



CSCI520.01B
DATA STRUCTURES
COURSE SYLLABUS: SPRING 2025

INSTRUCTOR INFORMATION

Instructor: (Name & Title) Dr. Abdullah N. Arslan
Lecture Hours: T 9:30am-10:45am
Lecture Location: ART 111

Office Location: JOUR 122
Office Hours: TR 11AM -12:30 PM

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Office Fax: 903-886-5404

University Email Address: Abdullah.Arslan@tamuc.edu

Preferred Form of Communication: e-mail
Communication Response Time: 24 hrs

COURSE INFORMATION

Materials – Textbooks, Readings, Supplementary Readings

Textbook(s) Required

Algorithms in C++, Third Edition, Parts 1-4, Fundamentals, Data Structures, Sorting, Searching by Robert Sedgewick, Addison Wesley, ISBN 0-201-35088-2, 2009

This is a face-to-face course. Students are expected to attend the lectures to learn, take notes, and follow the announcements made in the classroom such as assignment deadlines. The professor will try to make supplementary information for the course available online. These include class notes, assignments, PowerPoint slides, class announcements, the course syllabus, test dates, etc. The professor will announce in class when such information becomes available electronically. It is the student's responsibility to follow these announcements in the class and/or on-line.

Software Required

Visual Studio.net or Dev C++ available in JOUR 102

Optional Texts and/or Materials

Course Description

Hours: 4

Three hours of lecture and two hours of lab. The concept of abstract data structures forms the basis for the study of the data structures introduced in this course. Well known, basic data structures and the algorithms associated with them form the primary subject matter.

Knowledge of these basic data structures will allow the student to create large scale programs which process meaningful amounts of data. Comparative efficiency analysis of the algorithms studied in the course will be introduced. The student will also become acquainted with formal methods for specifying abstract data types as well as algorithms. Prerequisites: [CSCI 515](#).

The main objective of this course is to teach students the basic data structures, their efficient implementations and applications. You should be able to compare and understand the differences between each data structure and be able to determine best data structures for a given application based on memory usage and/or execution time.

Student Learning Outcomes

- 1) To understand the concept of sparse matrices, stacks, and queues
- 2) To examine the differences between linear and linked representation of stacks, queues and ordered data
- 3) To understand and implement tree structures and compare various sorting algorithms

COURSE REQUIREMENTS

Minimal Technical Skills Needed

Students must know using the learning management system. They need to know basic programming in C++.

Instructional Methods

The instructor will cover the topics in the lectures. He will prepare relevant programming assignments, and practice questions. Answers to quizzes and exams, and approaches to assignments will be discussed in class. The assignments will closely parallel the topics covered in the lectures.

Student Responsibilities or Tips for Success in the Course

Students must regularly log into the course website, and participate in discussions in lectures. They need to attend the lab every week. They need to deliver the assignments on time.

GRADING

Final grades in this course will be based on the following scale:

A = 90%-100%

B = 80%-89%

C = 70%-79%

D = 60%-69%

F = 59% or Below

Final score will be out of 100, and the above percentages will be applied to student's total score to determine the letter grade.

Assessments

Two midterm exams	35%
Assignments	20%
Quizzes	20%
Comprehensive final test	25%

The assignments, quizzes, and tests will include questions and tasks on each of the course objective listed above by which the students learning outcomes are measured. The programs will be submitted in an electronic form, whereas the other assignments, quizzes, and exams are to be written on paper.

The professor reserves the rights to reward students for continuous hard work or for an exceptional novel scientific work (as judged by the instructor) relevant to the topics covered.

TECHNOLOGY REQUIREMENTS

LMS

All course sections offered by Texas A&M University-Commerce have a corresponding course shell in the myLeo Online Learning Management System (LMS). Below are technical requirements

LMS Requirements:

<https://community.brightspace.com/s/article/Brightspace-Platform-Requirements>

LMS Browser Support:

https://documentation.brightspace.com/EN/brightspace/requirements/all/browser_support.htm

YouSeeU Virtual Classroom Requirements:

<https://support.youseeu.com/hc/en-us/articles/115007031107-Basic-System-Requirements>

ACCESS AND NAVIGATION

You will need your campus-wide ID (CWID) and password to log into the course. If you do not know your CWID or have forgotten your password, contact the Center for IT Excellence (CITE) at 903.468.6000 or helpdesk@tamuc.edu.

Note: Personal computer and internet connection problems do not excuse the requirement to complete all course work in a timely and satisfactory manner. Each student needs to have a backup method to deal with these inevitable problems. These methods might include the availability of a backup PC at home or work, the temporary use of a computer at a friend's home, the local library, office service companies, Starbucks, a TAMUC campus open computer lab, etc.

COMMUNICATION AND SUPPORT

If you have any questions or are having difficulties with the course material, please contact your Instructor.

Technical Support

If you are having technical difficulty with any part of Brightspace, please contact Brightspace Technical Support at 1-877-325-7778. Other support options can be found here:

<https://community.brightspace.com/support/s/contactsupport>

Interaction with Instructor Statement

The instructor will respond to your questions within 24 hrs unless there are exception situations such as sickness.

COURSE AND UNIVERSITY PROCEDURES/POLICIES

Course Specific Procedures/Policies

Quizzes: *are to be solved independently during the class period. The quizzes will be administered in class. Makeup quizzes will not be given. Any class material missed by the student is the student's responsibility to acquire.*

Tests: *The two in-class midterm exams will be given roughly at regular intervals. Students will be informed of the test dates around a week in advance. There will be a final exam too. The test will take one class period and will be given at the scheduled times only. No opportunity will be given to take the test at earlier or later times except in extreme cases as judged by the instructor.*

Makeup: *Except extreme cases (as judged by the instructor), no individual makeup test will be permitted.*

All quizzes and tests are closed book.

During lectures and exams laptops and phones must be switched off all the time unless the instructor permits.

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.

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/oneStopShop/undergraduateAdmissions/studentGuidebook.aspx>

Students should also consult the Rules of Netiquette for more information regarding how to interact with students in an online forum:

<https://www.britannica.com/topic/netiquette>

TAMUC Attendance

For more information about the attendance policy please visit the [Attendance](#) webpage and [Procedure 13.99.99.R0.01](#).

<http://www.tamuc.edu/admissions/registrar/generalInformation/attendance.aspx>

<http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/academic/13.99.99.R0.01.pdf>

Academic Integrity

Students at Texas A&M University-Commerce are expected to maintain high standards of integrity and honesty in all of their scholastic work. For more details and the definition of academic dishonesty see the following procedures:

[Undergraduate Academic Dishonesty 13.99.99.R0.03](#)

<http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/undergraduates/13.99.99.R0.03UndergraduateAcademicDishonesty.pdf>

[Graduate Student Academic Dishonesty 13.99.99.R0.10](#)

<http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/graduate/13.99.99.R0.10GraduateStudentAcademicDishonesty.pdf>

Students with Disabilities-- ADA Statement

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/34SafetyOfEmployeesAndStudents/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.

Texas A&M University-Commerce acknowledges that there are legitimate uses of Artificial Intelligence, ChatBots, or other software that has the capacity to generate text, or suggest replacements for text beyond individual words, as determined by the instructor of the course.

Any use of such software must be documented. Any undocumented use of such software constitutes an instance of academic dishonesty (plagiarism).

Individual instructors may disallow entirely the use of such software for individual assignments or for the entire course. Students should be aware of such requirements and follow their instructors' guidelines. If no instructions are provided the student should assume that the use of such software is disallowed.

In any case, students are fully responsible for the content of any assignment they submit, regardless of whether they used an AI, in any way. This specifically includes cases in which the AI plagiarized another text or misrepresented sources.

13.99.99.R0.03 Undergraduate Academic Dishonesty

<https://inside.tamuc.edu/aboutus/policiesproceduresstandardsstatements/rulesprocedures/13students/undergraduates/13.99.99.R0.03UndergraduateAcademicDishonesty.pdf>

13.99.99.R0.10 Graduate Student Academic Dishonesty

<https://inside.tamuc.edu/aboutus/policiesproceduresstandardsstatements/rulesprocedures/13students/graduate/13.99.99.R0.10.pdf>

COURSE OUTLINE / CALENDAR

TOPICS BY WEEKS

WEEK	TOPIC
1-3	Sparse matrices, linear linked-lists, and applications
4	Stacks, Review and Quiz 1
5	Exam 1
6-9	Queues and trees
10	Review and Quiz 2
11	Exam 2
12-13	Sorting Algorithms, Review and Quiz 3
14	Final Exam

If time permits, some additional data structure topics such as binary trees, heaps, Fibonacci trees, AVL trees, KD-trees, R trees, disjoint sets, hashing and their applications may be discussed.

There is also a separately scheduled lab course required to be enrolled: CSCI 520.01L. Student must enroll in and successfully complete the required lab class for this course. No grade is assigned to a student for this lab. However, students' lab scores will contribute to their letter grade in 520.

Every week there will be an assignment for the lab.

Lab Time: Thurs 5:30p-6:45p Campus: Main Building: JOUR Room: 102

STUDENT LEARNING OUTCOMES (SLO)

- 1) To gain experience in writing code to manipulate various data structures
- 2) To gain experience creating efficient code in C/C++

The assignments will include tasks on each of the course objective listed above by which the students learning outcomes are measured

The lab assignments every week will be from the topics covered in CSCI 520 lectures

Students must enroll in the Information Structures class while taking this lab course.

Lab assignments: Assignments are to be demonstrated during scheduled weekly lab time. Assignments will include code to be written and tested. Assignments will be made available online by the instructor.

The syllabus/schedule are subject to change.