



**CSCI520.01W**  
**DATA STRUCTURES**  
COURSE SYLLABUS: **SUMMER I, 2024**

**INSTRUCTOR INFORMATION**

**Instructor:** (Name & Title) Dr. Abdullah N. Arslan  
**Lecture Hours:** WEB-BASED (meeting hours will be announced)

**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 web-based course. Students are expected to attend the on-line meetings to learn, and follow the announcements made in the meeting such as assignment deadlines. The professor will try to make supplementary information for the course available online. These include recorded lectures, assignments, PowerPoint slides, class announcements, the course syllabus, test dates, etc. The professor will announce in meetings when such information becomes available electronically. It is the student's responsibility to follow these announcements on-line.

***Software Required***

Visual Studio.net or Dev C++ available in JOUR 102. C++ programming environments on personal computer can also be used.

***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 lectures. 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

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

## ***Assessment***

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 objectives listed above by which the students' learning outcomes are measured. All work will be submitted/uploaded online in digital form.

The professor reserves the right 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](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](mailto: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 exceptional situations such as sickness.

## COURSE AND UNIVERSITY PROCEDURES/POLICIES

**A&M-Commerce requires the use of face-coverings in all instructional and research classrooms/laboratories. Exceptions may be made by faculty where warranted. Faculty have management over their classrooms. Students not using face-coverings can be required to leave class. Repetitive refusal to comply can be reported to the Office of Students' Rights and Responsibilities as a violation of the student Code of Conduct.**

**Students should not attend class when ill or after exposure to anyone with a communicable illness. Communicate such instances directly with your instructor. Faculty will work to support the student getting access to missed content or completing missed assignments.**

If need arises, parts of the course can be conducted online.

### ***Course Specific Procedures/Policies***

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

**Tests:** *The two midterm exams will be given roughly at regular intervals. Students will be informed of the test dates two days in advance. There will be a final exam too. The test will take one lecture 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 online.

### **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](mailto:studentdisabilityservices@tamuc.edu)

Website: [Office of Student Disability Resources and Services](http://www.tamuc.edu/campusLife/campusServices/studentDisabilityResourcesAndServices/)

<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	Sparse matrices, linear linked-lists, and applications
2	Stacks, Review, Quiz 1, Exam 1
3	Queues and trees, Review, Quiz 2, Exam 2
4	Sorting Algorithms, Review, Quiz 3, Final Exam

There is also a separately scheduled lab course required to be enrolled: CSCI 520.0LW. Students must enroll in and successfully complete the required lab work for this course. No grade is assigned to a student for this lab. However, students' lab scores will contribute to their letter grade of 520.

Every week there will be an assignment for the lab.

Lab Time: WEB-BASED (announced later)

## 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 objectives 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.*