CS 2401 Syllabus

Fall 2022

Instructor Information

Instructor	Email	Office Hours
Patricia Lindner, MSCS	lindnerp@ohio.edu	W 8:15 AM – 10:30
		Tu 4:10 PM – 6:00 PM 307A
		Th 3:00 PM - 5:00 PM 307A
		Or by appointment
Teaching Assistants	**Email**	**Office Hours**
Weizhen "Wendy" Chen	wc513313@ohio.edu	

Course Information

Lecture	Time	Location
M, W, F	11:50 AM – 12:45 AM	Irvine 199
Lab Sections	**Time**	**Location**
101: Th	3:05 PM – 4:55 PM	Stocker 107
102: W	2:00 PM – 3:50 PM	Stocker 307A
103: Th	12:00 PM – 1:50 PM	Stocker 307A
104: Tu	6:00 PM – 8:00 PM	Stocker 307A

General Information

Prerequisite

CS 2400 and MATH 1300 (or 2301 or Math placement level 3)

Course Overview

This course will be a continuation of the programming that you learned about in CS2400, but with a concentration on the development of larger projects and the design process. We will be following the material in the book, moving quickly through the first three chapters which should be review for most of you, and then going more slowly as we talk about dynamic memory. We will be looking at diverse ways that classes can hold data in ways that are versatile and useful, including dynamic arrays and linked lists. After having worked our way through Chapter Seven, we will shift to Chapter Fourteen to talk about inheritance, which is a powerful feature in object-oriented programming. Then we will come back to chapters eight through ten. During the final weeks of the semester, you will be developing a single big project, which will be some type of board game, a program where the computer will play an "intelligent" game against a human opponent. It will be while you are working on your game that we will also learn about recursion and binary trees.

Course Outcomes

1: Analyze a complex computing problem and apply principles of computing and other relevant disciplines to identify solutions.

- o Student is able to determine the order in which the nodes of a binary tree would be visited in a pre-order, in-order, or post-order depth-first traversal.
- o Student is able to develop a recursive programming module to implement a recursive mathematical function.
- o Student demonstrates ability in using software design techniques (e.g., UML class diagrams, separation of implementation from interface).

2: Design, implement and evaluate a computing-based solution to meet a given set of computing requirements in the context of program's discipline.

- o Student is able to decompose and map user requirements to specific, measurable, and achievable computing requirements.
- o Student is able to determine the time and space to meet the computing requirements.
- o Student is able to determine the performance of various solutions.

Learning Resources

Blackboard

I will use Blackboard to

- Make announcements
- Notify you of changes in the schedule
- Post homework and lab assignments

You will use Blackboard to

- Submit assignments
- View your grades on submitted assignments

Electronic Devices

It is expected that you will have access to an internet-connected device. If you have a laptop, it is recommended that you bring it to class so that you can try out examples. Please be sure that you are using your devices during lectures for class related activities only so that you do not disturb other students around you. **NOTE**: many studies have shown that information is often absorbed better when you write it down, so I recommend taking notes by hand and using your devices only for in-class activities and examples.

Readings
Title: Big C++Late Objects
Author: Horstmann
Publisher: ZyBooks
Edition: 3
ISBN: 9781394019694
Price: $58.00
1. Sign in or create an account at learn.zybooks.com
2. Enter zyBook code: OHIOCS2401Fall2022
3. Subscribe

Accessibility Services

Any student who feels they may need an accommodation based on the impact of a disability should contact me privately to discuss your specific needs and provide written documentation from Student Accessibility Services. If you are not yet registered as a student with a disability, please contact Student Accessibility Services at 740-593-2620 or visit the office in 348 Baker University Center.

Additional Information and Expectations

It is your responsibility to know the information below as some of it pertains to your grade.

Attendance

Attendance at lectures is STRONGLY encouraged as I will not be posting notes or recordings online. Attendance at lab is required and will be calculated as part of your grade. If you have a university excused absence, please contact me if you cannot get the notes from another student and I will send whatever I covered in class to you.

Assignments

All assignments will be submitted via Blackboard or GitHub.

Late homework assignments will be docked 5 points for every day they are late and not accepted more than one week late unless you have an excused absence that you have cleared with me in advance.

Academic Integrity

Academic integrity and honesty are core values of Ohio University ([Ohio University Articles of Academe](#)). Academic Misconduct refers to dishonesty in examinations (cheating), presenting the ideas or the writing of someone else as your own (plagiarism), or knowingly furnishing false information to the university. Academic misconduct is also a violation of the Ohio University Student Code of Conduct, subject to a maximum sanction of disciplinary suspension or expulsion as well as a grade penalty in this course. I encourage you to become familiar with the OHIO Student Code of Conduct: https://www.ohio.edu/student-affairs/community-standards/students/student-code-of-conduct.

Students are expected to turn in their own original work for all labs and projects. If you turn in another student's work (or a portion of their work) OR another student turns in your work (or a portion of your work), ALL students involved will receive a zero for that assignment. Any code that is taken directly from online sources also counts as plagiarism and will receive zero credit. If I find any more evidence of cheating for the rest of the semester, you will receive an F in the course, and I will report the matter to the university judiciaries.

Discussing general concepts with other students is permitted, but you should NEVER show code that you have written for your assignment as a means of explaining something to another student. If you have specific questions about your code, you should contact me or the TA for assistance.

Final Grades

Projects – 30%

Labs – 20%

Tests and Quizzes – 45% (Midterm 1 15%, Midterm 2 20%, Quizzes 10%)

Textbook Participation Activities – 5%

Grade	Percentage	Grade	Percentage
A	93-100%	C	73-76%
A-	90-92%	C-	70-72%
B+	87-89%	D+	67-69%
B	83-86%	D	63-66%
B-	80-82%	D-	60-62%
C+	77-79%	F	Below 60%

Projects

The projects are a large part of your grade. These projects are designed to help you learn the essential skills that you need to continue the Ohio University computer science program. There are only 6 projects this semester so you will usually have more than a week for each project, but they often require ten or more hours of programming /debugging time, so do not put off starting on them until the due date. **Projects that do not compile receive an automatic zero.** You will submit your code either to a Blackboard assignment or GitHub, and I will provide feedback through Blackboard. I will allow unlimited submissions on Blackboard, but when you do re-submit remember to include all the files necessary for me to compile and run the program because I will only look at the last submission that you make.

Labs

Labs are smaller programming problems, designed to take an hour or two to complete. These often provide the foundation skills that you will need for the project. Labs will become available to the entire class on Monday at noon and will be due at 11:59PM on Friday each week regardless of the lab section you signed up for. Attendance will be taken at your lab section, so you at least need to sign in even if you have already completed the assignment on your own. The TA will also be attending your lab section for you to ask questions if you have them.

Tests and Quizzes

There will be two "midterm" exams and nine short quizzes throughout the semester. The lowest quiz grade will be dropped. If you miss a quiz, that quiz becomes a zero. Quizzes will be on Wednesday of the week listed on the syllabus unless I say otherwise.

Duty to Report Sexual Misconduct

All university employees are mandatory reporters of sexual misconduct. As such, if I learn of any instances of sexual misconduct, relationship violence, stalking, or other forms of prohibited sexual misconduct, I am required to report them to the university. If you need help and wish to share information about sexual misconduct that you have experienced in confidence, you can contact one of the confidential resources listed at https://www.ohio.edu/equity-civil-rights/confidential.

Classroom COVID-19 policies

If you do test positive or need to isolate or quarantine this semester, after you have taken care of yourself and followed all the steps in the OHIO COVID-19 Protocol, please email me so that we can develop a plan for you to receive the necessary course content. COVID-related illness, quarantine, isolation, and remain-in-room directives are legitimate university absences, and I will work with you to manage your academic requirements and connect you to resources. If you feel that your class performance is being impacted by COVID-19, please talk with me and/or contact Public Health Operations by email (PHO@ohio.edu). The University has information about resources available to help with quarantine and isolation here.

Course Schedule

*Course schedule is subject to change. Changes to assignment due dates will be announced on Blackboard.

Week	Topic	Assignments Due
1 8/22 - 8/26	Reading: 8 M: Syllabus and Brief History of Programming Languages W: C++ Review, Class Definitions and Namespaces F: Operator Overloading	
2 8/29 - 9/2	Reading: 9-10 (Optional 19) Lab 1: Operator Overloading M: Container Classes W: Project 1, Searching and Sorting F: Sequence Classes, gdb	Lab 1
3 9/5 - 9/9	Reading: 11 Lab 2: Containers and gdb Quiz 1: Operator Overloading M: No Class – Labor Day W: Introduction to Dynamic Memory F: Dynamic Memory, Dynamic Arrays	Project 1 Lab 2
4 9/12 - 9/16	Reading: 12.1-12.3 Lab 3: Basics of Dynamic Memory Quiz 2: Containers, Searching and Sorting M: Project 2, The Big 3 W: The Big 3 F: Introduction to Linked Lists	Lab 3
5 9/19 - 9/23	Reading: 12.1-12.3 Lab 4: Dynamic Arrays & the Big 3 Quiz 3: Dynamic Arrays Topic: Linked Lists, Linked List Containers and Their Big 3	Project 2 Lab 4
6 9/26 - 9/30	Lab 5: Linked Lists 1 M: Project 3, Review for Midterm W: Midterm 1 F: No Class – Fall Break	Midterm 1 Lab 5
7 10/3 - 10/7	Reading: 12.1-12.3, 13 Lab 6: Linked Lists 2 Quiz 4: Linked Lists Topics: Doubly Linked Lists, Template Functions, Project 4	Project 3 Lab 6

8 **10/10** **-** **10/14**	Reading: 12.1-12.3, 13 Lab 7: Doubly Linked Lists Quiz 5: Linked Lists Topics: Template Classes, Standard Template Library, Iterators	Lab 7
9 **10/17** **-** **10/21**	Reading: 12.4-12.13 Lab 8: Dynamic Array Template Class Quiz 6: Template Topics Topics: Project 4 Issues, Stacks, Queues, Project 5	Project 4 Lab 8
10 **10/24** **-** **10/28**	Reading: 14 Lab 9: Stacks & Queues Topics: Inheritance, Virtual Functions F: Midterm 2	Lab 9
11 **10/31** **-** **11/4**	Reading: 14.5, 15 Lab 10: Inheritance Quiz 7: Stacks and Queues Topics: Polymorphism, Recursion	Project 5 Lab 10
12 **11/7** **-** **11/11**	Reading: 15 Lab 11: Recursion 1 Quiz 8: Inheritance Topics: Recursion, Final Project (6) F: No Class – Veteran's Day Holiday	Project 6A Lab 11
13 **11/14** **-** **11/18**	Reading: 15 Lab 12: Recursion 2 Topics: Recursion, Binary Trees, Final Project	Lab 12
14 **11/21** **-** **11/25**	Reading: 16 Topics: Binary Trees W, F: No Class – Thanksgiving Break	
15 **11/28** **-** **12/2**	Lab 13: Binary Trees Quiz 9: Recursion and Binary Trees Topics: The Game	Project 6B Lab 13
Finals	Final Project Due at 10:10 AM on Wednesday December 7, 2022	Project 6C