



Course Snapshot

Game Programming I CSCE 4210 001

Term: 2026 Fall

Modality: In Person

Meeting Information: M, 10:40AM-01:30PM, NTDP F204

Instructor Information

Name: Jonathon Doran

UNT Email Address: Jonathon.Doran@unt.edu

Office Hours and Location

Student hours held in-person in NTDP E260L

Zoom is available via appointments. Feel free to schedule appointments if the official hours do not work for you. If the list of times on Calendly does not work for you, please email me with your requested times.

Day	Time
Tuesday	2:30pm - 3:30pm
Wednesday	11:00am - 12:00pm
Friday	1:00pm - 2:00pm

[Book a meeting using Calendly](#)

Please put the course number in your subject line for all email communication. Canvas does that automatically

Office or Department Phone Number: Please contact me via Teams or Email

Preferred Contact Method: Email is preferred for contact. Please put "CSCE 4210" in the subject line.

Expected Response Time: During the week I will respond within 24 hours. During the weekend, response time may be longer

Course Description

4210. Game Programming I. 3 hours (3;0;1). Introduction to game programming, including real-time, event-driven, and multimedia programming techniques. Graphics, sound, and input programming. Students will learn how to program a billboard game in 3D with constrained camera motion. Prerequisite(s) : CSCE 2110 with a grade of C or better.

Course Structure

Our course meets once a week for 3 hours. There is also a recitation that meets once a week for one hour. Multiple recitation sections exist, and you may attend any that are convenient. Note that labs must be demonstrated in-person in the recitation to our TA. You may work on them outside of the recitation, but the demonstration must be in-person.

Early in the semester, class time is used for lectures. I have seven lectures prepared, and topics may also be requested if there is something your team needs covered. Later in the semester, lectures end and class sessions become work time, where I meet with individual teams and provide personalized feedback on each project.

Before each session you will each submit a decision brief stating what you are working on and one technical question that is keeping you from making progress.

Most of your work happens outside of class. Your team will spend the semester on a single game: learning an unfamiliar code base and building your game under revision control, much as a startup game dev team would. There are seven individual laboratory assignments that give you practice with tools and techniques, each demonstrated to the TA in recitation.

Please plan on spending three hours on work outside of class for each hour in class (scale based on your experience).

Instructor Welcome and Course Orientation

I am Jonathon Doran. My research is in procedural content generation for role-playing games, but this course is about something more fundamental: shipping a game with a team. You will experience what a startup game development team experiences. You will inherit a code base you did not write, learn your way around it, and use it to build a game of your own design under revision control.

I believe mastery comes from direct engagement. Working on one project for the entire semester gives you a depth that a series of small assignments cannot, and it gives you room to experiment and to make mistakes worth learning from. Real projects work this way, and so does this course.

A note on how this course works: there are no exams. Your grade rests mostly on the game your team builds, on the quality of the finished product and on the size and significance of the code you personally contribute. At the end of the semester your team will sit for a group interview, where you explain what you built and why. The standard applied is "If it plays good, it is good".

Learning Outcomes and Alignment

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

- 1. Develop Windows applications in C++ using Visual Studio.**
- 2. Build interactive graphics programs using the DirectX 12 SDK and DirectXTK12.**
- 3. Read, navigate, and extend an unfamiliar code base.**
- 4. Design and implement a 2D or 2.5D game.**
- 5. Work effectively on a programming team using Git for version control.**
- 6. Contribute a substantial, working component to a team-developed game and explain its design decisions.**

Course Materials

None required

Course-Specific Technology

Access to a Windows 10-11 Gaming PC is mandatory. Prior experience with Visual C++, DirectXTK12, and Git is useful but not required. In this course we use a custom engine that only supports Windows. In the past there have been reports of issues with less capable integrated graphics chips, so be forewarned. But I think that our engine can run on a potato.

Major Assignments and Assessments

Labs: Short individual exercises that let you gain some specific experience with different areas of game programming. The deliverable is the demonstration to our TA which should generally be done in-person during the week of the lab.

Decision briefs: Submitted before each session. State what you are working on and one technical question that is blocking your progress, along with what you have tried. Students can be reluctant to ask questions, yet often need to do so. I am forcing this. If you are working on a complex task, then you have questions. I have questions all the time.

Term Project: A group project where you create a game, reviewed at 4 checkpoints. Your team gets to pitch the idea, and you get to deliver. I am happy to provide feedback and guidance as requested.

Pitch: While part of the project, your presentation will be a separate assignment. This will be a video pitch that you record and make available. Imagine that you are asking someone to invest in this. Why is it a viable idea? Why are you the team to make it happen?

Group Interview: At the end of the term I will interview each team. This is where I ask what you are individually responsible for, and possibly ask technical questions in that area. You've done the work already, so you really won't need to prepare for it.

There are no examinations in this course.

Grading and Feedback

Area	Percentage of Final Grade
Laboratory Assignments	10%
Pitch Presentation	5%
Revision control and Project Milestones	5%
Your Game	70%
Group Interview	5%
Decision Briefs	5%

Important: If you believe that there is a mistake in the grading of one of your assignments, you must bring these inquiries to the professor within one week of when the assignment is returned. After this period, it is too late to consider, except for an arithmetic error in calculating the score.

Note on Recitations: Completion of a relatively simple task during the week in which it is assigned will earn you one point. Completion during the following lab session will earn you half a point. **Important: You will lose a letter grade for every two points missed.**

Note on code repository usage: Always submit code to our course's official GitLab project using your official UNT email. This is to ensure that you receive proper credit. The repository logs are the ground truth of who did what, and will be a major factor used to determine participation. It is your responsibility to review this information periodically and to ensure that your submissions are correct. **Please ask for help if you run into trouble.**

Course Calendar

Week	Date	Major Topics	Due
0x1	17-August	Introduction	

Week	Date	Major Topics	Due
0x2	24-August	Game Design	Team Formation, Lab 1
0x3	31-August	Tools	Lab 2
0x4	7-September	Labor Day (no class)	
0x5	14-September	Pitch Presentation	Checkpoint 1
0x6	21-September	The Code Base	Lab 3
0x7	28-September	2D Games	
0x8	5-October	2.5D Games	Lab 4
0x9	12-October		Checkpoint 2
0xA	19-October		Lab 5
0xB	26-October		
0xC	2-November		Checkpoint 3
0xD	9-November		Lab 6
0xE	16-November		Checkpoint 4
0xF	23-November	Thanksgiving Break (no class)	
0x10	30-November		Lab 7

This schedule is subject to change. Changes will be announce in class and reflected here.

Note that I may add/modify topics based on requests or observed needs of the class.

Authorized Absences Policy

An absence will be excused by the university for: a. religious holy day, including travel for that purpose; b. participation in an official university function; c. required military service, including travel for that purpose; d. pregnancy and parenting under Title IX; and e. when the University is officially closed.

For more details and procedures regarding UNT Authorized Absences, please see [Policy 06.039](#).

Absences that do not fall under Title IX, Required Military Service, and Official University Absences (religious holy days, participation in an official university function, and when the University is officially closed), are deemed a matter between the student and their faculty member. If the absence is due to an illness or extenuating circumstance that exceeds 5 consecutive days, the faculty member may request for the student to

provide documentation through the Dean of Students' office.

Course Level Absence Practice

Notify me in advance whenever the situation allows, and as soon as possible when it does not. Religious holy days and university functions are known well ahead of time; tell me early in the semester rather than the week of.

For absences outside the university-authorized categories above, such as illness or another extenuating circumstance, I expect documentation from a relevant third party that identifies the dates involved.

Absence accommodations exist for situations that are genuinely unavoidable and could not reasonably have been scheduled around. Please schedule what you can schedule.

For an authorized absence, we will arrange a reasonable substitute for the missed work. For a decision brief, this generally means the credit is waived rather than made up.

If something is affecting your ability to complete work, raise it when it arises rather than at the end of the semester. Options that exist in Week 6 do not exist in Week 15.

UNT Academic Integrity Policy

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.

Course Specific Academic Integrity Practice

Using external code, assets, and tutorials is permitted and expected in this course; representing them as your own work is not. Cite what you used, in a code comment or in your report.

You are encouraged to discuss approaches, debug together, and explain techniques to each other. Writing code for another student, or submitting code you did not write and cannot explain, is not collaboration.

Your project repository is a record of your own work, and I look at commit history.

AI Use Practice

You may use generative AI in this course. I would rather you learn to use it well than pretend you are not using it.

Two things are non-negotiable. You are responsible for everything you submit, and you must be able to explain it. This is not a special rule for AI; it is the same standard applied to every assignment in this course. If you cannot say what your code does and why you chose that approach, it does not matter where it came from.

Note briefly what you used AI for when you used it substantively. This is not punitive. It is what I would expect from a colleague.

Two places where it will work against you. Decision briefs and lab reports exist so that you practice articulating your own reasoning; generating them produces a document that satisfies the assignment and teaches you nothing, and it will be obvious in the group interview. And accepting output you cannot evaluate is exactly the habit this course works against. You will spend the semester learning your way around a code base you did not write, and the difference between using unfamiliar code and trusting it blindly is whether you can interrogate it. A model that writes your gameplay code hands you more unfamiliar code, and it deserves the same scrutiny.

Being a good user of these tools means knowing what they are good at, checking what they produce, and being able to tell when they are confidently wrong. That is a skill worth having, and this is a reasonable place to practice it.

I have built a custom GPT for this course, named Mentor, which you may

find useful when you are stuck. Using it requires an OpenAI account (for all practical purposes); unfortunately there is no way around that.

Course Level Practices

Attendance is encouraged, and will not be taken after the University's mandatory period. You are responsible for everything covered in class. Be aware that later in the semester class sessions become working sessions with your team, and your teammates will notice an absence before I do.

Participation in this course mostly happens through your team: the decision briefs, the feedback sessions during class, and the work itself. If speaking up in the moment is hard, the decision brief is a place to put a real question in writing.

Late work will not in general be accepted. Exceptions can be made for unavoidable and unforeseen circumstances such as serious illness, family emergency, zombie apocalypse, or civil war.

Labs are demonstrated in person to the TA during recitation. If you miss the session where a lab is due, you may demonstrate it at the following recitation for reduced credit.

You will spend the semester on one team building one game, and the course is designed to mirror how a small studio works. Commit your work to the repository early and often; your grade depends in part on the size and significance of your own contributions, and the revision history is the record of them. If a conflict develops within your team, raise it with me early, while there is still time to fix it. Problems reported in the last week of the semester are history, not problems.

Communicate with your teammates, the TA, and me the way you would with colleagues at a job you want to keep. Disagreement about technical decisions is healthy and expected; disrespect is neither.

Student Success Guidance

Labs have deadlines and feel urgent; and the project feels like it can wait. It cannot. In my experience, the teams who start their project (begin to make real progress) in October are the ones presenting something they are not proud of in December. Do something small on it every week, starting in September. Milestone feedback is written to be acted on before the next checkpoint, and the next checkpoint is graded partly on whether you did. If a comment is unclear, ask me what I meant. Feedback you do not read is work we both wasted. The decision briefs are practice for this. A good question says what you were trying to do, what you tried, and where it stopped making sense. That question usually gets answered in five minutes. "It doesn't work" takes an hour and often does not get resolved.

Do not be afraid to admit that you are stuck and need help. I am happy to look over what you have attempted and make recommendations. Avoiding that conversation is one of the worst things you can do for yourself in the course.

Academic Support and Student Services

Technology Support

Part of working in the online environment involves managing the inconveniences and frustrations that can arise when technology breaks down or does not perform as expected. Here at UNT, we have a [Student Help Desk](#) that you can contact for help with Canvas or other technology issues:

- Phone: 940-565-2324
- Email: helpdesk@unt.edu
- Current list of [Student Help Desk hours](#)

Academic Support Services

- The [UNT Academic Resource Center](#) provides links to the bookstore, registration and advising information, tuition information, financial aid, and more.
- The [UNT Academic Success Center](#) offers academic support services and free individual tutoring.
- [UNT Writing Lab](#)

- [UNT Libraries](#)

Student Services

- [Counseling and Testing Services](#)
- [Student Affairs Care Team](#)
- [Student Health and Wellness Center](#)
- [Student Legal Services](#)
- [UNT Food Pantry](#)

Civil Discourse

As a leading public university, the University of North Texas has a fundamental responsibility to create enduring value for the public good. The fulfillment of our mission as a university depends upon the free exchange of ideas in the pursuit of knowledge. We bring these commitments into action by centering civil discourse in our culture and curriculum. We define civil discourse as the practice of constructive dialogue to broaden understanding, grounded in our shared values and deep respect for each other's potential. By committing to this practice, we seek to equip every student with skills and mindsets to engage, contribute, and lead—at UNT and throughout your lives.

Engaging with different ideas, asking questions, and debating are essential to a university education. This course may include ideas you disagree with, find unwise, or even find offensive – that we include for purposes of academic inquiry and critical examination. You may be asked to demonstrate understanding of these ideas without being required to believe or endorse them. My role as an instructor is to help you build understanding and foster critical thinking. If any claim – mine, yours, or a fellow student's – seems unclear or unsupported, we should be able to ask each other to explain it. Vigorous debate is welcome. Speech that violates the Student Code of Conduct, including speech that harasses a specific individual or disrupts the course is not. You may expect that views expressed in class will not be attributed to specific individuals outside of class, and that you will be evaluated fairly based on the learning objectives of this course.

University Policies

ADA Accommodation Statement: 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 at 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 the UNT Learning Management System (LMS) 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. The Code of Student Conduct can be found at deanofstudents.unt.edu/conduct.

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: eagleconnect.unt.edu/.

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. 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 at spot.unt.edu or email spot@unt.edu.

Survivor Advocacy: UNT is committed to providing a safe learning environment free of all forms of sexual misconduct, including sexual harassment sexual assault, domestic violence, dating violence, and stalking. Federal laws (Title IX and the Violence Against Women Act) and UNT policies prohibit discrimination on the basis of sex, and therefore

prohibit 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. UNT's Survivor Advocates can assist a student who has been impacted by violence by filing protective orders, completing crime victim's compensation applications, contacting professors for absences related to an assault, working with housing to facilitate a room change where appropriate, and connecting students to other resources available both on and off campus. The Survivor Advocates can be reached at SurvivorAdvocate@unt.edu or by calling the Dean of Students Office at 940-565-2648. Additionally, alleged sexual misconduct can be non-confidentially reported to the Title IX Coordinator at oeo@unt.edu or at (940) 565 2759.

Pregnancy Modifications Under Title IX and Parenting Resources: UNT is committed to supporting students who may need pregnancy and parenting modifications in compliance with Title IX. If you are a pregnant student or have a pregnancy related condition, please visit report.unt.edu and complete the 'Request Pregnancy/Parenting Modifications' form. Parenting students who may need resources can seek support and guidance from the Dean of Students and the Eagle Engagement Center. [Pregnant and Parenting Students Policy number 16.008](#).

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