Algorithms CSCE 4110.01

Syllabus: Spring 2026

Instructor: Bahareh Dorri

Office: E235F

In-person Office Hours: 11:00 am - 12:30 pm Mondays
Online Office Hours: 10:00 am - 12:00 pm Tuesdays (by appointment only; request via email 24 hours in advance)
 Email: Bahareh.mokarramdorri@unt.edu

Class Time: 1:00 pm - 2:20 pm Mondays & Wednesdays

Place: K150

Graders:

IA: Bisesh Rana
Email: BiseshRana@my.unt.edu
Office: TBA
In-Person Office Hours: TBA
Online Office Hours: TBA

TA: Jubair Ibn Malik Rifat

Email: JubairIbnMalikRifat@my.unt.edu
Office: TBA
In-Person Office Hours: TBA
Online Office Hours: TBA

Communication Expectations:

Connect with me through email and/or by attending office hours. I will strive to respond to your emails within 1 business day and make grades of each homework/exam within two weeks after the due date. Please write the course number in your email subject line. If you contact me and do not receive a response within two business days, please send a follow up email. A gentle nudge is always appreciated.

All course related announcements will be on Canvas. Please setup your notification settings to avoid missing any announcements. Please check CLEAR Online Communication Tips at
https://clear.unt.edu/online-communication-tips.
I reserve the right to modify course policies, the course calendar, assignment or project point values, and due dates.

For assistance with assignments or questions about grading of a particular assignment, you may also contact the IAs assigned to this course directly via e-mail or their office hours.

Textbook

· *Introduction to Algorithms*, by Thomas H. **C**ormen, Charles E. **L**eiserson, Ronald L. **R**ivest, Clifford **S**tein (3th or 4th Edition) **(CLRS)**

Course Description

The course will focus on design strategies, the mathematical analysis of the algorithms, and their proofs of correctness.
Topics include time complexity of algorithms; algorithm design methodologies including divide and conquer, greedy, and dynamic programming; exposure to approximation algorithms for NP-hard problems; performance evaluation of algorithms.

Prerequisites

Students planning to enroll in this course should have taken CSCE 2110 with a C or better.

Learning Outcomes

By the end of this course, students will:

1. Be able to analyze the time and space complexity of a nontrivial algorithm, using mathematical tools, and prove/justify the correctness.

2. Be able to understand the Divide and Conquer, Greedy, and Dynamic Programming, and branch-and-bound strategies for algorithmic design.

3. Be familiar with the algorithms for Matrix Multiplication (Strassen's), Activity Selection, Knapsack, Shortest Paths (single source, and all pairs), Minimum Spanning Tree, Matrix Chain, and Longest Common Subsequence problems.

4. Be exposed to approximation algorithms for solving NP-hard problems.

5. Be able to determine and measure the efficiency of a given algorithm, in practice, through different possible implementations, and by testing on suitable datasets.

6. Be able to communicate clearly and precisely in writing about the theoretical analysis of an algorithm and its efficiency in practice.

Course outcomes are measurable achievements to be accomplished by the completion of a course. These outcomes are evaluated as part of our ABET accreditation process.

Grading

· Assignments/ Quizzes 35%

· Exam 1   12%

·   Exam 2   13%

·   Exam 3   20%

·   In-class activities**   20%

A: 90-100; B: 80-89; C: 70-79; D: 60-69; F <60

Tentative Course Schedule:

Week	Topics	Assignments Due
1	Growth of Functions	
2	Time Complexity	
3	Space Complexity	Assignment 1
4	Divide & Conquer	
5	Divide & Conquer	Assignment 2
6	Review for Exam 1 & Exam 1	
7	Dynamic Programming	
8	Dynamic Programming	
9	Spring Break (no class)	
10	Greedy Algorithms	
11	Greedy Algorithms	Assignment 3
12	Graph Algorithms and Review for Exam 2	
13	Exam 2	
14	Graph Algorithms	
15	NP-Completeness	Assignment 4
16	Review & Exam 3	

This course has digital components. To fully participate in this class, students will need internet access to reference content on the Canvas Learning Management System. If circumstances change, you will be informed of other technical needs to access course content. Information on how to be successful in a digital learning environment can be found at [Learn Anywhere](https://online.unt.edu/learn) (https://online.unt.edu/learn).

* Students are expected and encouraged to attend classes. Students will be responsible for any missing class activities (such as quizzes, in-class assignments, etc.) or announcements. The absence reason could be anything including university sponsored events. Also, the student's absence does not change the due date of any assignment.

Assignments: Assignments must be turned in on their due dates. Late submissions may be allowed up to 24 hours after the due date with a 20% penalty on the grade for that assignment. Submissions after the grace period will not be accepted!

We do not accept assignments submission by email.

Due to the *ad hoc* nature of the in-class activities, they will be announced during class time. For most cases, no in-class activities announcement will be made on Canvas. It is your responsibility to listen to class carefully to learn about these activities.

In-Class Activity Grading Policy
In-class activities are worth **20%** of your final grade and are designed to reinforce key concepts through hands-on problem-solving and peer discussion.

To allow for occasional absences or emergencies, **your two lowest in-class activity scores will be dropped at the end of the semester**.
This means you can miss up to two in-class activities without penalty. No additional make-up opportunities will be provided beyond this allowance.

Please note that this policy is intended to provide flexibility for unforeseen circumstances, so you should plan to attend and participate in all activities whenever possible.

Grades for all assessments will be posted on Canvas throughout the semester to provide an ongoing assessment of student progress, but typically about 10-15 calendar days after the assignment was due. **Grading discussion should first go to the IA/TA graded your assignment in 5 calendar days after grades posted, but if a resolution cannot be reached between the student and the grader, then you should go to the instructor who will have the final decision on the grade. After 5 calendar days, barring an exceptional circumstance, grades will not be altered.**

Students will be notified by Eagle Alert if there is a campus closing that will impact a class and describe that the calendar is subject to change, citing the [Campus Closures Policy](https://policy.unt.edu/policy/15-006) (https://policy.unt.edu/policy/15-006).

Make-up Work Policy

For most situations there will be no make-up work for any assessment in this course. However, in the event of an unavoidable absence for one of the reasons below, email me as soon as possible so we can work out a solution. The following events are grounds for make-up work: being a participant in a

conference in which you are presenting; being in an athletic or other UNT associated event in which you are an active participant; a family emergency; a severe illness; military duty; or in certain cases and with some restrictions a religious event. Additionally, in the case of a missed assignment due to illness, make-up work will only be allowed by the instructor to receive further notification from the Dean of Students. Students are responsible for sending an email to the Dean of Students with a physical copy of a signed doctor's note. See the UNT Attendance Policy for more information.

A student is responsible for requesting an excused absence in writing, providing satisfactory evidence to the **Dean of Students (deanofstudents@unt.edu)** to substantiate excused absence, and the Dean of Students will send the notification to the faculty member assigned to the course for which the student will be absent. When an absence is excused, the faculty member will provide a reasonable time after the absence for the student to complete the assignment.

Academic Integrity

In this course, I want you to engage deeply with the materials and develop your own critical thinking and writing skills. For this reason, the use of Generative AI (GenAI) tools like Claude, ChatGPT, Gemini, etc. is not permitted. While these tools can be helpful in some contexts, they do not align with our goal of fostering the development of your independent thinking. Using GenAI to complete any part of an assignment, exam, or coursework will be considered a violation of academic integrity, as it prevents the development of your own skills, and will be addressed according to the Student Academic Integrity policy. Additionally, tools like Grammarly, spellcheck, predictive text, speech-to-text, and translation tools, etc. are not allowed as they blur authorship and misrepresent your independent work. All work must be your own.

All students are required to know, observe and help enforce the UNT Code of Student Academic Integrity. Academic dishonesty will result in disciplinary action according to UNT Policy 06.003. The penalty for any offense can range from a formal warning to an 'F' for the course. Regardless of the penalty imposed, a record of the offense will be kept in the Office of the Dean of Students.

Please find the Department Academic Integrity Guidelines here.

Cheating Policy:

- Using information from a homework helper site (including AI based services like Chat GPT) is CHEATING

- Duplicating/nearly duplication answers from another student/another groups submission is CHEATING

- First Offense: 0 for the entire submission and reporting to the University administration

- Second Offense: F for the course and reporting to the University administration

Disabilities Accommodation

The University of North Texas complies with Section 504 of the 1973 Rehabilitation Act and with the Americans with Disabilities Act of 1990. The University of North Texas provides academic adjustments

and auxiliary aids to individuals with disabilities, as defined under the law. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides reasonable accommodation of their disabilities. If you believe you have a disability requiring accommodation, please see the instructor and/or contact the Office of Disability Accommodation at 940-565-4323 during the first week of class.

Student Perceptions of Teaching (SPOT)

SPOT is your opportunity to provide feedback on this course and instructor. It will be available near the end of the semester. Your responses help improve teaching and learning at UNT.

Syllabus Revisions

This syllabus may be modified as the course progresses should the instructor deem it necessary. Notice of changes to the syllabus shall be made through Canvas and/or in-class announcements.