do. Sanctions for academic misconduct can include expulsion from the University and/or an F in this course, so don't cheat – it's simply not worth it.

- **Final Exam Preparation Period**

Pre-finals week will be defined as the seven calendar days before the first day of finals. Faculty may cover new course material throughout this week. For specific provisions of the policy please refer to OU's Final Exam Preparation Period policy: <https://apps.hr.ou.edu/FacultyHandbook#4.10>

- **Emergency Protocol**

During an emergency, there are official university procedures that will maximize your safety.

Severe Weather:

If you receive an OU Alert to seek refuge or hear a tornado siren that signals severe weather:

1. **LOOK** for severe weather refuge location maps located inside most OU buildings near the entrances.
2. **SEEK** refuge inside a building. Do not leave one building to seek shelter in another building that you deem safer. If outside, get into the nearest building.
3. **GO** to the building's severe weather refuge location. If you do not know where that is, go to the lowest level possible and seek refuge in an innermost room. Avoid outside doors and windows.
4. **GET IN, GET DOWN, COVER UP.**
5. **WAIT** for official notice to resume normal activities.

Severe Weather Refuge Areas

<https://www.ou.edu/campusafety/emergency-management-department/prepare/refuge-on-campus>

Severe Weather Preparedness Video : <https://vimeo.com/237922159>