

# CSE 1384 – Intermediate Computer Programming Spring 2024

## Instructor

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Office: Butler 215

Office Hours: Monday, Wednesday 8:15 – 9:30, 12:00 – 1:30, 3:30 – 4:30

Tuesday, Thursday 8:15 – 11:15, 2:30 – 4:30

## Class Meetings

Section 01: Tuesday, Thursday 12:30 – 1:45

## Prerequisites

CSE 1284 – Introduction to Computer Programming (with a grade of C or better)

## Description

3 hours Lecture. 3 Hours Laboratory. Object-oriented problem solving, design, and programming.

Introduction to data structures, algorithm design and complexity.

## Textbook

Programming in C+ with Data Structures Essentials, Roman Lysecky, Zybooks ISBN: 979-8-203-30569-5

## Topics

- Prerequisite Test (1 hr)
- Introduction to the course (1 hr)
- Interpreted vs. compiled languages (1 hr)
- Compiling a program (1 hr)
- Use of an Integrated Development Environment (2 hr)
- Algorithm complexity (2 hr)
- Run-time analysis using Big-O notation (2 hr)
- Classes
  - o Usage and definition (3 hr)
  - o Inheritance, polymorphism (3 hr)
  - o Operator overloading (2 hr)
  - o Static vs. dynamic memory management.  
References, pointers, and dynamic arrays (3 hr)
- Linked lists
  - o Traversal (1 hr)
  - o Insertion, Deletion (1 hr)
  - o Implementation (2 hr)
  - o Complexity Analysis (1 hr)
- Stacks
  - o Operations, Static vs. dynamic implementation (2 hr)
  - o Complexity Analysis (1 hr)
- Queues
  - o Operations, Static vs. dynamic implementation (1 hr)
  - o Complexity Analysis (1 hr)
- Recursion
  - o Definition, Examples (1 hr)
  - o Writing recursive methods (2 hr)
  - o Complexity analysis (1 hr)
- Advanced searching algorithms (2 hr)
- Advanced sorting algorithms (3 hr)
- Exceptions (2 hr)
- Tests (3 hr)

# Grading Policy

## Tests

Three (3) tests will be given in this course. A comprehensive final exam will also be offered. If you choose to take the final exam, your final exam score will replace your lowest test grade. No student is required to take the final exam. Henceforth, the final exam is optional

No make-up tests will be offered after the test has been given. Any students expecting to miss a test due to an excused absence must contact the instructor before the day of the test, and the test must be made up before the scheduled date of the test.

The final exam can replace the grade of one missed test if the absence on the scheduled test date was excused.

## Programming Assignments

Programming assignments will be given as part of this course's lab component.

In Programming assignments, students will be given a problem, usually a real word application or a consumer need, and produce a program solution that applies techniques learned in this course to solve the problem. The purpose of these assignments is to engage and develop the student's critical thinking and analyzing skills, which is important for success in an Engineering career. Students will use the C++ programming language to complete each assignment.

Activities will also be given as a part of lab, which will be used to reinforce your understanding of course topics in relation to the assignment.

## Quizzes

Quizzes will be given throughout the semester. Quizzes can cover material from any previous lecture. Quizzes will typically cover material from the most recent lecture but may have questions from earlier lectures. Quizzes will be proctored like exams but will be given a shorter time limit.

If you have disability accommodations for quizzes you would like to use, contact the instructor either at the beginning of the semester or as soon as you are given accommodations to discuss arrangements

## Guided Exercises

There will usually be one or more programming exercise every week; these exercises are not graded but completing them can help your understanding in the class. These exercises are designed to reinforce your programming experience with the various system programming constructs introduced each week.

## Reading Assignments

Homework will be assigned through Zybooks. Zybooks is an interactive textbook that enforces daily reading with demonstrations, quizzes, and small challenge problems.

### Instructions for Zybooks Access

1. Go to the Canvas Course Home Page
2. Click on any of the reading assignments.
3. On your first time subscribing, you will be prompted to purchase a subscription. Follow the steps to link your subscription and account to your Canvas account.

If this doesn't work, do the following ...

1. Go to <https://www.zybooks.com>
2. Login or create an account.
3. Subscribe to the textbook using the code MSSTATECSE1384KnightSpring2024

It is your responsibility to complete the assigned homework weekly. Failure to complete homework will lead to poor scores on Quizzes, Tests, and Programming Assignments

### Standards of Achievement

Assessments		Scale	
Exams	60%	A	>=90%
Quizzes	20%	B	80%-89%
Lab Assns	20%	C	70%-79%
		D	60%-69%
		F	<60%

## Computers

All students are expected to have a working laptop computer that meets minimum specifications. See the Bagley College of Engineering web site for more details: <http://www.bagley.msstate.edu/computer/>

The laptop will be used to complete tests, quizzes, and programming assignments. Failure to bring your laptop to class or laptop malfunctions are not permissible excuses for missing a test, missing a quiz, or failing to complete a programming assignment.

All instructions given during this course will assume that the student is using Windows 10 on their laptop. If you choose to use Mac OS or Linux as your operating system, you are accepting the responsibility for learning how to use any and all software (operating system, web browser, browser plugins required for tests and quizzes, compiler, file transfer programs, etc.) without assistance.

## OS, Compiler, and Integrated Development Environment

Students are expected to write programs using the C++ language. The recommended compiler/environment for C++ is Microsoft Visual Studio. The link for Visual Studio can be found at <https://visualstudio.microsoft.com/downloads/>.

The Community edition is free for students.

If you do not have access to a Windows machine or your system does not support Visual studio, you can use alternative compilers, but all code will be graded in Visual studio. Code that does not compile with the C++ standard will NOT be acceptable.

## Programming Assignments

### Late Policy

Every assignment must be turned in by the due date specified to receive full credit. Students have 72 hours to turn in an assignment after it is late. If the assignment is turned in before 72 hours has passed after the due date, then a 10 percent penalty per day late will apply. Any assignment turned in after the 72-hour deadline will automatically receive a grade of zero.

### Collaboration

In absolutely no circumstances should any student share code used in an assignment with another student unless given permission to by the instructor. Any students sharing or accepting assignment without instructor permission will be reported for an honor code violation. Please refer to the Academic Honesty section for more information.

### Referencing

Copying code (from other students, from the internet, etc.) to submit as your own work is not appropriate. Any material (other than the textbook and course slides) used while writing code must properly cited. Referenced material should only include pseudocode or materials explaining the topic without code.

## Attendance

This course will follow MSU's class attendance policy. For details, see

- <http://catalog.msstate.edu/undergraduate/academicpolicies/classattendance/>
- <http://www.policies.msstate.edu/policypdfs/1209.pdf>

The following are acceptable excuses for absences:

- Participation in an authorized university activity.
- Death or major illness in a student's immediate family.
- Participation in legal proceedings or administrative procedures that require a student's presence.
- Religious holy day.
- Illness that is too severe or contagious for the student to attend class.

- Required participation in military duties.
- Mandatory admission interviews for professional or graduate school which cannot be rescheduled.
- An illness or injury of a student's immediate family.

A student is expected to have proper documentation for an excused absence. Failure to provide adequate documentation will result in the absence not being excused. The instructor may ask the student to obtain verification of their excused absence through the Dean of Students Office.

Students auditing the course are required to attend every class meeting. The only exception to this rule is if the absence is excused, as described above.

## Final Exam Date/Time

<http://www.registrar.msstate.edu/Students/examschedule.html>

## University Syllabus

The Mississippi State University Syllabus contains all policies and procedures that are applicable to every course on campus and online. The policies in the University Syllabus describe the official policies of the University and will take precedence over those found elsewhere. It is the student's responsibility to read and be familiar with every policy. The University Syllabus may be accessed at any time on the Provost website under Faculty and Student Resources and at

<https://www.provost.msstate.edu/faculty-student-resources/university-syllabus>