

CSCE 4901 Software Development Capstone

Instructor Contact

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Welcome to UNT!

As members of the UNT community, we have all made a commitment to be part of an institution that respects and values the identities of the students and employees with whom we interact. UNT does not tolerate identity-based discrimination, harassment, and retaliation. UNT's full Non-Discrimination Policy can be found in the UNT Policies section of the syllabus.

Course Description

Students demonstrate their mastery of the breadth of computer science learned in their studies. Focus is on the application of computer science techniques to the design of applications involving multiple software components. Students apply the theory acquired from numerous computer science courses to solve real-world design and developmental problems. The design considers realistic constraints including economic, environmental, critical thinking, technical writing and communications skills, and group management skills in completing their design and development project.

Course Structure

This course is 3 credits, and is one semester long though some of you will continue onto 4902 to finish your capstone (check with advising if you are not sure if this is the case for you). T

The course calendar is presented later in the syllabus so that you can see the pace of the course and the due dates. The course is primarily project-driven, where you work on a long-term project in a team of 3-5 people. There are also individual assignments.

Course Prerequisites or Other Restrictions

CSCE 3444/4444, TECM 2700 - though you should check your catalog for the most current prereqs.

Course Objectives

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

1. Gather and refine user functional requirements and other functional and non-functional requirements and constraints for a large-scale software system and create a software requirements specification document.
2. Perform software analysis and design tasks using recognized software methods to create a preliminary design specification for software based on a requirements specification.

- Utilize project management principles, skills and tools in creating the requirements and preliminary design specifications.
- Create a project management plan, including a schedule and budget for a large-scale software project.
- Utilize configuration management, project management and design tools in the course of the project.
- Analyze and maintain appropriate project artifacts to reflect inclusive design and societal impact for the project sponsors, users, and other stakeholders.

Materials

- There is no textbook
- Resources are provided on Canvas and you can use others as needed by the project.

Teaching Philosophy

This course is very hands-on, with the expectation that you will both apply material from prior courses as well as learn new skills as appropriate to your project. In order to truly benefit from the course you will want to be open to learning new development skills and technologies. In the beginning of the course you will get a quick review of key topics from 3444/4444, and the bulk of the course will be the project (which includes team meetings with the instructor and demos of progress).

Course Calendar

Subject to change, as needed

Week	Topics	Due / Announcements
Week 1 (8.18-)	Course Overview, teaming, start Project planning	Team Proposal List & Practice Kanban assign due Saturday @ 11:59pm
Week 2 (8.25-)	Project Selection, Requirements, Design	Project Proposal List due Saturday @ 11:59pm
Week 3 (9.1-)	Design, Testing, Accessibility	Assignment 2 due 11:59pm on Saturday
Week 4 (9.8-)	Work Week	Requirements doc, peer eval due Sat @ 11:59 pm; refer to Canvas for templates
Week 5 (9.15-)	Work Week	Assignment 3 due 11:59pm on Saturday
Week 6 (9.22-)	Sprint 0 Wrap-up check-ins/Sprint 1 starts	See Canvas for assigned meeting slot for check-ins; Sprint 0, Trello board updates, peer eval due by Sat. at 11:59pm; Submit Design doc for Sprint 1 by Saturday @ 11:59pm
Week 7 (9.29-)	Work Week	
Week 8 (10.6-)	Work Week	Assignment 4: AI in SE due Saturday at 11:59pm

Week	Topics	Due / Announcements
Week 9 (10.13-)	Sprint 1 Wrap-up check-ins/Sprint 2 starts	See Canvas for assigned meeting slot for check-ins; Sprint artifacts and Trello board updates, peer eval due by Sat. at 11:59pm
Week 10 (10.20-)	Work Week	
Week 11 (10.27-)	Work Week	
Week 12 (11.3-)	Sprint 2 Wrap-up check-ins/Sprint 3 starts	See Canvas for assigned meeting slot for check-ins; Sprint artifacts and Trello board updates, peer evals due by Sat. at 11:59pm
Week 13 (11.10-)	Work Week	
Week 14 (11.17-)	Work Week (Tues) Thanksgiving Holiday	
Week 15 (11.24-)	<i>Thanksgiving Break – No Class</i>	
Week 16 (11.31 -)	Sprint 3 final meeting (Sprint 3 ends)	See Canvas for assigned meeting slot for check-ins; Sprint artifacts and Trello board updates, peer eval due by Thurs. at 11:59pm
Finals	Team Reflections	Submit Team Reflection Report by Tuesday @ 11:59pm

NOTE: It is expected that after Week 3, your Trello board will be up to date (it will be periodically checked); also after Sprint 0 you need to keep all project artifacts up-to-date

Grading

A = 90%-100%

B = 80%-89%

C = 70%-79%

D = 60%-69%

F = 50%-59%

NOTE: Canvas will not calculate your grade properly, you will need to do so using the weighted distribution below:

The various components of your grade are weighted as follows:

- Team Project Deliverables: 60%

- Team Reflection Report (Final one): 15%
- Peer Evals (submitted): 10%
- Assignments: 15%

ABSOLUTELY NO LATE work will be graded, unless specific arrangements are made with the instructor in advance. All assignments will be turned in by the designated date due. Assignments may be submitted on Canvas in the appropriate drop box unless otherwise indicated.

ALL requests for extensions on assignments must be made prior to the due date, in person, and must be for a valid “emergency” reason. In extreme circumstances, contact after the due date may be accepted if there is a COMPELLING reason (where documentation is available).

CSE Department Academic Integrity Guidelines

<https://engineering.unt.edu/cse/students/resources/academic-integrity.html>

Course Evaluation

Student Perceptions of Teaching (SPOT) is the student evaluation system for UNT and allows students the ability to confidentially provide constructive feedback to their instructor and department to improve the quality of student experiences in the course. When SPOT becomes available, you will receive an email.

Course Policies

Attendance Policy

Attendance is expected and will be periodically monitored. Your team project will suffer without your attendance to team meetings during class time (or any other time).

Students are expected to attend class meetings regularly and to abide by the attendance policy established for the course. It is important that you communicate with me prior to being absent, so you, and I (and anyone else if pertinent) can discuss and mitigate the impact of the absence on your attainment of course learning goals. Please inform me if you are unable to attend class meetings because you are ill, in mindfulness of the health and safety of everyone in our community.

Class Participation (including Project Participation)

Attendance and participation is required, is part of your grade, and will be monitored in order to ensure that all groups operate at peak efficiency. You are responsible for all discussion, lecture and other information disseminated during the class period, regardless of whether you attend or not. You are also responsible for all team assignments made by your team lead and deliverable leads regardless of your attendance. You must provide documentation for excused absences for emergencies etc.

You should regularly check the class website, as well as take note of in-class announcements for changes in the schedule or assignments.

You should plan to spend, on average, about 10-15 hours per week outside of the normal class meetings working on the various aspects of your project. As deadlines draw near, the time commitment will likely increase

Project: The majority of the deliverables in this course will relate to a large group project that will be completed based on client requirements. You are expected to participate in ALL aspects of your team's project (so not just coding, or not just writing docs). Your effort, including that of coding, will be monitored (e.g. repository check-ins, peer evals and observations). In particular, lack of coding on the project WILL RESULT in a large penalty to your project grade. BUT lack of helping in a meaningful way on the written docs and related tasks WILL ALSO RESULT IN A LARGE PENALTY. Coding is expected in each sprint (1-3). Contributions will be monitored in terms of code and there is a deliverable that asks for what those contributions are for other written documents. Your work impacts the group score, and lack of contribution will be determined based on the degree and quality of your contribution. You are NOT guaranteed to get the group score.

Professional Conduct and Ethical Responsibility:

You will be representing yourself, your team, the CSE Department and UNT as you conduct the activities needed to deliver your capstone project. You are expected to conduct yourself professionally during team, class and sponsor interactions both verbally and in writing. This responsibility carries through in the project as well. Yes, you are learning new skills and applying what you have learned in other courses. The ACM Code of Ethics, available at: <https://ethics.acm.org/>, reflects the expectations of your conduct in this course. You are also expected to abide by the UNT Code of Conduct (discussed later in the syllabus).

Late Work

ABSOLUTELY NO LATE work will be graded, unless specific arrangements are made with the instructor in advance with appropriate documentation. All assignments will be turned in by the designated date due. Assignments may be submitted on Canvas in the appropriate drop box unless otherwise indicated. ALL requests for extensions on assignments must be made prior to the due date, in person, and must be for a valid "emergency" reason. In extreme circumstances, contact after the due date may be accepted if there is a COMPELLING reason (and yes COVID counts).

Examination Policy

There are no exams in the course.

Use of AI, LLM's, and related Tools in the Project

It will be expected that you will use these tools in your project, however we will have deliverables to go with this expectation. The degree will vary by project and your interest. Having experience is expected nowadays and will give you new/more skills that will help you as you start your career. Given that, you will be expected to be honest with your use of said tools and that you will be expected to know what the code or other material does, and that it is correct/accurate and follows best practices for the item that it is connected to (e.g. code, testing, a written document). More information will be provided in the Project and Assignments in Canvas.

Collaboration and Cheating:

Collaboration among students in class is encouraged, as it is my belief that it provides a better learning environment, and is required for team assignments. BUT THERE ARE RULES TO FOLLOW. All resources used should be clearly cited in written work of any kind, both individual and team, using appropriate references/documentation style as relevant to the item. While

using existing API's is a given nowadays, paying someone to code for you or taking a project and calling it your own is not appropriate. It is also not appropriate to make it look you are coding more than what you actually contributed.

For further details and clarifications regarding collaboration and cheating, view the university Student Rights and Responsibilities web page.

Assignment Policy

Official due dates are for each assignment, project item, etc. are listed on Canvas. Unless otherwise directed in the assignment/project item description, all course submissions (e.g. assignments, project deliverables) are submitted via Canvas in PDF in their respective item drop box.

The University is committed to providing a reliable online course system to all users. However, in the event of any unexpected server outage or any unusual technical difficulty which prevents students from completing a time sensitive assessment activity, the instructor will extend the time windows and provide an appropriate accommodation based on the situation. Students should immediately report any problems to the instructor and contact the UNT Student Help Desk: helpdesk@unt.edu or 940.565.2324 and obtain a ticket number. The instructor and the UNT Student Help Desk will work with the student to resolve any issues at the earliest possible time.

Syllabus Change Policy

The instructor reserves the right to change the course as needed, specifically (though not limited to) the case of topics, due dates, and assignments/assessment items. Any changes are done after careful consideration of the class/learning.

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. [Insert specific sanction or academic penalty for specific academic integrity violation.]

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 \(https://disability.unt.edu/\)](https://disability.unt.edu/).