

Artificial Intelligence Syllabus

CSCE 4201 Introduction to Artificial Intelligence (Spring 2026)

Days & Time: Fridays 8:30 am – 11:20 am

Location: NTDP K120

Credits: 3

Class Dates: Jan 12, 2026 – May 8, 2026

Instructor & TAs

Name: Xinrui Cui

Office Location: Discovery Park F264

Student Hours: Thursdays 3:00-5:00 pm

Email: xinrui.cui@unt.edu

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

TA Name: Dawei Gao (for CSCE 4201)

TA Email: dawei.gao@unt.edu / daweigao@my.unt.edu

TA Student Hours: Wednesdays 3-5 pm at F221 Discovery Park.

Staying Connected: Students should regularly check for Canvas notifications and maintain consistent class attendance. If you happen to miss a session, you can find all slides and materials posted on Canvas. I am happy to answer quick questions immediately before or after class or through the Canvas Inbox. For more detailed help with course content, your TA is your first point of contact. If you need further guidance beyond what the TA can provide, please come see me during office hours. We aim to respond to all Canvas messages within 24 hours during the work week.

Course Description

This course provides a comprehensive introduction to the fundamental concepts and techniques of Artificial Intelligence. Students will explore the core pillars of the field, including search algorithms, knowledge representation, logic-based problem solving, and probabilistic reasoning. Beyond theoretical foundations, the curriculum covers modern applications in machine learning, perception, and natural language processing. Through a combination of theoretical study and hands-on demonstrations, students will examine how intelligent behavior emerges from robust sensation and decision-making frameworks. Additionally, the course evaluates the ethical implications of automation and machine autonomy through contemporary case studies, providing the necessary breadth for advanced study in AI.

Learning outcomes

By the end of this course, students will be able to:

1. **Analyze AI Paradigms:** Contrast different AI approaches, such as symbolic (logic-based) versus sub-symbolic (probabilistic/learning) methods.
2. **Design Intelligent Agents:** Architect systems that use search, reasoning, and perception to solve complex, real-world problems.
3. **Implement AI Fundamentals:** Use standard programming tools to build functional demonstrations of NLP, search algorithms, and decision-making models.

Learning objectives

Throughout the semester, students will demonstrate their progress by:

Module 1: Search & Problem Solving

- **Identifying** the most efficient search algorithm (BFS, DFS, A^* , or Heuristic) for a given problem space.
- **Formulating** a game-playing agent using Minimax and Alpha-Beta pruning techniques to navigate competitive environments.

Module 2: Knowledge & Logic

- **Translating** natural language statements into First-Order Logic to enable automated reasoning and knowledge representation.
- **Constructing** Bayesian Networks to model and solve problems involving uncertainty and probabilistic reasoning.

Module 3: Learning, Perception, & Reinforcement

- **Explaining** the core differences between supervised and unsupervised learning, and how they differ from the reward-based structure of Reinforcement Learning.
- **Designing** a basic Reinforcement Learning agent (such as Q-Learning) that learns optimal policies through trial and error in a simulated environment.
- **Developing** a basic Natural Language Processing (NLP) pipeline for sentiment analysis or text classification.
- **Describing** how raw sensor data is transformed into "perception" through computer vision fundamentals and feature extraction.

Course Materials & Technical Requirements

Required Resources

No purchase is required for this course. The primary reference for our curriculum is available online:

- **Primary Reference:** *Artificial Intelligence: A Modern Approach* (4th Edition) by Stuart Russell and Peter Norvig. [Available Online]

For additional depth in Machine Learning and implementation, students are encouraged to consult these electronic resources:

- *Pattern Recognition and Machine Learning* by Christopher Bishop.
- *Machine Learning with PyTorch and Scikit-Learn* by Sebastian Raschka and Vahid Mirjalili.

Coding & Software

This course requires practical implementation and hands-on experimentation. Students should be proficient in **Python** and familiar with **Google Colab** and **PyTorch**.

To participate in course assignments, please ensure you have the following set up:

- **Distribution:** Download and install **Anaconda (Python 3.x)**.
- **Environment:** Ensure you can run experiments locally via **Jupyter Notebooks** or through **Google Colab**.

Laptop Policy for Examinations

Laptops are **mandatory** for the in-class midterm and final exam.

- **Exams:** Both the midterm and final exams will be conducted digitally via the **Canvas Quiz system**.

- **Requirement:** You must bring a functional, fully charged laptop to class on scheduled exam days to access the testing platform.

Course evaluation

In this course, you will be evaluated by attendance, assignments, a group project, and exams.

Attendance: Attendance is mandatory. Active participation is essential for success. Each recorded presence will add **one point** to your overall final grade.

Assignments are designed to engage you in your learning, so you can begin to apply these principles in practice. **Deadline:** Typically due one week after they are assigned at **11:59 PM**, unless otherwise noted.

Group Project: The project proposal, presentation, and final report will be used for evaluation. You are required to work in groups (2-3 **per group**). All people in the group are required to contribute. This is your opportunity to demonstrate what you have learned in a way that reaches beyond the selection of tools, datasets, and approaches demonstrated in the course.

Exams: Exam days are posted and considered fixed. **The midterm is 8:30 am - 10:20 am on Mar. 6th. The Final is 7:30 am - 9:30 am on May 4th**, based on the UNT Final exam schedule(<https://registrar.unt.edu/exams/final-exam-schedule/spring.html>).

Grading

This course uses a **100-point grading system**. The distribution of points across assignments, projects, and exams is provided in the table below; however, these values may be slightly modified as the semester progresses. Please be aware that your performance on exams and assignments is the primary factor in your final grade. Regular attendance, timely submission, and proactive exam preparation are essential for success.

- Assignments: 30%
 - Six assignments in total, 5 pts each.
- Attendance: 10%
 - 10 attendance check-ins in total.
- Presentation and Project: 10%
 - 1-page Proposal: 2 pts
 - Presentation: 3 pts
 - Report: 5 pts
- Exams: 50%

- Mid-Term Exam: 25%
- Final Exam: 25%

Makeup Policy (Medical Reasons Only)

Requests for makeup exams or assignments due to medical reasons must comply with the following policy.

Doctor's Note Requirements

To be considered valid, the doctor's note must:

- Be issued by a recognized **U.S. medical facility**, such as the UNT Student Health and Wellness Center, an urgent care clinic, emergency room, or hospital, etc.
- Clearly include:
 1. The **name and title** of the medical facility
 2. The **doctor's name and professional title** (e.g., MD, DO)
 3. The **student's full name**
 4. **Specific justification** explaining why a medical condition requires an adjustment to the student's academic schedule
 5. The **doctor's signature**

Incomplete or informal notes will not be accepted.

Submission Deadlines

- **Exams:** The doctor's note must be submitted **at least 5 days before the scheduled exam date**. *Example:* If a midterm exam is scheduled for 03/06/2026, the note must be submitted between 03/01/2026 and 03/06/2026.
- **Assignments:** The doctor's note must be submitted **no earlier than 4 days before and no later than 4 days after the due date**. *Example:* If an assignment is due on 03/20/2026, the note must be submitted between 03/16/2026 and 03/24/2026.

Important Notes

- Failure to submit valid documentation within the specified timeframes will result in **forfeiture of the makeup opportunity**.
- **Only medical reasons** are considered valid for makeup requests. Personal, travel-related, or other non-medical reasons will not be accepted.

Student Evaluation

The SPOT system is the official student evaluation process at UNT. It provides a confidential platform for students to share constructive feedback regarding their learning experience. Your input is vital for improving the quality of this course and assisting the department in enhancing overall student success.

Academic Integrity Guidance on Generative AI

In this course, Generative AI (GenAI) tools may be used **only as a learning aid** to help you understand course concepts (for example, by asking for explanations of definitions or reviewing background material). However, GenAI **may not be used to generate or complete answers** for any assignment, exam, or other graded coursework.

Any use of GenAI to produce content that is submitted—wholly or in part—as your own work will be considered fabrication, cheating, and/or academic dishonesty, and will be evaluated on a case-by-case basis in accordance with the Student Academic Integrity policy.

This course emphasizes deep engagement with the material and the development of independent critical thinking and problem-solving skills. Therefore, the use of GenAI tools such as (but not limited to) **ChatGPT, Claude, Gemini, GitHub Copilot, and similar systems** is strictly prohibited for generating solutions, written responses, code, or analyses for graded work.

Violations of this policy will be handled in accordance with the university's Student Academic Integrity procedures.

Course Policies

Examination Policy

Exams will be on the computer using the **Canvas quiz system**. You need to bring a laptop on the exam days. **Exams are “closed book”, though you are permitted one page (US-letter) of personal notes.** Exams must be taken in the classroom unless special accommodations have been made through the Office of Disability Accommodation (ODA). Other accommodations must be made by prior arrangement with the instructor.

Technical errors during exams

In the event of technical difficulties during an online exam, immediately notify the exam proctor. The instructor will then determine appropriate accommodations to allow test completion without

compromising fairness. If server outages or other technical issues prevent students from completing time-sensitive assessments, the instructor will extend submission windows and provide suitable accommodations based on the circumstances. All technical problems must be reported to the instructor without delay.

Late Submission Policy

Timely submission of assignments and project work is essential for efficient grading and feedback. To balance flexibility with academic rigor, we have established the following policy:

- **Grace Period:** No penalty is applied to work submitted after the deadline but *prior* to the start of grading. However, please be aware that grading may begin at any time after the due date (including the following morning).
- **Standard Penalty:** Once grading has commenced, work will be accepted up to two days late with a **10% penalty per day**.
- **Final Cut-off:** No submissions will be accepted more than 48 hours after the original deadline.
- **Extensions:** Requests for extensions are granted at the sole discretion of the instructor or TA and must be requested in advance.

Attendance Policy

Your presence in class is vital to your success. Please note that **each unexcused absence during a roll call will result in a one-point deduction** from your final grade.

Should you miss a session, it is your responsibility to reach out to the teaching team or your peers to close any knowledge gaps. In past semesters, student engagement has been the strongest predictor of accomplishment. We respect your ability to prioritize your own time; however, we urge you to do so with your long-term course performance in mind.

Eagle alert notice

Students will be notified by Eagle Alert if there is a campus closing that will impact a class. [Campus Closures Policy \(https://policy.unt.edu/policy/15-006\)](https://policy.unt.edu/policy/15-006).

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.

ODA 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](https://disability.unt.edu/) (<https://disability.unt.edu/>).

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 Blackboard 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 Blackboard 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](https://deanofstudents.unt.edu/conduct) (<https://deanofstudents.unt.edu/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 e-mail [Eagle Connect](https://it.unt.edu/eagleconnect) (<https://it.unt.edu/eagleconnect>).

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](http://spot.unt.edu/) (<http://spot.unt.edu/>) or email spot@unt.edu.

Getting Help

Technical Assistance

UNT Help Desk (<http://www.unt.edu/helpdesk/index.htm>)

Email: helpdesk@unt.edu

Phone: 940-565-2324

In Person: Sage Hall, Room 130

Walk-In Availability: 8am-9pm

Telephone Availability:

- Sunday: noon-midnight
- Monday-Thursday: 8am-midnight
- Friday: 8am-8pm
- Saturday: 9am-5pm

Laptop Checkout: 8am-7pm

Student Support Services

- [Registrar](https://registrar.unt.edu/registration) (https://registrar.unt.edu/registration)
- [Financial Aid](https://financialaid.unt.edu/) (https://financialaid.unt.edu/)
- [Student Legal Services](https://studentaffairs.unt.edu/student-legal-services) (https://studentaffairs.unt.edu/student-legal-services)
- [Career Center](https://studentaffairs.unt.edu/career-center) (https://studentaffairs.unt.edu/career-center)
- [Multicultural Center](https://edo.unt.edu/multicultural-center) (https://edo.unt.edu/multicultural-center)
- [Counseling and Testing Services](https://studentaffairs.unt.edu/counseling-and-testing-services) (https://studentaffairs.unt.edu/counseling-and-testing-services)
- [Student Affairs Care Team](https://studentaffairs.unt.edu/care) (https://studentaffairs.unt.edu/care)
- [Student Health and Wellness Center](https://studentaffairs.unt.edu/student-health-and-wellness-center) (https://studentaffairs.unt.edu/student-health-and-wellness-center)
- [Pride Alliance](https://edo.unt.edu/pridealliance) (https://edo.unt.edu/pridealliance)

Academic Support Services

- [Academic Resource Center](https://clear.unt.edu/canvas/student-resources) (https://clear.unt.edu/canvas/student-resources)
- [Academic Success Center](https://success.unt.edu/asc) (https://success.unt.edu/asc)
- [UNT Libraries](https://library.unt.edu/) (https://library.unt.edu/)
- [Writing Lab](http://writingcenter.unt.edu/) (http://writingcenter.unt.edu/)
- [MathLab](https://math.unt.edu/mathlab) (https://math.unt.edu/mathlab)