Syllabus
COSC 2336.1E – Data Structures and Algorithms
Texas A&M University Commerce
Fall 2024

Instructor: Dr. Omar El Ariss
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Phone: 903-886-5403
Office Hours:

Day	Time
Tuesday	11:00 am – 12:00 pm & 3:00 pm – 4:00 pm
Thursday	2:00 pm - 4:00 pm
Thursday (Zoom)	4:00 pm - 5:00 pm

Zoom Link
https://tamuc.zoom.us/j/99366433835

Communication Response Time: 24 hours
(Please send a second email if you did not receive a response after 2 days)

Preferred Form of Communication: face-to-face

There are many ways to reach me. There is no substitute for face-to-face communication which often leads to more refined and focused questions resulting in your improved understanding. We can either use Zoom or Skype for an online face to face communication. We can also meet in person by having an appointment. Email is an easy way to ask questions but is not productive as face-to-face communication. I usually respond to emails within 24 hours.

Meeting Time and Place

Tuesday, Thursday: 9:30 am to 10:45 am, JOUR 200

Recommended Text Book

- No textbook is required
- All reading materials will be provided by the instructor.

Other Resources

Malik, D. S. "C++ Programming: From Problem Analysis to Program Design", 6th edition (or higher) Cengage Learning, 2013. (ISBN: 978-1133626381). (7th edition published in 2014, and 8th edition published in 2017).

Required Software

- **C++:** CodeBlocks, VS Code, Xcode, or any other relatively recent C++ compiler/IDE.
- **Python**: Mu

Prerequisite

COSC 1437 (Min Grade C) or CSCI 152 (Min Grade C)

Course Description

This course continues with the concept of abstract data structures (such as classes) that was covered in COSC 1437 (Programming II) and concentrates on building programming tools known as container classes which can be used to store and manipulate data. Topics covered include address variables (pointers & references), linked lists, stacks, queues, recursion, analysis of algorithm efficiency, and binary search trees.

Course Outcomes

Upon completion of the course, students will be able to:

- Use pointers and address variables.
- Use classes to implement data structures such as linked lists, stacks, queues and trees. Comprehend and implement the linked list data structure
- Comprehend and implement the stack data structure
- Comprehend and implement the queue data structure
- Comprehend Big-O notation (algorithmic efficiency) and apply the concept to previous examples
- Comprehend and implement the recursion and compare it with the iteration
- Comprehend and implement the binary tree data structure
- Comprehend and implement the hash table
- Apply those data structures to previous programs including game-driven examples

Assignments

There will be several homework assignments. The purpose of the homework is to reinforce programming material that is covered in class. Programming assignments should be done individually. Make sure to start early on the programming assignments so that you have time to get help if there is a need to. There is a specific mentor for this class whose schedule is posted on D2L. Department lab tutors are also available in JOUR 200 or JOUR 101-102. In addition, the Academic Success Center also provides tutoring in the library for a wide variety of subjects.
Texas A&M University-Commerce acknowledges that there are legitimate uses of Artificial Intelligence, chatbots, or other software that has the capacity to generate code, and textual answers. Any use of such software is not allowed, and constitutes an instance of academic dishonesty (plagiarism).

Assignments will be graded based on the following:

- meet requirements of assignment
- have good organization and logic
- demonstrate good form, including comments and indentation
- on-time (late submission is subject to penalty)

Grading

- Assignments: 40% of grade
- Midterm Exam: 25% of grade

- Final Exam: 35% of grade

Letter grades will be determined using a standard percentage of points scale:

Letter Grade	Cut-off Score
A	90%
B	80%
C	70%
D	60%
F	Below 60%

Effective communication and doing all your assignment work will help the borderline cases. Check your grades often. Any score may be disputed up to seven (7) days after the score is posted. After 7 days, the score remains as-is.

Methods of Instruction

The course will consist mainly of lectures, and class discussions. Important material from the text and outside sources will be covered in class. Therefore, class attendance and good note taking are essential for success. Students are expected to contribute to each class in the form of discussion and questions. Therefore, it is necessary to do any required reading before class.

This syllabus contains an overview of what will be covered in class; for specific information, students are referred to the class web page maintained on D2L course management system. The course web page will contain lectures, assignment information and supporting material. Information on D2L will be updated frequently so it is a good idea to check it regularly. Assignments are posted on D2L and should be submitted through D2L.

Attendance

You are expected to attend every class. If you must miss a class, it is your responsibility to make up for the work that you missed. If you are going to be absent from class please notify the instructor in advance.

Late Submissions Policy

All work submitted electronically must be submitted by midnight of the due date. Late work will be deducted 10% for each day past the due date. Assignment will not be accepted after three days from the due date.

Tips for Success in the Course

- Attend every lecture as long as you are able to.
- Read the lecture notes before and after every lecture, and use the slides as your guideline.
- Check D2L at least twice a week.
- Practice (preferably multiple times) programming the code that we go through during the lectures.
- Start your homework assignments early.
- Do your own work. Please do not copy other's work.
- If you have any questions, or are having difficulties with the course material then please contact your instructor as soon as possible.

Make-up Policy

No individual make-up test will be permitted except in the case of a formal institutional excuse. There will be no makeup for project deliverables.

Syllabus Change Policy

The syllabus is a guide. Circumstances and events, such as student progress, may make it necessary for the instructor to modify the syllabus during the semester. Any changes made to the syllabus will be announced in advance.

Tentative Course Outline

Week	Content	Book Reading
1	Review of Programming I & II concepts	Ch. 3-8
2, 3	Pointers & References	Ch. 12
4, 5	Classes	Ch. 10, 11
6, 7	Singly Linked Lists	Ch. 17
8	Doubly Linked Lists	Ch. 17
9	**Midterm Exam,** Stacks	Ch. 18
10	Stacks	Ch. 18
11	Queues	Ch. 18
12	Queues	Ch. 18
13	Analysis of Algorithms	
14	Recursion – Thanksgiving Break	Ch. 15
15	Binary Trees	
16	**Final Exam (**comprehensive**)**	

Student Conduct

All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment. The Code of Student Conduct is described in detail in the Student Guidebook. http://www.tamuc.edu/admissions/registrar/documents/studentGuidebook.pdf
Students should also consult the Rules of Netiquette for more information regarding how to interact with students in an online forum: Netiquette http://www.albion.com/netiquette/corerules.html

Academic Honesty

"All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment." (See Student's Guide Handbook, Policies and Procedures, Conduct). It is the policy of the University, that no form of plagiarism or cheating will be tolerated. Plagiarism is defined as the deliberate use of another's work and claiming it as one's own. This means ideas as well as text or code, whether paraphrased or presented verbatim (word-for-word). Cheating is defined as obtaining unauthorized assistance on any assignment. Proper citation of sources must always be utilized thoroughly and accurately. If you are caught sharing or using other people's work in this class, you will receive a 0 grade and a warning on the first instance. A subsequent instance will result in receiving an F grade for the course, and possible disciplinary proceedings. If you are unclear about what constitutes academic dishonesty, ask.

For more details and the definition of academic dishonesty see the following procedures:

Undergraduate Academic Dishonesty 13.99.99.R0.03

Special Needs

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you have a disability requiring an accommodation, please contact:

Office of Student Disability Resources and Services
Texas A&M University-Commerce
Gee Library- Room 162
Phone (903) 886-5150 or (903) 886-5835
Fax (903) 468-8148
Email: studentdisabilityservices@tamuc.edu
Website: Office of Student Disability Resources and Services
http://www.tamuc.edu/campusLife/campusServices/studentDisabilityResourcesAndServices/

Nondiscrimination Notice

Texas A&M University-Commerce will comply in the classroom, and in online courses, with all federal and state laws prohibiting discrimination and related retaliation on the basis of race, color, religion, sex, national origin, disability, age, genetic information or veteran status. Further, an environment free from discrimination on the basis of sexual orientation, gender identity, or gender expression will be maintained.

Campus Concealed Carry Statement

Texas Senate Bill - 11 (Government Code 411.2031, et al.) authorizes the carrying of a concealed handgun in Texas A&M University-Commerce buildings only by persons who have been issued and are in possession of a Texas License to Carry a Handgun. Qualified law enforcement officers or those who are otherwise authorized to carry a concealed handgun in the State of Texas are also permitted to do so. Pursuant to Penal Code (PC) 46.035 and A&M-Commerce Rule 34.06.02.R1, license holders may not carry a concealed handgun in restricted locations.

For a list of locations, please refer to the Carrying Concealed Handguns On Campus document and/or consult your event organizer.

Web url:
http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/34SafetyOfEmployees AndStudents/34.06.02.R1.pdf

Pursuant to PC 46.035, the open carrying of handguns is prohibited on all A&M-Commerce campuses. Report violations to the University Police Department at 903-886-5868 or 9-1-1.