

# CSCE 6260 - Advanced Topics in Pattern Recognition and Image Processing

Course Information & Syllabus (Spring 2026)

<https://hengfan2010.github.io/teaching/26S-6260>

## Basic Course Information

- **Instructor:** Dr. Heng Fan
  - Note: The instructor reserves the right to modify course policies, the course calendar, assignment or project point values, and due dates
- **E-mail:** [heng.fan@unt.edu](mailto:heng.fan@unt.edu) (the best way to reach out)
  - Please use your UNT e-mail for communication
- **Office:** Discovery Park F284
- **Phone:** 940-565-3209
- **Office Hours:** Wednesday 12:30 - 2:30 pm or by appointment
- **Lecture**
  - **Time:** Wednesday 2:30 - 5:20 pm
  - **Classroom:** NTDP F285

## Course Description

This is a research-oriented course that aims to provide latest frontiers in computer vision, pattern recognition, multimodal learning, large models, and artificial intelligence (AI). It will describe advanced approaches in AI, with a focus on recent topics such as prompt learning, multimodal vision-language learning, multimodal large language models, visual generation, video understanding, etc. Through this course, the students are expected to understand and digest various advanced AI topics by extensive in-class paper presentation and discussion.

Tentative topics for this course include, but are not limited to, the following:

- Review of Basic Tasks in Computer Vision
- Transform Architectures
- Vision-Language Learning
- Multimodal Large Language Models
- Visual Generation
- Video understanding
- Efficient Learning

Detailed class schedule of this course can be found on the course website.

## Grading

The grading will be based on paper presentation (40%), paper review (40%), and class discussion (20%).

For the presentation part, each student is expected to present papers in detail in the class and lead the discussion regarding the papers. Other students will participate the discussion by answering questions and sharing opinions.

For the review part, each student is expected to review up to 15 papers throughout the semester.

### Grading scale (based on 100 points):

- 90–100 = A

- 80–89 = B
- 70–79 = C
- 60–69 = D
- below 60 = F

No exceptions will be made.

## **Attendance Policy**

Students are required to attend all lectures in order to gain the full benefit of the course. While I will be posting my slides before class, they may not contain all of the content discussed during class, nor the examples presented on the board. You are responsible for any missed material and completing all work by the assigned due dates. You should notify the instructor of your absence as soon as possible if you are not able to attend class or recitation.

## **Make-up 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 the instructor 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 providing the instructor with a physical copy of a signed doctor's note. See the UNT Attendance Policy for more information.

## **Content Responsibility Policy**

Students are responsible for all content presented during class. If you are confused or unsure about anything, please ask the instructor or teaching assistant.

## **Generative AI Course Policy**

AI-generated submissions are not permitted and will be treated as plagiarism. In case a student needs to use an AI tool, they must ask for the instructor's permission before utilizing AI writing software (such as ChatGPT and all other similar tools) for any assignments in this course. Utilizing these tools without obtaining permission could jeopardize your academic integrity.

## **Access to Digital Materials**

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 and other software such as Microsoft Office, Adobe, etc. 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>).

## **UNT Policies**

**Academic Integrity and Consequences:** According to UNT Policy 06.003 (<https://policy.unt.edu/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.

In addition, the CSE department policies on Academic Integrity and Student Conduct apply for this course – these are available at the following webpage: <https://engineering.unt.edu/cse/students/resources/academic-integrity.html>. Any exceptions to this policy are noted explicitly in the syllabus.

Most lectures in class will have homework assignments. Students may discuss the homework problems and approaches with each other but must work on their solutions individually unless otherwise stated in the assignment. Students must not copy homework from any source, including other students or the internet. No collaboration is allowed in quizzes and exams.

**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 Center for Student Rights and Responsibilities 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.

**Americans with Disabilities Act:** We cooperate with the Office of Disability Accommodation to make reasonable accommodations for qualified students (cf. Americans with Disabilities Act and Section 504, Rehabilitation Act) with disabilities. If you have not registered with ODA, we encourage you to do so. If you have a disability for which you require accommodation, please discuss your needs with the instructor or submit a written Accommodation Request on or before the fourth-class day.

## Disclaimer

Please note, this syllabus is to serve as a guide and may be subject to changes. For up-to-date information, assignments, and class material, students are recommended to check out course website or Canvas regularly. This syllabus may be updated in the future to reflect changes. The updated version will be available in the course website and on Canvas.