

**Texas State University**  
**Department of Computer Science**

**CS 3358 - 256 Data Structures & ALGM**  
**Spring - 2024**

**Catalog Description:**

A course covering classic data structures and an introduction to object-oriented development.

**Prerequisites:** C or higher in CS 2308 : Foundations of Computer Science II  
C or higher in MATH 2358.

**Course Objectives:**

1. Understanding Abstract Data Types: motivations and basic concepts.
2. Understanding of the behavior of basic data structures (lists, stacks, queues, trees (binary trees and tree traversals, height-balanced trees), graphs, hash tables).
3. Ability to analyze a problem and determine the appropriate data structure.
4. Understand the importance of data modeling and data structures in advanced programming.
5. Understand and analyze elementary algorithms: sorting, searching and hashing.
6. Ability to analyze the impact of data structures technique on the performance of algorithms (time and space complexity)/programs.

7. Understanding of recursion and its applications.
8. Data structure implementation issues. Understanding of dynamic versus array implementations of data structures, factors involved in deciding on an implementation technique.
9. Practice in writing modular programs using the data structures that have been studied.
10. Understanding the mechanics of code design, organization, and the development environment.
11. Understanding data structure implementation in C++ using header files and implementation files.

## Lecture Scheduled Type :

- **Unless the university's rules change, this class is being taught face-to-face mode. Nevertheless, I might apply zoom from the classroom, and it will be up to the discretion of students on whether to use Zoom or be present in class. Regardless, attendance is required.**
- We will be using a combination of **ZOOM, Canvas my personal web site** for course content delivery, announcements , most assessments, and/or assignment submission .
- **Successfully completing the requirements of the course places more responsibility on the shoulders of the student. Staying engaged is vital to the learning process. Practice is especially important when learning to write efficient, readable code that is easily maintainable.**
- **Should you attend the class through zoom, you are required to have a working camera and a working microphone. You will be required to leave your camera on during Zoom lecture meetings.**

- Should you attend the class *face-to-face*, **it is highly recommended** that you wear mask that covers both your mouth and nose the entire class time. This is to protect you and everyone's health in the class and around.
- Should you attend the class *face-to-face*, you will not allowed to use a cell phone during the lectures.

**Instructor:** Husain Gholoom

**OFFICE:** COMAL 301F

**E-MAIL:** [hag10@txstate.edu](mailto:hag10@txstate.edu)

(You can expect a reply to your e-mail account **if** you provide me with the correct university provided e-mail address; however, do not depend on immediate responses at night or over the weekend.)

**My Webpage:** <http://www.husaingholoom.com/classes.html>

**Meeting Time:** CS 3358 – 256 MW 3:30 pm - 4:50 pm  
Trauth-Huffman Hall 408 ( face-to-face )

**Office Hours ( Via Zoom ):**

MW 11:45 am - 2:00 pm

**Other times by appointment.  
(Appointments need not be made during regularly  
scheduled office hours. Must have the camera on  
when attending office hours)**

**Text Book ( Optional ) :**

Data Structures and Other Objects Using C++  
By Michael Main and Walter Savitch  
Publisher : Addison Wesley - 2011  
ISBN-13: 0-13-212948-5  
ISBN-10: 0-321-19716-X ( 3rd Edition – 2005 )

**GRADING POLICY:**

**Class attendance : Required ( *face-to-face* / virtual )**

**Programming Assignments ( 6 – 7 ) : 10%**

**Midterm Exam - 1 : 25 % ( February 21<sup>st</sup> -2024  
*face-to-face* )**

**Midterm Exam - 2 : 25 % ( April 3<sup>rd</sup> – 2024  
*face-to-face* )**

**Programming Project : 10 %**

**Final Exam (comprehensive) : 30 % ( *face-to-face* )**

**Final Exam Date :**

**CS3358-256 on Wednesday May 8<sup>th</sup>, 2024  
2:00 pm – 4:30 pm ( *face-to-face* )**

**Note:** You are *required* to show your Texas State student (photo) ID to your instructor on exam days. A driver's license is not adequate. Exam scores will be recorded as zeros until your Texas State student ID is presented.

**Final Exam will be administered *only* on the day and at the time indicated in the university final exam schedule.**

**Exams will be announced** at least one week in advance. They are typically scheduled in the sixth and the tenth weeks of the semester; however, the actual dates may be adjusted to benefit the students. Look at the website for the exact dates.

If you are absent at the time of *a test* , a grade of **zero** will be recorded. If you are absent at the time of *final exam* , a final letter grade of **F or U** will be recorded.

**Makeup Exams policy : There will be NO Makeup Exams .**

## **GRADING SCALE:**

**Determination of letter grade in the course :**

**semester average  $\geq 89.5$  A**

**$79.5 \leq$  semester average  $< 89.5$  B**

**$69.5 \leq$  semester average  $< 79.5$  C**

**$59.5 \leq$  semester average  $< 69.5$  D**

**semester average  $< 59.5$  F or U**

**Programs** are very important to this course. Therefore, *ALL* programs *MUST* be turned in. A '*good faith*' effort must be demonstrated for each program that turned in. *Programs that contain compilation errors will automatically receive a 60% penalty.* To receive *any* credit for a programming assignment, the source code (along with appropriate support files) must be submitted *electronically on or before the due date.* Assignments should be uploaded *via canvas* on the specified date and time.

**For each 24-hour period that the assignment is late, your assignment grade will be eligible to receive 15% less points. For example, 24 hours beyond the deadline, your assignment grade would be capped at 85%, and 48 hours beyond the deadline, your assignment grade would be capped at 70%. After 48 hours (two days) beyond the deadline, you will receive zero points for the assignment .**

**So, please do not ask for any extensions or submitting late assignments after 48 hours of the deadline.**

There will be between six to eight homework assignments. The lowest homework grade will automatically be dropped and will not be counted towards your assignment grades. Hence, you can miss one of the homework assignments without it affecting your grade.

You are required to install **Code::Blocks** on your personal device, the IDE used in the course for lecture assignments. Make sure to install the same version as the one installed in our labs.



**All programs are going to be tested using Code::Blocks.  
Testing methodology will be announced at the time when the  
assignment is assigned and published.**

You can use any IDE that is installed on your personal computer, **however**, you are responsible for making any adjustments to accommodate differences between IDE requirements before submitting your projects since programming assignments will be graded using Code::Blocks

**ALLOW FOR NATURAL DISASTERS!** The computer system used may 'go down', lost internet service ...etc. These types of events do **NOT** excuse late work.

**Alert:** Time permitting programs will be run through an Internet service designed for detecting plagiarism in software code such as Moss.

**ACADEMIC OFFENSES:** All assignments submitted for a grade should reflect the work of the *individual* student unless otherwise established in writing by your instructor. Violations will be dealt with according to Academic Procedures and Policies as outlined in the **Texas State Student Handbook**.

Go to <http://www.dos.txstate.edu/handbook.html>, and click on **Academic Honor Code** to review **Academic Offenses** and the **Penalties for Academic Dishonesty**.

Any attempts at obtaining homework, project, or exam solutions from “note sharing sites” such as Chegg and CourseHero or from other sources are considered cheating and carry the same penalty. **The department regularly monitors websites for posted solutions.**

Now that the deadline *for full credit* has been established, *please respect this deadline, and plan accordingly.*

**GRADE DISPUTES :** For complete discussion and possible resolution, grade disputes must be handled in a ZOOM meeting during regularly scheduled office hours or by appointment when all records are readily available to your instructor. Disputes over grades **must** be discussed within **three days** of when grades are posted. For example, you must discuss programming assignment grades within three days of when feedback is posted. This means within **three days** from the date the assignment feedback is **posted**. It **DOES NOT** mean three days from the date you decide to review the feedback.

**ATTENDANCE POLICY:** Class attendance *is required*. You will be held responsible for material covered in the lectures. Some of the material covered in lectures may not be available elsewhere.

**E-MAIL:** Notifications, inquires, questions ... etc. that are related to this class will be send and received **only** via **Texas State e-mail account**. Do not expect a response if the question has been answered in syllabus, Canvas, announcements, or in the class. Please do not expect a rapid response especially over weekends, holidays, or at night. I do not guarantee any response to messages or email inquiries sent during the last 24 hours before homework due date, exam, or project due date. This policy exists to encourage timely work. **Don't** attempt to send any message via Canvas inbox.

**ABSENCE POLICY:** If you are absent at the time of *a test*, a grade of **zero** will be recorded. If you are absent at the time of *final exam*, a final letter grade of **U** will be recorded. There will be **NO** make-up exams.

**DROP POLICY:** (Refer to the [Academic Calendar](#)).

- Official 12th Class Day / Last Day to Drop with **100% Refund - Wednesday , January 31<sup>st</sup> , 2024.**
- Automatic “**W**” deadline and last day to drop a class is on **Tuesday , March 26<sup>th</sup> , 2024**
- Last opportunity to *withdraw* from the University on **Thursday , April 18<sup>th</sup> , 2024 .**
- Students who withdraw from the University after the automatic “**W**” date will be assigned a “**W**” or an “**F**” or an “**U**” based on class performance up to that point in the semester. A “**W**” will be assigned **only** if the class average is *passing* on the day the withdrawal procedure is **officially completed.**

**Note:** Contact the Registrar’s Office as to the proper procedure to follow in order to successfully complete the drop/withdrawal process. If you decide to withdraw from the University *after* the automatic “W” date previously mentioned, be sure to check with your instructor *prior* to completing the withdrawal procedure in order to verify whether you will be receiving a “W” or an “F”. Contact the Registrar if you have any further questions.

It is *your* responsibility to make sure the drop/withdrawal process is complete. Do *not* come to me later and say that you "thought" you had dropped but the process did not "go through" expecting me to change a grade of ‘F’ to a ‘W’. Be sure to check your revised schedule to make sure the course dropped is no longer listed.

**ADA Compliance:** Students with special needs as documented by the Office of Disability Services who require accommodations should identify themselves to the instructor as soon as possible but no later than the **12th class** meeting in a **long session** and no later than the **4th class** meeting during a regular **summer** session. Students with special needs who have not already done so will be required to contact the Office of Disability Services in order to establish accommodations. Every effort will be made to secure the necessary accommodations to facilitate students with special needs/disabilities in order to enhance their performance in the classroom.

**Links to share :**

Office of Disability Services (ODS): <https://www.ods.txstate.edu/>  
(includes step-by-step instructions on how a student register with ODS for ‘academic accommodations’ .