

ECON-4773-001 Economic Game Theory Syllabus – Fall 2022

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Class Time: Tue/Thu, 3:00PM-4:15PM
Classroom: Burton Hall, room 208
Office Hours (via Zoom): Tue/Thu 12PM-1PM by appointment.

Course Description

This course is a more detailed presentation of the *Game Theory* presented in a chapter or two in the Intermediate Microeconomics course. We will start from basic idea, such as what is a game strategy or Nash Equilibrium, and later we will expand in more complex concepts, such as mixed strategies or repeated games. Also, we will learn how to apply *Game Theory* in different areas, such as auctions or bargaining. *Game of Strategy* (by Dixit et al.) presents the theoretical background as well applications for these theoretical topics to be able to understand how we can use *Game Theory* to make predictions about outcomes in different markets/environments. Also, it presents some limitations of Nash Equilibrium that researchers need to be aware of when they apply the tools learned in this course.

The main topics that we will cover during this course are basic idea (strategies, type of games, Nash Equilibrium), sequential games, simultaneous games (discrete strategies, continuous strategies, mixed strategies), uncertainty and information (asymmetric information, adverse selection), applications to specific strategic situations (auctions, bidding strategy, bargaining).

Prerequisite: ECON 3113 with a grade of C or better, and Mathematics 2123 or Mathematics 2423.

Textbooks

Recommended:

Game of Strategy by Avinash Dixit, Susan Skeath, and David McAdams, 5th Edition, W.W. Norton.

Grades

Your grade will be based on homework (100 points), two midterms (110 points each), one final exam (150 points), and start-up points (30 points).

In order to calculate your final grade, you need to add the points that you obtain in each of the assessments from the paragraph above.

Grading scale:

A: $450 \leq \text{your score}$
B: $400 \leq \text{your score} < 450$;

C: $350 \leq \text{your score} < 400$;
D: $300 \leq \text{your score} < 350$;
F: $\text{your score} < 300$.

Obs.1: 449 is a B, 399 is a C, and so on. There will be no rounding up.

Obs.2: Your final grade is based on your performance in this course and not on the fact that you need a certain grade (A, B, C, D) to graduate, apply for a certain program, financial aid, scholarship, etc. So please be sure to put the effort during the semester to get the grade you need to graduate, apply for programs, financial aid, scholarship, etc.

There will be two midterms and a final exam on the dates indicated below. The final exam will be cumulative. All exams will cover material from the chapters from *Game of Strategy* (by Dixit et al.) textbook, the readings, the lecture notes, and the homework. **Any student caught cheating will receive an F for the course.**

MAKEUP EXAM POLICY: There will be NO MAKEUP exams, no exceptions. If you miss an exam without a valid excuse you will get a ZERO grade. If you have a valid excuse and bring solid documentation, you can be excused and the grade from your final will be re-weighted to account for the missed exam. **You should not miss the final !**

Exam Dates

Midterm 1 - Thursday, September 29

Midterm 2 - Thursday, November 3

Final – Wednesday, December 14, 4:30PM-6:30PM, Burton Hall 0208

Important: the dates for the midterms can change in case of emergencies, such as the classes are canceled that day. Please do not schedule other things in the upcoming lectures since the midterm will be postpone to our next lecture.

Start-up points – 30 points

At the beginning of the semester, you receive 30 points towards your grade. However, you lose 5 points of this bonus each time when you ask me a question that has the answer in this syllabus, such as “Where is your office?” or “When do you have office hours?”, or something that I’ve mentioned in one of my emails. You lose 5 points as well each time when you use the cell phone during our lecture, or disturb the lecture.

Homework

I will assign homework during the entire semester. The homework score for your final grade will be the average of all homework assignments. Please pay attention during class and check the Canvas website for posted assignments. Assignments need to be turned in on time. If you have problems or anticipate problems when an assignment is due, make sure you submit it early. If you have an out of your control situation (such as a car accident) that prevents you from turning the homework on time, you need to bring me strong documentation of your situation, and I can extend the deadline based on your situation. You need to let me know about your situation as soon as possible. If there is a homework assignment that involves me posting/going over the solution before you turn in the homework, I will drop that homework from your score. If you miss the deadline and you do not have an out of your control situation, you have 48 hours to submit your homework. In this case, you will lose 25% of the points allocated for that homework.

Office hours

For this semester, all my office hours are online (via Zoom). I will be available for questions during office hours unless other duties (i.e., committee work, interaction with a visitor to the Department of Economics) make that impossible, in which case I will inform you. The Zoom link for the office hours will be available on Canvas.

If you want to see me during office hours, you need to let me know what time you will be on Zoom during the office hours, so I can schedule students in case there are multiple requests for the same time interval. If you need to see me outside regular office hours, in order to make an appointment send me an e-mail with couple of time intervals when you are available.

Notifications

I will use the Canvas website and the e-mail in order to send you information such as readings, homework assignments or to post files and grades online. ***Please use your OU email account when you would like to send me an email. I will not reply to any email that comes from other email accounts such as Yahoo, Gmail, etc.***

Each time you write me an email, I would recommend you to write the course and section number in the subject of the email so your email will be moved in this course folder in my email box.

Important: I will not post solutions to problems (or other topics) that I have covered during the lecture. As I have mentioned, it is your responsibility to talk to your colleagues, get the notes from them.

Etiquette

- 1) Turn off cell phones, pagers and other electronic devices during class.
- 2) Do not use your laptop for other things besides the ones related to our class (doing your homework or projects for this class is not allowed as well). You should not open any program or application (such as games, Facebook, ESPN website, e-mail account, and so forth) that is not related to our lecture. ***If I see you using the laptop for other purposes, you will lose the privilege to use the laptop during our lecture and 10 from the start-up points.***
- 3) Do not read newspapers or similar materials during class.
- 4) Do not eat in class.
- 5) If you have a question relevant to the lecture, please ask me and I will try to answer it. Otherwise please wait until the lecture is over and then you can ask or talk to your colleague.
- 6) **Please do not be late.** This is not just important for this course (someone late will disturb the lecture and his/her colleagues when entering the classroom), but it is also very important for you to get used to be on time in the future. **If you are late, you cannot attend the lecture without my permission.**

Course schedule

For this course, I will use mainly the *Game of Strategy* (by Dixit et al.) textbook (see above). However, this is a tentative outline; small changes in the chapters that we will cover might occur. Usually, at the end of each lecture I will let you know the next chapter that I will cover. I recommend you read the chapter before the next lecture for a better understanding of the chapter.

Introduction and General Principles

1. Basic Ideas and Example (Ch. 1, Ch.2)

Fundamental Concepts and Techniques

2. Games with sequential moves (Ch. 3)
3. Simultaneous moves games: discrete strategies, continuous strategies, mixed strategies (Ch. 4, Ch.5, and Ch.7)

Uncertainty and Information

4. Asymmetric information, adverse selection (Ch. 9)
5. Repeated games (Ch.10)

Applications to Specific Strategic Situations

6. Design of Incentives (Ch. 14) - *(if time allows us)*
7. Auctions, bidding strategy and Auction design (Ch.15)
8. Strategy and Voting (Ch.16) - *(if time allows us)*
9. Bargaining (Ch.17)

University Policies

Copyright Syllabus Statement for In-Person or Online Courses

Sessions of this course may be recorded or live-streamed. These recordings are the intellectual property of the individual faculty member and may not be shared or reproduced without the explicit, written consent of the faculty member. In addition, privacy rights of others such as students, guest lecturers, and providers of copyrighted material displayed in the recording may be of concern. Students may not share any course recordings with individuals not enrolled in the class or upload them to any other online environment.

Academic Integrity

Academic honesty is incredibly important within this course. Cheating is strictly prohibited at the University of Oklahoma, because it devalues the degree you are working hard to get. As a member of the OU community, it is your responsibility to protect your educational investment by knowing and following the rules. For specific definitions on what constitutes cheating, review the [Student's Guide to Academic Integrity](#).

To be successful in this class, all work on exams and quizzes must be yours and yours alone. You may not receive outside help on assessments. On examinations and quizzes, you will never be permitted to use your notes, textbooks, calculators, or any other study aids. Should you see someone else engaging in this behavior, I encourage you to report it to myself or directly to the Office of Academic Integrity Programs. I encourage this because when someone else cheats, it can negatively impact the

reputation of our entire program. It is my professional obligation to report academic misconduct, which I will not hesitate to do. Sanctions for academic misconduct can include expulsion from the University and an F in this course, so don't cheat. It's simply not worth it.

Religious Observance

It is the policy of the University to excuse the absences of students that result from religious observances and to reschedule examinations and additional required classwork that may fall on religious holidays, without penalty. [\[See Faculty Handbook 3.15.2\]](#)

Reasonable Accommodation Policy

The Accessibility and Disability Resource Center is committed to supporting students with disabilities to ensure that they are able to enjoy equal access to all components of their education. This includes your academics, housing, and community events. If you are experiencing a disability, a mental/medical health condition that has a significant impact on one or more life functions, you can receive accommodations to provide equal access. Possible disabilities include, but are not limited to, learning disabilities, AD(H)D, mental health, and chronic health. Additionally, we support students with temporary medical conditions (broken wrist, shoulder surgery, etc.) and pregnancy. To discuss potential accommodations, please contact the ADRC at 730 College Avenue, (ph.) 405.325.3852, or adrc@ou.edu.

Title IX Resources and Reporting Requirement

Anyone who has been impacted by gender-based violence, including dating violence, domestic violence, stalking, harassment, and sexual assault, deserves access to resources so that they are supported personally and academically. The University of Oklahoma is committed to offering resources to those impacted, including: speaking with someone confidentially about your options, medical attention, counseling, reporting, academic support, and safety plans. If you would like to speak with someone confidentially, please contact [OU Advocates](#) (available 24/7 at 405-615-0013) or another confidential resource (see ["Can I make an anonymous report?"](#)). You may also choose to report gender-based violence and discrimination through other means, including by contacting the [Institutional Equity Office](#) (ieo@ou.edu, 405-325-3546) or police (911). Because the University of Oklahoma is committed to the safety of you and other students, I, as well as other faculty, Graduate Assistants, and Teaching Assistants, are mandatory reporters. This means that we are obligated to report gender-based violence that has been disclosed to us to the Institutional Equity Office. This includes disclosures that occur in: class discussion, writing assignments, discussion boards, emails and during Student/Office Hours. For more information, please visit the [Institutional Equity Office](#).

Adjustments for Pregnancy/Childbirth Related Issues

Should you need modifications or adjustments to your course requirements because of documented pregnancy-related or childbirth-related issues, please contact your professor

or the Accessibility and Disability Resource Center at 405/325-3852 as soon as possible. Also, see the Institutional Equity Office [FAQ on Pregnant and Parenting Students' Rights](#) for answers to commonly asked questions.

Final Exam Preparation Period

Pre-finals week will be defined as the seven calendar days before the first day of finals. Faculty may cover new course material throughout this week. For specific provisions of the policy please refer to OU's [Final Exam Preparation Period policy](#).

Emergency Protocol

During an emergency, there are official university [procedures](#) that will maximize your safety.

Severe Weather: If you receive an OU Alert to seek refuge or hear a tornado siren that signals severe weather.

1. Look for severe weather refuge location maps located inside most OU buildings near the entrances
2. Seek refuge inside a building. Do not leave one building to seek shelter in another building that you deem safer. If outside, get into the nearest building.
3. Go to the building's severe weather refuge location. If you do not know where that is, go to the lowest level possible and seek refuge in an innermost room. Avoid outside doors and windows.
4. Get in, Get Down, Cover Up
5. Wait for official notice to resume normal activities.

Additional [Weather Safety Information](#) is available through the Department of Campus Safety.

Armed Subject/Campus Intruder

If you receive an OU Alert to shelter-in-place due to an active shooter or armed intruder situation or you hear what you perceive to be gunshots:

1. *Avoid:* If you believe you can get out of the area WITHOUT encountering the armed individual, move quickly towards the nearest building exit, move away from the building, and call 911.
2. *Deny:* If you cannot flee, move to an area that can be locked or barricaded, turn off lights, silence devices, spread out, and formulate a plan of attack if the shooter enters the room.
3. *Defend:* As a last resort fight to defend yourself.

For more information, visit [OU's Emergency Preparedness site](#).

[Shots Fired on Campus Procedure – Video](#)

Fire Alarm/General Emergency

If you receive an OU Alert that there is danger inside or near the building, or the fire alarm inside the building activates: 1. *LEAVE* the building. Do not use the elevators. 2. *KNOW* at least two building exits 3. *ASSIST* those that may need help 4. *PROCEED* to the emergency assembly area 5 *ONCE safely outside, NOTIFY first responders of anyone that may still be inside building due to mobility issues.* 6. *WAIT* for official notice before attempting to re-enter the building.

[OU Fire Safety on Campus](#)

Mental Health Support Services

If you are experiencing any mental health issues that are impacting your academic performance, counseling is available at the University Counseling Center (UCC). The Center is located on the second floor of the Goddard Health Center, at 620 Elm Rm. 201, Norman, OK 73019. To schedule an appointment call (405) 325-2911. For more information, please visit [University Counseling Center](#).