# Assembly Language and Computer Organization, Syllabus

CSCE 2610-001: University of North Texas

## Instructor Contact

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## Teaching/Instructional Assistant

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**Office Hour: Tue. 9:00am – 11:00am**

## Course Description

Principles of computer systems organization, instruction sets, assembly language programming, computer arithmetic, data and control paths, and introduction to memory hierarchy.

## Course Webpage

All the course related material will be posted on the course webpage which is available through Canvas (https://unt.instructure.com/)

## Course Outcomes

- Understand the role of the different classes and components in a computer system and the interface between software and hardware in a computer system.
- Apply metrics to evaluate performance of a computer system using clock rate and clock cycles per instruction (CPI). Understand the different aspects of execution times reported when program complete their execution.
- Understand instruction set choices and write assembly language programs for simple C code and codes that include procedures.
- Perform integer and floating-point calculations using computer arithmetic algorithms.
- Describe the organization of a simple processor with data path and control path

for simple instructions.
- Describe the requirement of memory hierarchy and evaluate the performance of different cache organizations.

## Course Structure

[***I reserve the right to modify course policies, the course calendar, assignment or project point values, and due dates.**]

Meeting in NTDP E264 on Tuesday and Thursday from 2:30 PM – 3:50 PM, this class is held in person, face to face.

| Week | Lecture | Assignments Due | Recitation |
|---|---|---|---|
| 01/12 – 01/16 | Computer Abstractions and Technology | | |
| 01/19 – 01/23 | Computer Abstractions and Technology | Homework 1 | DS-5 Simulator |
| 01/26 – 01/30 | Instruction set | Homework 2 | DS-5 Simulator |
| 02/02 – 02/06 | Instruction set | Programming Assignment 1 | PA 1 |
| 02/09 – 02/13 | Instruction set | Homework 3 | PA1 |
| 02/16 – 02/20 | Arithmetic for Computers | Programming Assignment 2 | PA2 |
| 02/23 – 02/27 | Arithmetic for Computers/Review | | PA2 |
| 03/02 – 03/06 | Midterm Exam | Midterm Exam | |
| 03/09 – 03/13 | Spring Break | Spring Break | |
| 03/16 – 03/20 | Processor design | Homework 4 | PA3 |
| 03/23 – 03/27 | Processor design | Programming Assignment 3 | PA3 |
| 03/30 – 04/03 | Processor design | Homework 5 | PA4 |
| 04/06 – 04/10 | Memory Hierarchy | Programming Assignment 4 | PA4 |
| 04/13 – 04/17 | Memory Hierarchy | Homework 6 | PA5 |
| 04/20 – 04/24 | Memory Hierarchy/Review | Programming Assignment 5 | PA5 |
| 04/27 – 05/01 | Comprehensive Exam | Comprehensive Exam | |

## Course communication

This course will use the **Canvas** learning management system (LMS) to distribute course materials, communicate and collaborate online, post grades, and submit assignments. You are responsible for checking the Canvas course site regularly for class work and announcements. You may find the Online Communication Tips (https://clear.unt.edu/online-communication-tips) helpful. Should you have any questions about the course or material in general, you may attend your instructor's office hours or **use your UNT e-mail address** to e-mail your instructor directly at the e-mail address listed above **with CSCE 2610-001** in the subject line. Every attempt will be made to answer e-mails within 24 hours, but if no reply is received within this time frame, please follow up with your instructor again to ensure a response.

## Catalog Description

Prerequisite: CSCE 2100, EENG 2710 or 2720. Principles of computer systems organization, instruction sets, computer arithmetic, data and control paths, memory hierarchies, and assembly language.

## Text

Computer Organization and Design: The Hardware Software Interface: ARM Edition by Patterson and Hennessy, Morgan Kaufmann, ISBN-13: 978-0128017333.

## Grading

| | |
|---|---|
| In-Class Activity | 15% |
| Homework | 25% |
| Programming Assignments | 25% |
| Midterm Exam | 15% |
| Comprehensive Final Exam | 20% |

**Homework:** Homework will be in the form of problem sets with a due date one week after it is assigned. We will post announcement on Canvas when Homework be assigned. Homework must be done individually (you will learn the most from this). Any evidence of group participation or direct copying from unauthorized sources (Example: previous year's solutions, textbook solutions, Wikipedia, and websites) will be interpreted as academic dishonesty. There will be six to seven homework assignments. Any work turned in late for the **0-24 hours will not receive a penalty, late for 24-48 hours will receive a 50% penalty and 48-72 hours will receive 75% penalty, and it will not be accepted after 72 hours.** All work turned in after 72 hours of the deadline will receive a grade of zero unless the student has a university-excused absence to an external site. and provides documentation with 72 hours of the missed deadline.


**Programming Assignments:** The programming assignments are an integral part of the course and are intended to provide experience in the application of the concepts discussed in lecture. We will post announcement on Canvas when Programming assignments are assigned with a due date of two weeks after it is assigned. There will be five to six programming assignments assigned. Programming assignments must be done individually and can be done on your own PC or in F243/F270/F218. Any evidence of group participation will be interpreted as academic dishonesty. Any work turned in late for the **0-24 hours will not receive a penalty, late for 24-48 hours will receive a 50% penalty and 48-72 hours will receive 75% penalty, and it will not be accepted after 72 hours.** All work turned in after 72 hours of the deadline will receive a grade of zero unless the student has a university-excused absence to an external site. and provides documentation with 72 hours of the missed deadline.


**In-class Activity:** There will be 5 in-class activities designed to reinforce the concepts covered

in class. These activities will be conducted during regular class time and will be given in a pop-up (surprise) format, meaning they will not be announced in advance and may occur at any point during a class session.

Students who miss an in-class activity may complete a make-up activity only with appropriate documentation or a brief explanation of the absence, consistent with university policy.

**Exams:** There will be a midterm exam and one final exam. Mobiles phones are not permitted. Exams will include material from the lecture, the readings, homework, and programming assignments. **Final exam will be comprehensive.** Exam dates are:

- Midterm Exam: Thursday, March 5th, 2026 2:30 PM – 3:30 PM, NTDP E264
- Comprehensive Exam: Thursday, April 30th, 2026 2:30 PM – 3:30 PM, NTDP E264

**Missing Classes/Assignments/Exams:** Attendance at all exams is mandatory. Throughout the semester, a student may miss classes, assignments, in-class activities, or exams due to many reasons. Most of the reasons will not be accepted as an "excused" absence. Assignments, in-class activities, or exams can be made-up only under extraordinary circumstances and only when notification is given to me before the exam is administered. A no-show for an exam without prior notification and a verifiable excuse (appropriate official documentation) results in a grade of 0 for that exam.

**Disputing Grades:** If you have a disagreement with how an assignment, in-class activity, or exam is graded, you should first get the solution to the assignment, in-class activity, or exam off the Canvas course page and examine it. If you really believe that your answer is correct (matches the answer given in the solution), contact the grader and discuss it with them. The grader will listen to your concern, and act on it, at their discretion. In any case, they will sign the assignment verifying that they saw it again. Note that instructor or grader addition errors should follow the above procedure. Assignment, in-class activity, exam, and homework grades are disputable for **two week** from the day the grades were assigned on Canvas.

## Class Policies

To help create a focused and respectful learning environment, students are expected to limit distractions during class. Please silence cell phones and avoid using them for non-course-related activities during lectures, discussions, and exams. Laptops and tablets are welcome for note-taking and other course-related purposes. Students are asked to use electronic devices responsibly and in ways that support their own learning as well as that of others. If you need to take an urgent call or address an emergency, please step outside the classroom and return when appropriate. Thank you for your cooperation in helping maintain a productive classroom environment for everyone.

## Course Policies

You are expected to spend at least 15 hours per week for this course. Keep all your graded assignments, in-class activities, and tests for study and review. You should track your own

progress using Canvas and be aware of current grades throughout the term. I will make all the effort to return the graded assignments, but it's your responsibility to collect back the graded assignments from the grader or the instructor if it is not given back to you. Final grading will be done as follows. **A**: ≥ 90%, **B**: ≥ 80% and < 90%, **C**: ≥ 70% and < 80%, **D**: ≥ 60% and < 70% and **F**: < 60%. Grades will be curved if necessary. Grades cannot be changed after they have been electronically entered into university's system except for instructor error. Any extenuating circumstances that may adversely affect your grade must be brought to my attention before the final course grades are recorded.

## Late Work

All Homework and Programming Assignments, shall be turned in electronically using the Canvas. Any work turned in late for the **0-24 hours will not receive a penalty, late for 24-48 hours will receive a 50% penalty and 48-72 hours will receive 75% penalty, and it will not be accepted after 72 hours.** All work turned in after 72 hours of the deadline will receive a grade of zero unless the student has a university-excused absence to an external site. and provides documentation with 72 hours of the missed deadline.

**Missed exams:** The exams cannot be missed without prior arrangements or later documented proof of extenuating circumstances.

## Attendance Expectations and Consequences

Regular attendance and active participation are expected in this course. Students are responsible for all material covered in class, including announcements, discussions, assignments, and schedule changes.

• Excused absences (e.g., illness, university-sponsored activities, family emergencies) must be supported by appropriate documentation and communicated to the instructor as soon as possible.

• Unexcused absences may negatively impact the participation component of the course grade. Excessive absences may also affect a student's ability to succeed in the course.

• Students are responsible for making up missed work, quizzes, or exams in accordance with the instructor's guidelines.

## Eagle Alert Notice & Calendar Changes

UNT uses a system called **Eagle Alert** to quickly notify students with critical information in the event of an emergency (i.e., severe weather, campus closing, and health and public safety emergencies like chemical spills, fires, or violence). Please note that the **course calendar is subject to change** in accordance with the Campus Closures Policy. Any updates to the schedule, assignments, or other course activities will be communicated promptly through Canvas and/or email.

# Teaching Philosophy & Learning Environment

My goal is to foster a collaborative and inclusive environment where students can build both confidence and competence. I encourage curiosity, critical thinking, and respectful discussion as we explore course concepts together.

# GenAI Use

In this course, you are encouraged to use Generative AI (GenAI) tools such as Claude, ChatGPT, and Gemini to support your learning and develop skills for a GenAI-oriented workforce. This use will help us stay technically proficient and ethically grounded. However, GenAI should complement, not replace, our course materials. If something seems unclear, feel free to ask.

I use GenAI to enhance materials, streamline tasks, generate prompts, create scenarios, draft syllabi, build study guides, analyze performance. I will always disclose how I use GenAI, and I expect the same from you.

In line with the UNT Honor Code, all work you submit must be your own. Using GenAI tools without attribution or relying on them to complete assignments violates academic integrity and will be addressed according to our policy.

# Instructor/TA Responsibilities and Feedback

Instructor responsibilities include: helping students grow and learn, providing clear instructions for projects and assessments, answering questions about assignments, identifying additional resources as necessary, providing grading rubrics, reviewing and updating course content, etc.

TA/IA responsibilities include: grading assignments and exams, answering questions about assignments, helping students grow and learn.

Estimated timeline for feedback:

- Assignments and exams are graded within a week since submission;
- Emails are responded within 24 hours during the work week (M-F);
- Messages on Canvas are not recommended, and might not receive a response.
- Comments on Canvas are only used for TAs to provide feedback to students; student's comments won't be read - send an email instead.

# UNT Policies

## Academic Integrity Policy

Academic Integrity Standards and Consequences. According to [UNT Policy 06.003](#), Student Academic Integrity, academic dishonesty occurs when students engage in behaviors including,

but not limited to cheating, fabrication, facilitating academic dishonesty, forgery, plagiarism, and sabotage. A finding of academic dishonesty may result in a range of academic penalties or sanctions ranging from admonition to expulsion from the University.

## ADA Policy

UNT makes reasonable academic accommodation for students with disabilities. Students seeking accommodation must first register with the Office of Disability Accommodation (ODA) to verify their eligibility. If a disability is verified, the ODA will provide a student with an accommodation letter to be delivered to faculty to begin a private discussion regarding one's specific course needs. Students may request accommodations at any time, however, ODA notices of accommodation should be provided as early as possible in the semester to avoid any delay in implementation. Note that students must obtain a new letter of accommodation for every semester and must meet with each faculty member prior to implementation in each class. For additional information see the ODA website.

## Prohibition of Discrimination, Harassment, and Retaliation (Policy 16.004)

The University of North Texas (UNT) prohibits discrimination and harassment because of race, color, national origin, religion, sex, sexual orientation, gender identity, gender expression, age, disability, genetic information, veteran status, or any other characteristic protected under applicable federal or state law in its application and admission processes; educational programs and activities; employment policies, procedures, and processes; and university facilities. The University takes active measures to prevent such conduct and investigates and takes remedial action when appropriate.

## Emergency Notification & Procedures

UNT uses a system called Eagle Alert to quickly notify students with critical information in the event of an emergency (i.e., severe weather, campus closing, and health and public safety emergencies like chemical spills, fires, or violence). In the event of a university closure, please refer to Canvas for contingency plans for covering course materials.

## Retention of Student Records

Student records pertaining to this course are maintained in a secure location by the instructor of record. All records such as exams, answer sheets (with keys), and written papers submitted during the duration of the course are kept for at least one calendar year after course completion. Course work completed via the Canvas online system, including grading information and comments, is also stored in a safe electronic environment for one year. Students have the right to view their individual record; however, information about student's records will not be divulged to other individuals without proper written consent. Students are encouraged to review the Public Information Policy and the Family Educational Rights and Privacy Act (FERPA) laws and the University's policy. See UNT Policy 10.10, Records Management and Retention for additional information.

## Acceptable Student Behavior

Student behavior that interferes with an instructor's ability to conduct a class or other students' opportunity to learn is unacceptable and disruptive and will not be tolerated in any instructional forum at UNT. Students engaging in unacceptable behavior will be directed to leave the classroom and the instructor may refer the student to the Dean of Students to consider whether the student's conduct violated the Code of Student Conduct. The University's expectations for student conduct apply to all instructional forums, including University and electronic classroom, labs, discussion groups, field trips, etc. Visit UNT's [Code of Student Conduct](#) to learn more.

## Access to Information - Eagle Connect

Students' access point for business and academic services at UNT is located at: [my.unt.edu](#). All official communication from the University will be delivered to a student's Eagle Connect account. For more information, please visit the website that explains Eagle Connect and how to forward email: [Eagle Connect](#).

## Student Evaluation Administration Dates

Student feedback is important and an essential part of participation in this course. The student evaluation of instruction is a requirement for all organized classes at UNT. The survey will be made available during weeks 13, 14 and 15 of the long semesters to provide students with an opportunity to evaluate how this course is taught. Students will receive an email from "UNT SPOT Course Evaluations via IASystem Notification" ([no-reply@iasystem.org](#)) with the survey link. Students should look for the email in their UNT email inbox. Simply click on the link and complete the survey. Once students complete the survey they will receive a confirmation email that the survey has been submitted. For additional information, please visit the [SPOT website](#) or email [spot@unt.edu](#).

## Survivor Advocacy

UNT is committed to providing a safe learning environment free of all forms of sexual misconduct. Federal laws and UNT policies prohibit discrimination on the basis of sex as well as sexual misconduct. If you or someone you know is experiencing sexual harassment, relationship violence, stalking and/or sexual assault, there are campus resources available to provide support and assistance. The Survivor Advocates can be reached at [SurvivorAdvocate@unt.edu](#) or by calling the Dean of Students Office at 940-5652648.

## Important Notice for F-1 Students taking Distance Education Courses

### Federal Regulation

To read detailed Immigration and Customs Enforcement regulations for F-1 students taking online courses, please go to the [Electronic Code of Federal Regulations website](#). The specific portion concerning distance education courses is located at Title 8 CFR 214.2 Paragraph

(f)(6)(i)(G).

The paragraph reads:

(G) For F-1 students enrolled in classes for credit or classroom hours, no more than the equivalent of one class or three credits per session, term, semester, trimester, or quarter may be counted toward the full course of study requirement if the class is taken on-line or through distance education and does not require the student's physical attendance for classes, examination or other purposes integral to completion of the class. An on-line or distance education course is a course that is offered principally through the use of television, audio, or computer transmission including open broadcast, closed circuit, cable, microwave, or satellite, audio conferencing, or

computer conferencing. If the F-1 student's course of study is in a language study program, no on-line or distance education classes may be considered to count toward a student's full course of study requirement.

### *University of North Texas Compliance*

To comply with immigration regulations, an F-1 visa holder within the United States may need to engage in an on-campus experiential component for this course. This component (which must be approved in advance by the instructor) can include activities such as taking an on- campus exam, participating in an on-campus lecture or lab activity, or other on-campus experience integral to the completion of this course.

If such an on-campus activity is required, it is the student's responsibility to do the following:

1) Submit a written request to the instructor for an on-campus experiential component within one week of the start of the course.
2) Ensure that the activity on campus takes place and the instructor documents it in writing with a notice sent to the International Student and Scholar Services Office. ISSS has a form available that you may use for this purpose.

Because the decision may have serious immigration consequences, if an F-1 student is unsure about his or her need to participate in an on-campus experiential component for this course, s/he should contact the UNT International Student and Scholar Services Office (telephone 940-565-2195 or email internationaladvising@unt.edu) to get clarification before the one-week deadline.

## Student Verification

UNT takes measures to protect the integrity of educational credentials awarded to students enrolled in distance education courses by verifying student identity, protecting student privacy, and notifying students of any special meeting times/locations or additional charges associated with student identity verification in distance education courses.

See UNT Policy 07-002 Student Identity Verification, Privacy, and Notification and Distance

[Education Courses](#).

## Use of Student Work

A student owns the copyright for all work (e.g. software, photographs, reports, presentations, and email postings) he or she creates within a class and the University is not entitled to use any student work without the student's permission unless all of the following criteria are met:

- The work is used only once.
- The work is not used in its entirety.
- Use of the work does not affect any potential profits from the work.
- The student is not identified.
- The work is identified as student work.

If the use of the work does not meet all of the above criteria, then the University office

or department using the work must obtain the student's written permission.

Download the UNT System Permission, Waiver and Release Form

*Transmission and Recording of Student Images in Electronically-Delivered Courses*

1) No permission is needed from a student for his or her image or voice to be transmitted live via videoconference or streaming media, but all students should be informed when courses are to be conducted using either method of delivery.
2) In the event an instructor records student presentations, he or she must obtain permission from the student using a signed release in order to use the recording for future classes in accordance with the Use of Student-Created Work guidelines above.
3) Instructors who video-record their class lectures with the intention of re-using some or all of recordings for future class offerings must notify students on the course syllabus if students' images may appear on video. Instructors are also advised to provide accommodation for students who do not wish to appear in class recordings.

Example: This course employs lecture capture technology to record class sessions. Students may occasionally appear on video. The lecture recordings will be available to you for study purposes and may also be reused in future course offerings.

No notification is needed if only audio and slide capture is used or if the video only records the instructor's image. However, the instructor is encouraged to let students know the recordings will be available to them for study purposes.

## Academic Support & Student Services

*Student Support Services*

### Mental Health

UNT provides mental health resources to students to help ensure there are numerous outlets to turn to that wholeheartedly care for and are there for students in need, regardless of the

nature of an issue or its severity. Listed below are several resources on campus that can support your academic success and mental well-being:

- [Student Health and Wellness Center](#)
- [Counseling and Testing Services](#)
- [UNT Care Team](#)
- [UNT Psychiatric Services](#)
- [Individual Counseling](#)

## Chosen Names

A chosen name is a name that a person goes by that may or may not match their legal name. If you have a chosen name that is different from your legal name and would like that to be used in class, please let the instructor know. Below is a list of resources for updating your chosen name at UNT.

- [UNT Records](#)
- [UNT ID Card](#)
- [UNT Email Address](#)
- [Legal Name](#)

*\*UNT euIDs cannot be changed at this time. The collaborating offices are working on a process to make this option accessible to UNT community members.*

## Pronouns

Pronouns (she/her, they/them, he/him, etc.) are a public way for people to address you, much like your name, and can be shared with a name when making an introduction, both virtually and in-person. Just as we ask and don't assume someone's name, we should also ask and not assume someone's pronouns.

Below is a list of additional resources regarding pronouns and their usage:

- [What are pronouns and why are they important?](#)
- [How do I use pronouns?](#)
- [How do I share my pronouns?](#)
- [How do I ask for another person's pronouns?](#)
- [How do I correct myself or others when the wrong pronoun is used?](#)

*Additional Student Support Services*

- [Registrar](#)
- [Financial Aid](#)
- [Student Legal Services](#)
- [Career Center](#)

- [Multicultural Center](#)
- [Counseling and Testing Services](#)
- [Pride Alliance](#)
- [UNT Food Pantry](#)

*Academic Support Services*

- [Academic Resource Center](#)
- [Academic Success Center](#)
- [UNT Libraries](#)
- [Writing Lab](#)