

Course Syllabus

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Object-Oriented Programming, CSE 271, Fall 2020

Department of Computer Science and Software Engineering

Course Information:

- **Instructor:** Dr. Suman Bhunia
 - E-mail: bhunias@miamioh.edu
 - Office: 205-H Benton Hall
 - Office hours: Tuesday & Thursday, 4-6 PM. If you can't make it to my office hours, send me an email to schedule a meeting.
 - Zoom personal Room: <https://miamioh.zoom.us/j/4221413978> (<https://miamioh.zoom.us/j/4221413978>)
 - Phone: (513) 529 0339
- **Class Interaction:**
 - **Lectures:** Tuesday and Thursday at 2:50 PM - 3:45 PM at 206 Benton Hall & [Zoom](#) (<https://miamioh.zoom.us/j/86565443987?pwd=QS81b1pmZnVNbGc2SEI5NENRdzVNUT09>)
 - **Laboratories:** Monday 2:15 PM - 4:05 PM at 010 Benton Hall & [Zoom](#) (<https://miamioh.zoom.us/j/81209286959?pwd=bjBGS1psQTINbIN1UVQrdnNUT3JWQT09>)
 - **Examinations:** Tuesday at 8:00 PM - 9:20 PM (note: this is NOT a regular meeting time - this is only for proctored exams)
- **Course Site:** Canvas
- **TA help sessions:**
 - Zengzhi Jiang (jiangz8@miamioh.edu) : Monday & Wednesday at 8-9 pm.
 - John Hata (hatajm@miamioh.edu): Friday & Saturday at 8-9 pm.
 - Zoom meeting link: <https://miamioh.zoom.us/j/84997606580?pwd=cVZKNmtqQkxkQIFQbHRwNkdlaXpxdz09> ([https://miamioh.zoom.us/j/84997606580?](https://miamioh.zoom.us/j/84997606580?pwd=cVZKNmtqQkxkQIFQbHRwNkdlaXpxdz09)

[pwd=cVZKNmtgQkxkQIFQbHRwNkdlaXpxdz09](#))

- **Required Materials:**

- **Textbook:** Big Java: Late Objects By Cay S. Horstmann
- **Software:** Java SE Development Kit (JDK) - JDK 8, and [Eclipse IDE \(https://www.eclipse.org\)](https://www.eclipse.org).
(<http://www.eclipse.org/downloads/packages/eclipse-ide-java-developers/oxygenr>)

Course Description

Overview

The design and implementation of software using object-oriented programming techniques including inheritance, polymorphism, object persistence, and operator overloading. Students will analyze program specifications and identify appropriate objects and classes. Additional programming topics include dynamic memory recursion, using existing object libraries, and binary/ASCII file processing.

CSE 271 is a second-tier course in the CSE2 "Computer Programming" thematic sequence.

Computer software plays an important role in our daily lives: Our mobile phones, laptop computers, online banking, Internet applications such as YouTube, video games and movies, cars, and almost all aspects of daily life are touched by software. In your personal and professional life you will utilize computer software. It is also likely that you will select, or even influence the design of, software that is used in your professional or personal life. This thematic sequence will give you a deep understanding of how software works and is created, its limitations, and its potential. You will be able to read software and therefore be able to make informed decisions when selecting or participating in the design of business, scientific, or information systems that utilize computer software.

The CSE2 thematic sequence consists of both of the following introductory computer programming courses.

- [CSE 174 \(http://www.miamioh.edu/cec/academics/departments/cse/academics/course-descriptions/cse-174/index.html\)](http://www.miamioh.edu/cec/academics/departments/cse/academics/course-descriptions/cse-174/index.html), Fundamentals of Programming and Problem Solving
- [CSE 271 \(http://www.miamioh.edu/cec/academics/departments/cse/academics/course-descriptions/cse-271/index.html\)](http://www.miamioh.edu/cec/academics/departments/cse/academics/course-descriptions/cse-271/index.html), Object-Oriented Programming

Followed by one of the following courses

- [CSE 252 \(http://www.miamioh.edu/cec/academics/departments/cse/academics/course-descriptions/cse-252/index.html\)](http://www.miamioh.edu/cec/academics/departments/cse/academics/course-descriptions/cse-252/index.html), Web Application Programming
- [CSE 274 \(http://www.miamioh.edu/cec/academics/departments/cse/academics/course-descriptions/cse-274/index.html\)](http://www.miamioh.edu/cec/academics/departments/cse/academics/course-descriptions/cse-274/index.html), Data Abstraction and Data Structures
- [CSE 283 \(http://www.miamioh.edu/cec/academics/departments/cse/academics/course-descriptions/cse-283/index.html\)](http://www.miamioh.edu/cec/academics/departments/cse/academics/course-descriptions/cse-283/index.html), Data Communications and Networks

CSE 271 is a course in which you build upon the programming concepts and techniques learned in CSE 174 to design and implement more sophisticated programs using object-oriented design and programming

techniques.

Student Learning Objectives

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

1. Design and implement robust computer programs using object oriented programming techniques.
2. Use permanent storage to preserve the state of a program
3. Use recursion as a problem solving technique
4. Describe and implement sorting algorithms
5. Design and develop applications with a graphical user interface

Prerequisites

CSE 174 (with C- or above) or equivalent

Class Format During COVID-19 Pandemic

The course will be delivered following the *CSE Department Inverted HyFlex Method* of delivery. What this means is that your main content will be delivered through videos posted at the beginning of each week, which you will need to watch on your own time, along with readings from your textbook, followed by completing required quizzes that accompany the content. Video content will be created and recorded by several different instructors, **however any questions should be directed to the instructor of your section**. During in-class sessions, we will review the material, try some practice problems, discuss concepts, and generally ensure you are understanding the materials. Finally, you will have the opportunity to put the materials learned that week into practice through completion of the labs. You will come to the scheduled lab time in order to work on the problem with the instructor available, and will be able to complete them by the end of the same day on your own time.

Phased Return to Campus: Prior to September 21, 2020, any sessions that are indicated to be in-person or in-class will be delivered remotely. The sessions will be held live during the regularly scheduled slots, however you will attend via web conferencing software (details will be provided). You are still **highly encouraged to attend these sessions** as they are happening, but they will be recorded for later viewing as well.

Due to the partially online nature of the course, students are **required to have access to a computer with both a webcam and microphone**, for exam proctoring as well as communication with the course instructor.

Class Attendance Policy

All students are required to view all assigned videos and readings, and complete the associated quiz(zes) by the appropriate deadlines; this constitutes participation in the content dissemination portion of the course.

Attendance at in-person sessions is not mandatory, but strongly encouraged if possible. We will need to limit attendance to allow appropriate distancing, but all elements of the course, including in-class sessions will be

available for remote participation and recorded for later viewing; thus it is possible to participate from any location, by choice or when capacities have been reached.

Attendance will be taken for every in-person session, but only to meet contact tracing requirements. You will need to sign into any session you are physically present for. **No student should attend class or come to campus when ill**; however they are required to communicate such absences with the instructor to ensure open lines of communication.

Course Webpage & Communication

All course content (videos, announcements, handouts, assignments, etc.) will be posted on the Canvas page for this course. We will use Canvas for all assignment submissions, as well as for the use of discussion boards, grading, and other means of communication. **You should ensure that your settings enable you to receive course announcements directly to your Miami email address so that you are immediately notified of any updates.**

Important Dates:

- Tuesday, August 18: First day of this class
- Tuesday, October 06: Midterm Exam (10 am – 11:59 pm EST)
- TBD: End Term Exam

Course Grading

Your grade will be determined as follows

Deliverable	Weightage
Midterm exam	25%
Final Exam	20%
Projects	25%
Labs	20%
Quizzes	10%
Total	100%

Exams: There will be one midterm exam, and one final exam. All exams are cumulative, closed-book. **No make-ups for missed exams.** If you are absent for an exam, your grade for that exam will be zero.

Projects: There will be 4 projects throughout the semester almost equally spaced. All projects need to be submitted using Canvas site by the due time. **Late work**, resubmissions, submissions sent by e-mail, and so on will not be accepted. **Always back up your electronic work!** Computer/network failures are a fact of life, and are not justification for an extension. **WRITE YOUR CODE ALONE...**learn to help one another without sharing any code.

Labs: Each week, the content covered will be applied through a guided lab assignment. The labs will be available in the morning of your scheduled lab day, and you may begin on your own prior to the scheduled lab time. The in person lab session is your opportunity to work with the instructor and/or TAs to work through the problems and address any issues you may have.

Quizzes: There will be quizzes in this class. **Online quizzes** are given using the course website. These will be given roughly once or twice per week.

Letter Grading Conversion:

Grade	Percentage Range	Grade	Percentage Range	Grade	Percentage Range
A+	97-100%	A	94-96.9%	A-	90-93.9%
B+	87-89.9%	B	84-86.9%	B-	80-83.9%
C+	77-79.9%	C	74-76.9%	C-	70-73.9%
D+	67-69.9%	D	64-66.9%	D-	60-63.9%
F	Less than 60%				

Tentative Course Outline

[The weekly coverage might change as it depends on the progress of the class.]

Week	Topics (subject to change)	Lab and Project Assignments (Publish date-Submission date)
1 Aug 17, 18, 20	Syllabus + Intro to Eclipse + Review of CSE 174 (Chapters 1-7) <ul style="list-style-type: none"> • Decisions, Loops, Methods • format (), printf() • Using the split () method • Arrays, ArrayList 	

<p>2</p> <p>Aug 24, 25, 27</p>	<p>Review of CSE 174 (Cont'd) (Chap 1-7)</p> <ul style="list-style-type: none"> • File IO using Scanner & PrintWriter • Exception Handling 	<p>Lab_Assignment_01_Java_Review (Aug 24-26)</p>
<p>3</p> <p>Aug 31, Sept. 1, 3</p>	<p>Object and Classes (Chapter 8)</p> <ul style="list-style-type: none"> • Properties (Instance properties / Class level properties {static}) • Methods (Instance methods / Class level methods) • Getters / Setters • Overloading methods • Object Reference 	<p>Project 01: File Read/Write, String, Array, Try-Catch-Finally, Exception Handling (Aug 27-Sep 06)</p> <p>Lab_Assignment_02_File_IO_Try_Catch (Aug 31-Sep 02)</p>
<p>4</p> <p>Sep 8, 9</p>	<p>Object and Classes (Chap 8) (Cont'd)</p> <ul style="list-style-type: none"> • Constructors <ul style="list-style-type: none"> ◦ Empty ◦ Partial ◦ Workhorse ◦ Copy • equals() (ch. 9) • toString() (ch. 9) • Using the instance of Operator (ch. 9) • Using Javadoc 	<p>Sep 07 is officially a holiday</p> <p>Lab_Assignment_03: Class (Sep 8 –11)</p>
<p>5</p> <p>Sep 14, 15, 17</p>	<p>Testing and Debugging code:</p> <ul style="list-style-type: none"> • JUnit tests 	<p>Lab_Assignment_04: Javadoc_Constructor_Setter_Getter_Driver</p>

	<ul style="list-style-type: none"> • Using Eclipse Debugger 	(Sep 14 – 16)
6 Sep 21, 22, 24	<p>Inheritance and Interfaces (Chap 9)</p> <ul style="list-style-type: none"> • Inheritance • Overriding Methods • Polymorphism • Dynamic Linking 	<p>Project 02: Class, File, Javadoc, Junit (Sep 17 – 27)</p> <p>Lab_Assignment_05_JUnit Testing (Sep 14-16)</p>
7 Sep 28, 29, Oct 01	<p>Inheritance and Interfaces (Cont'd)</p> <ul style="list-style-type: none"> • Abstract Classes • Interfaces • UML Diagram 	Lab_Assignment_06_Inheritance (Sep 21–23)
8 Oct 05, 06, 08	<p>GUI and Graphics (Chapter 10)</p> <ul style="list-style-type: none"> • JFrame • JPanel • Event Handling • Creating inner classes 	<p>Lab_Assignment_07_Interface (Oct 05 – 09)</p> <p>MidTerm Exam Oct 06 (10 AM-11:59 PM EST)</p> <p>Mid-course Internal Evaluation Survey and Feedback (Oct 01-04)</p>
9 Oct 12, 13, 15	<p>Advance Graphics (Chapter 11)</p> <ul style="list-style-type: none"> • Drawing • Using the Timer class • Using smooth graphics 	<p>Lab_Assignment_08_GUI_Event (Oct 12-14)</p> <p>Project 03: Inheritance and Interface (Oct 07 – 18)</p>

	<ul style="list-style-type: none"> Using Eclipse Swing Builder 	
10 Oct 19, 20, 22	Recursion (Chapter 13) <ul style="list-style-type: none"> Recursive methods (Worker and Helper methods) Evaluating the effectiveness of a recursive method – is it reasonable for production 	Lab_Assignment_09_GUI_Graphics (Oct 19-21)
11 Oct 26, 27, 29	Sorting and Searching (Chapter 14) <ul style="list-style-type: none"> Sorting Selection Insertion Merge Quicksort 	Lab_Assignment_10_Recursion (Oct 26 - 28) Project 04: Graphical User Interface and Exception (Oct 19 – Nov 01)
12 Nov 2, 3, 5	Sorting and Searching (Chapter 14) <ul style="list-style-type: none"> Searching Linear Binary 	Lab_Assignment_11_Sorting (Nov 02 - 04)
13 Nov 9, 10, 12	Advanced_File_Input_Output (Chapter 19 & 20) <ul style="list-style-type: none"> Stream Processing Binary File Random Access File 	Lab_Assignment_12 (Nov 09-15)
14 Nov 16, 17, 19	Java Collections Framework (Chapter 15) <ul style="list-style-type: none"> List Set Map 	Lab_Assignment_13: (Nov 16-22)

15 Nov 23, 24, 26	THANKSGIVING HOLIDAY	
	FINAL EXAM	TBD

COVID-19 Health Policies

The class will observe all University policies relating to health and safety during the Fall semester. Of note, the following should be remembered:

Attendance

No student, faculty, staff member who is ill or has been in close contact with an individual who has tested positive for COVID-19 should attend class or come to campus. Instructors will, without prejudice, provide students with reasonable opportunities for completing missed work. However, students are ultimately responsible for material covered in class, regardless of whether the student is absent or present. If your absence is of significant duration or severity, as your instructor, I will advise you about other options that might be available including assigning an incomplete grade or requesting a medical withdrawal.

Facial Coverings

Facial coverings are required during all class meetings to promote the health and safety of all university members. There may be university approved exceptions to this requirement. Students who cannot wear a facial covering due to medical or disability-related reasons should contact the [Miller Center for Student Disability Services \(http://www.miamioh.edu/sds\)](http://www.miamioh.edu/sds) at [sds@miamioh.edu \(mailto:sds@miamioh.edu\)](mailto:sds@miamioh.edu) or [Regional Student Disability Services \(https://www.miamioh.edu/regionals/student-life/regional-disability-services/index.html\)](https://www.miamioh.edu/regionals/student-life/regional-disability-services/index.html) at [regionalsds@miamioh.edu \(mailto:regionalsds@miamioh.edu\)](mailto:regionalsds@miamioh.edu).

If a student comes to class/lab without a face covering or refuses to maintain physical distancing, I will first ask the student to comply (e.g. put on a face covering). If the student refuses, I will ask the student to leave the classroom/lab and inform the student that the class/lab will not proceed until the student either complies or leaves. If the student continues to refuse, I will dismiss the class/lab and immediately report the student to the Office of Community Standards.

Physical Distancing

All employees, students and visitors are expected to maintain physical distancing of at least six feet in all directions. The classroom has been set up to support this distancing and should be maintained. As you enter and leave the room, please be patient and give others the space they need to move safely.

In conclusion, the Safe Return to Campus Planning and Coordinating Committee is still meeting and welcoming ideas and feedback via the Healthy Together website (linked above). I would also welcome you to communicate with me directly about COVID, but also more generally about any ideas you have about improving faculty life or concerns you have that I might address. I am listening.

Limited Capacity for Labs: In order to maintain appropriate 6-foot distancing, it is likely that not every student will be able to attend the lab sessions every week; exact capacities will be determined as we progress and as criteria evolve. As such, each week, spaces in the lab for each of the four sub-sections will be based on a sign-up process. I will be available remotely during the lab time (and before and after as well), so you should not feel you are missing out by not attending in person. It is possible that with students not wishing/able to attend in person, that every student who wishes, will be able to obtain a spot.

Notices and Resources

Copyright Disclaimer

Course materials provided to you, including presentations, tests, outlines, and similar materials, are copyright protected by the faculty member(s) teaching this course. You may make copies of course materials solely for your own use. You may not copy, reproduce, or electronically transmit any course materials to any person or company for commercial or other purposes without the faculty member's express permission. Violation of this prohibition may subject the student to discipline/suspension/dismissal under the Miami's Code of Student Conduct or Academic Integrity Policy.

Recording of Course Interactions

Synchronous sessions in this course (Lecture and Laboratory sessions) will be recorded or live-streamed. Such recordings/streaming will only be available to students registered for this class. The faculty member will provide you notice if any of these recordings/streaming will be shared with anyone outside of this course, and will obtain your prior written consent before sharing. These recordings are the intellectual property of the faculty member and Miami University and may not be shared or reproduced without the explicit, written consent of the faculty member and Miami University. Further, students may not share these sessions with those not in the class, or upload them to any other online environment. Doing so would be a breach of the Code of Student Conduct.

Disability Services

If you are a student with a physical, learning, medical and/or psychiatric disability and feel that you may need a reasonable accommodation to fulfill the essential functions of the course that are listed in this syllabus, you are encouraged to contact the Miller Center for Student Disability Services at 529-1541 (V/TTY), located in the Shriver Center, Room 304.

If you have an accommodation you think you will not need to use for this course, request it anyway. We cannot honor accommodation requests until they have gone through Student Disability Services.

Mental Health Services

If you are a student who may be experiencing mental or emotional distress, you are encouraged to call Student Counseling Service (513-529-4634). For emergencies outside of business hours, the Community and Counseling and Crisis Center (844-427-4747) has a 24-hour hotline.

Academic Support

The following resources are available for you as a student:

- [Rinella Learning Center Academic Support.](https://miamioh.edu/student-life/rinella-learning-center/academic-support/index.html) (<https://miamioh.edu/student-life/rinella-learning-center/academic-support/index.html>)
- [Howe Center for Writing Excellence.](http://miamioh.edu/hcwe/) (<http://miamioh.edu/hcwe/>)
- [International Student Resources.](https://miamioh.edu/academics/intl-student-resources/index.html) (<https://miamioh.edu/academics/intl-student-resources/index.html>)
- [Student Success Center.](https://miamioh.edu/emss/offices/student-success-center/about/index.html) (<https://miamioh.edu/emss/offices/student-success-center/about/index.html>)

Taking notes

- You will sometimes be provided with electronic presentations to give you basic information. These are not a substitute for taking notes.
- Take notes during videos and activities.
- Lab activities will often depend on you to use what you wrote in your notes.
- "Good notes" does not mean "Write everything". Be selective.
- Focus on writing sample code, diagrams, "notes to self".

Academic Integrity Information

The Department of Computer Science and Software Engineering is committed to maintaining strict standards of academic integrity. The department expects each student to understand and comply with the [University's Policy on Academic Integrity](http://www.miamioh.edu/integrity/) (<http://www.miamioh.edu/integrity/>) and the undergraduate student handbook and graduate student handbook. Students may direct questions regarding academic integrity expectations to their instructor or to the department chair. All work submitted must be original for that class. Submitting the same project for two different classes is grounds for charging a student with academic misconduct unless prior written permission is received from both instructors.

"Problem Solving Assignments" are assignments that involve programming, math, proofs, derivations, and puzzles.

The purpose of a problem solving assignment is for you to develop the skills necessary to solve similar problems in the future. To learn to solve problems you must solve the problems and write your solutions independently.

It is worth reiterating that the important aspect of the assignment is that you actually create the solution from start to finish; simply copying a solution and then understanding it after the fact is not a substitute for actually developing the solution.