

Game Theory – ECON 4450

This course examines strategic interactions and equips students with tools to analyze them. Through theory and a wide range of examples, students will learn a systematic method for incorporating the unique features of a situation to model it, predict behavior, or better understand past outcomes.

Game Theory is my favorite undergraduate class to teach. It is interesting, flexible, widely applicable to real-world situations, and encourages both creativity and collaboration. For some students, the material feels intuitive; for others, it can be more challenging. Regardless of your starting point, consistent class attendance and diligent practice will help you master the material. I am eager to help. Please ask questions rather than relying on online searches - I write all the graded assignment questions myself, so you will not find any special exam or homework keys online.

Course Structure

This course meets face-to-face on Tuesdays and Thursdays, 9:35–10:55 a.m. in Wooten Hall, Room 213.

My office hours are Mondays 9am - 1pm, and by appointment.

Virtual Office Hours: Fridays, 2:00–3:00 p.m. via Zoom by appointment. If no appointments are scheduled by noon on Friday, the virtual office hour will not be held.

Your primary interaction with me and with classmates will take place in class. The course includes **12 weeks of content. Three weeks are reserved for review and exams**, and the **final exam will take place during Week 16**.

Course Objectives

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

- Construct strategic form and extensive form models from given scenarios.
- Solve for Nash equilibria in models with multiple parameters.
- Critically analyze news headlines and events that involve strategic interdependence.
- Evaluate the applicability of economic theories to real-world scenarios.
- Create and solve concise models of strategic situations, supported by data, and present findings using an infographic.
- Locate and cite data appropriately to support arguments.
- Interact respectfully with others and apply tact when offering or receiving differing perspectives.

Note: This course fulfills the **CLASS requirement for Communication and Digital Skills**. By the end of the course, students will demonstrate effective communication using a digital platform and at least two of the following:

1. Communicate a central idea effectively using appropriate organization and structure.
2. Develop content at an advanced level with effective supporting materials.
3. Demonstrate verbal and nonverbal communication skills that are audience-appropriate and adhere to the conventions of the chosen medium (written, oral, or visual).

Required Text

Joseph Harrington, Jr., *Games, Strategies, and Decision Making*, 2nd edition, Worth Publishers, 2015.

Game theory is a highly quantitative subfield of economics. Because this is an undergraduate course, we use fewer quantitative tools than more advanced theory courses. The required textbook is the only undergraduate game theory text that does not demand advanced mathematical skills, which makes it especially valuable to own.

The textbook is required, and I use it extensively. Previous students have found it extremely helpful, and it may be difficult to pass the course without access to it. Please note that the required edition is the second edition. If you choose to use the first edition, be aware that some topics for which you are responsible are not included in that version. In those cases, you will need to obtain the missing material from a classmate if you need additional support beyond what we cover in class.

Communication

- Instructor: Professor Janice A. Hauge
- E-mail address: Janice.Hauge@unt.edu

I will make myself as available as possible, but general questions should be posted in the appropriate Discussion Board area. For example, if you have a question about the course or an assignment, please post it there so that everyone can benefit from the answer.

If your question is more personal or not suited for the discussion board, please email me directly. I will respond within 24 hours on weekdays (and usually much sooner).

Feedback on assignments will be returned within one week of the due date, and typically by the next class meeting.

Canvas

- **Announcements:** this is where you will be updated on new and important information for the course. Announcements will go to your e-mail account and reside here also - watch for these. Ignorance is not an excuse for missing something important that was announced via Canvas.
- **Syllabus:** this area contains all the important information you need to know about this course as well as a schedule of the course assignments and exams.

- **Modules:** this is where the course content is located. Here you can see the entire course work sequence at a glance, and access information on each topic we cover in class.
- **Grades:** this is where you will find all your grades earned this semester. Each assignment has a due date and time; be aware of the time so as not to miss a deadline!

By the first week of class, you should have read the syllabus carefully (in the course menu) and looked at the modules page where you will find lessons arranged by topic.

Course Policies & Technology Requirements

Students are expected to complete assigned readings and related work before class. Preparation and attendance are essential. If you miss class, it is your responsibility to obtain notes and assignments from your classmates.

- **Late Work & Exams**
No late work will be accepted; assignments not submitted by the deadline will receive a zero. Make-up exams will not be given. If you have an emergency that prevents you from taking an exam, you must contact me **before the exam begins** (via email or in person) to discuss possible alternatives. Approval is not guaranteed. Medical exceptions require a doctor's note.
- **Attendance & Punctuality**
Arriving late is disruptive and disrespectful. Habitual tardiness may result in referral to the Dean of Students for disciplinary action or removal from the class.
- **Technology in Class**
Cell phone use is not permitted during class. If you are seen using your phone in any way, you will be asked to leave. Please be considerate and put your phones away before class begins.
Laptop use is not permitted during class. Research shows that handwritten notes can improve focus and retention. For that reason, **laptops are not permitted** in class unless they are designed for hand notetaking and can lay flat on the desk.
- **Bring Note-Taking Supplies to Every Class.** You are expected to take handwritten notes and create diagrams or models during every class period. Our models are made up of decision trees and require math; they cannot be quickly drawn and revised on a computer. Regular in-class drawing will help you understand the material and make it easier to practice and study.
- **Academic Integrity**
Cheating will not be tolerated. Any form of dishonesty will result in a zero on the assignment and may lead to failure of the course. "Cheating" includes the use of unauthorized resources (anything other than Canvas, properly cited research, and your own work).
Students should review the University's Policy on Academic Dishonesty in the *Student Handbook* and the Code of Student Conduct and Discipline. Violations

may be referred to the Committee on Student Conduct or the Center for Student Rights and Responsibilities.

- **Classroom Conduct**

Student behavior that interferes with teaching or learning is unacceptable and will not be tolerated. Disruptive students will be asked to leave and may be referred to the appropriate university office. Treat both your instructor and classmates with respect at all times. In discussions, avoid sarcasm and humor that may be misinterpreted, and fact-check your sources.

- **Accommodations**

If you have special needs or require accommodations, please notify me immediately so we can make appropriate arrangements.

- **Extra Credit**

No extra credit opportunities are available in this class—no exceptions.

Technology Requirements

- Microsoft Word
- Infographic software of your choice [Note: "An infographic is a collection of imagery, charts, and minimal text that gives an easy-to-understand overview of a topic. Infographics use striking, engaging visuals to communicate information quickly and clearly." (Venngage, available at: <https://venngage.com/blog/what-is-an-infographic/Links to an external site.>)

For help with Canvas or other technology issues refer to the student help desk: [UIT Student Help Desk site](#)[Links to an external site.](#)

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

For additional support, visit [Canvas Technical Help](#).

Assignments & Grading Policies

- Micro-Memo Assignments 25% (5 assignments each worth 5%)
- Project 30% (3 submissions each worth 10%)

- Exams, which include Exam Wrappers, 45% (3 exams each worth 15%)

Students can expect to receive their grades within one week of the due date, and generally the next class period. You are required to wait 24 hours before contacting me to dispute a grade. Within that time, I expect that you will review the assignment details and reflect on the quality of the work you submitted. If you still would like to dispute your grade, no later than the next class period, submit in writing the reason you believe you deserve a higher grade, and give that to me with the originally graded assignment. I will review your request and respond no later than the next class period. **For example:** suppose you receive a grade on Tuesday and you would like me to reconsider an answer you provided. At the beginning of class on Thursday, submit your written request along with the original submission. I will respond the following Tuesday. Please note that I cannot discuss grades over e-mail.

Late Work and Extra Credit

I do not accept late work. All work turned in after the deadline will receive a grade of zero unless the student has a [university-excused absence](#) and provides documentation within 48 hours of the missed deadline. There are no extra credit opportunities in this course.

Learning Activities and Expectations

Course Evaluation Criteria

Assessment	Purpose	Weight
Exam 1	Application	15%
Exam 2	Application	15%
Final Exam	Conceptual Mastery	15%
Exam Wrappers	Reflection	+ or - 5 points on exams
Micro-Memos	Ongoing reasoning	25%
Project Part 1	Basic Application	10%
Project Part 2	Advanced Application	10%
Final Project Submission	Conceptual Mastery	10%

Exams

Exams are designed to assess different levels of economic understanding during the semester. Together, they evaluate comprehension, application, and conceptual mastery of the material, rather than memorization alone.

- Completed individually.
- Closed note.
- Partial credit is awarded for clear and correct economic reasoning.
- Careful reading of the questions and well-written and thoughtful responses are required.

Exam 1 focuses on foundational concepts and frameworks introduced in the first portion of the course. Questions emphasize understanding core ideas, interpreting economic intuition, and explaining mechanisms. Students will be expected to demonstrate clarity of reasoning and familiarity with key concepts, not rote recall.

Exam 2 emphasizes applying more complex concepts that build on the foundational material.

Final Exam requires mastery of concepts covered throughout the course; the final exam is cumulative.

Exam Wrappers

Exam wrappers following Exams 1 and 2 are intended to help students reflect on preparation strategies and performance, and to improve learning outcomes for subsequent assessments.

- Short reflection immediately after exams 1 and 2
- Based on analysis and review of exam performance

Weight

- Plus or minus five points on the prior exam.

Micro-Memos

- Short, handwritten responses completed in class
- Prompted by a scenario introduced *that day*
- Concept focused (completion and reasoning, not perfection)
- Individual
- 10–15 minutes
- One short prompt
- Half to 1-page maximum written response.

3-point rubric

- 2 = Conceptually correct and economic reasoning
- 1 = Partial understanding / vague reasoning
- 0 = Off topic / missing

Weight

- 5% each

Generative AI Policy

Generative Artificial Intelligence (GenAI) refers to software systems and platforms that create new content, such as text, images, audio, or video using generative models.

At the University of North Texas, we value creativity and aim for all members of our community to thrive in an ever-changing world. It is critical that we embrace AI literacy by intentionally incorporating the use of GenAI into relevant learning experiences. In short: I know students use it whether permitted or not; my goal is to help students use it wisely and honestly. The emergence of GenAI has been rapid. Given GenAI's evolving nature in academia, it is imperative that you have clear expectations about its use. In this course, if you believe you must hide your use of AI, you are using it deceitfully and are violating UNT's academic integrity policy. When in doubt, ASK.

Permitted Use: Extremely Limited

In this course, the use of GenAI tools is extremely limited as directed by Professor Hauge. Use requires explicit permission, and proper citation. Any attempt to represent GenAI output as a student's own work will be considered fabrication, cheating, and/or academic dishonesty as determined on a case-by-case basis. In accordance with the UNT Honor Code, unauthorized use of GenAI tools is prohibited. Using GenAI content without proper credit or substituting your own work with GenAI undermines the learning process and violates UNT academic integrity policy. If you are unsure whether something is allowed, please seek clarification.

I want you to engage deeply with the material and develop your own critical thinking and skills. While GenAI tools can be helpful in some contexts, they do not align with our goal of fostering the development of your independent thinking. Using GenAI to complete any part of an assignment or coursework will be considered a violation of academic integrity, as it prevents the development of your own skills, and will be addressed according to the Student Academic Integrity policy.

Directly from UNT administration

<https://guides.library.unt.edu/plagiarism/at-unt>

AI, Plagiarism, and Academic Integrity

The "unauthorized" use of any person or technology that assists in a student's assignment, project, or paper is considered cheating under the UNT Student Academic Integrity Policy (UNT Policy 6.003). Unless a professor or instructor gives explicit "authorization," AI cannot be used to complete assignments, projects, or papers. Doing so will result in a "cheating" violation.

Office of the Provost. 2024. "Frequently Asked Questions -- Faculty." Student Success. <https://vpaa.unt.edu/ss/integrity/faq-faculty.html>.

AI should not be used to assist in writing papers, searching for sources, or creating citations. Citations provided by AI are fabricated by mimicking existing bodies of work. In most cases, AI will pull direct quotes from existing sources to answer queries and make-up information about the source.

AI can be used ethically to help you develop an outline for a paper, generate ideas, and learn a citation style. Talk to your [subject librarian](#), or professor about how you can use AI ethically.

Academic Integrity and Plagiarism at UNT

UNT values academic integrity. The Office of the Provost and Student Success provide the following resources to understanding academic integrity, policies, and resources for students, faculty, and administration leadership. Academic integrity emanates from a culture that embraces the core values of trust and honesty necessary for full learning to occur. As a student-centered public research university, the University of North Texas promotes the integrity of the learning process by establishing and enforcing academic standards. Academic dishonesty breaches the mutual trust necessary in an academic environment and undermines all scholarship.

See UNT Policy [06.003, Student Academic Integrity](#).

The Office of the Provost and the Office for Student Success is responsible for issues concerning academic integrity. The Academic Integrity Officer works with faculty and students regarding investigations of misconduct. Please submit all questions related to academic integrity to academic.integrity@unt.edu.

Remind

I will be using Remind to send out important class announcements and reminders, in addition to posting the same information on Canvas. Remind is optional! It is designed for your benefit, so only sign up if you think you will find it helpful.

Text instructions:

1. Open a new text message on your phone.
2. In the "To" field (the recipient), type **81010**.
3. In the message body, type the class code: **@DrHaugeGT**
4. Press send.
5. Follow the text prompts to reply with your full name and your role (**S** for student).

App instructions:

1. Download the free **Remind** app from the Apple App Store or Google Play Store.
2. Sign up for a new account using your email address or phone number (or log in if you already have one).
3. Tap **+ Join a class**.
4. Enter the class code: **@DrHaugeGT**
5. Tap **Join**.

Web instructions:

1. Open your web browser and go to remind.com/join.
2. Enter the class code: **@DrHaugeGT**
3. Click **Join** and follow the prompts to link your phone number or email address.