

Course ID/Name: Comp 625 Data Structures & Algorithms

(rev 8/26/25)

Semester: Fall 2025

Instructor: Michael Jonas (**office:** Zoom, **email:** mcy59@unh.edu)

Time and Location: Tuesday, 1 – 4pm, room 142 in Pandora

Office Hours: by appointment

Web Presence:

Website: <http://stem.unh.edu/mcy59/comp/625>

Course Description:

Introduction to the concepts and techniques of computer programming, including data structures such as lists, stacks, trees and efficient ways to sort and search them. Basic topics include control structures, file manipulation, and recursion. Introduces Object-Oriented design and analysis, including class definition and use, inheritance, and polymorphism. Good programming style is stressed. Significant out-of-class programming is required.

Prerequisites: not open to students who have had CS 407. 4 cr.

Learning Objectives:

Students should develop skills in programming complex data structures and designing and implementing application code using Object-Oriented programming practices with Java.

Reading Material:

Material will be derived from lectures and from time to time there will be online resources pointed to. There is no textbook for this class.

Software Tools:

We will use Notepad++ and the G++ compiler and interpreter within the Windows command shell environment.

Student Work and Class Pedagogies:

Lectures will generally take the form of board presentation with questions and answers. The course is 4 credits for undergraduates and the expectation is a minimum of 3 hours engaged time per week per credit over 16 week semester.

Lab Work:

For labs, students will be given a problem to solve individually. Most of the lab work will also translate to further homework assignments where student can show individually what they have learned within the collaborative setting of the lab.

Homework Assignments:

A total of 5 homework assignments are given during the semester. Each assignment will build on the previous set of assignments and become progressively harder. All homework is expected to be done individually.

Project:

A final project will be developed from the design phase all the way through full implementation.

Schedule

<i>Class Date</i>			<i>Class Topics</i>	<i>Lab Work</i>	<i>Assignments Due</i>
Aug 26	F U N D E M E N T A L S	R E F R E S H E R	Course Overview, Tools, and Basics	Lab0	
Sep 2			Types, Variables, Operators, and Flow Control,	Lab1	
Sep 9			Classes and Objects: Methods, Instance Variables, Parameters, and Recursion		Hw1
Sep 16			Inheritance and Polymorphism	Lab2	
Sep 23			Arrays and Analysis		Hw2
Sep 30			Search and Sorting	Lab3	
Oct 1			Linked Lists		Hw3
Oct 14			Stacks	Lab4	
Oct 21			Queues		
Oct 28			Hashing		Hw4
Nov 4			Trees	Lab5	
Nov 11	M I S C		<i>No class, Veterans Day</i>		
Nov 18			Heaps		Hw5
Nov 25			B-Trees		Project: design
Dec 2			Review	Lab6	
Dec 16			Exam		
					Project: final (due Dec 19 th)

Grading:

15% Participation

This includes attendance and participation

15% Lab work

Lab assignments done during lab: 5 out of 6 at 3 points each

25% Homework

You will have 5 homework assignments at 5 points each

20% Programming Project

Design worth 5 points and implementation worth 15 points

25% Exam

Policies

Academic Honesty and Collaboration:

Collaboration is encouraged and supported in the classroom through lab activities and outside the classroom as directed by instructor. Note that homework assignments and tests you submit **must be entirely your own work**. Deviation from this policy will result in dismissal from the course.

See the University policy on **Academic Honesty** for more information.

Attendance:

Is mandatory and you will lose on class participation grade for unexcused absences. Since work is based off lecture and class activities it becomes difficult to do well with too many absences.

Late Assignments and Make-Up Exams:

Policies for late assignments and make-up exams are very strict and apply only in exceptional cases of student illness, accident, or emergencies that are properly documented. It is your responsibility to make arrangements with instructor before the deadline as soon as you are aware you will miss a deadline, exam or class. Unexcused late assignments are penalized 20% per day.

Use of Electronic Devices in Classroom:

Not allowed during examinations. Absolutely no cell phone use during class time.

Accessibility Services:

The University is committed to providing students with documented disabilities equal access to all university programs and facilities. If you think you have a disability requiring accommodations, you must register with Student Accessibility Services (SAS) office. The Student Accessibility Coordinator at UNHM is Jenessa Zurek (email jenessa.zurek@unh.edu).

Mental Health and Wellness

In partnership with The Mental Health Center of Greater Manchester, UNH Manchester offers free mental health sessions for students. For scheduling a session email unhm.advising@unh.edu.