

ECON 491: Applied Game Theory, Spring 2026

Sections: B3/B4: TR 11:00 am- 12:20 pm, Room: 125 DKH

Contact Information:

- Instructor: Dr. Ali Toossi
- Office: 205C David Kinley Hall
- Email: toossi@illinois.edu
- Office Hours: Mondays & Wednesdays, 2:00–3:00 p.m.

Course Canvas Site: access at this [link](#).

Weekly Newsletter

I send out a newsletter via Canvas every Friday summarizing the key concepts from the week's lectures and previewing topics for the upcoming week.

Office hours: Regular office hours are on Mondays and Wednesdays 2:00 p.m. – 3:00 p.m. I am usually available to meet after class or at other times by appointment. I reserve the right to change office hours during the semester.

Course Description

Game theory is the study of mathematical models that analyze strategic interactions among rational decision-makers. It examines how individuals or groups make decisions when their choices affect one another. This course introduces the core concepts of game theory and demonstrates how they can be applied to understand economic and social phenomena. We will explore applications of game theory in areas such as environmental economics, development economics, political economy, and experimental economics, while also discussing its role in explaining the evolution of cooperation.

Prerequisites and Credit

Economics 491 is a topics course for advanced undergraduate students who have completed ECON 302 (Intermediate Microeconomic Theory). Graduate students may also register for this course. The course is offered for 3.0 credits to undergraduate students and for 4.0 credits to graduate students. In addition to the regular course work, Graduate students must complete a term paper. Graduate students should meet with me as soon as possible after joining the course.

Course Material

There is no required textbook for this course. I will post the lecture notes on Canvas. I do not guarantee that all material for each lecture is available on the lecture notes. Lecture notes may be updated during the semester, so check for the latest versions. Students are expected to check the Canvas site for announcements and materials on a regular basis.

Here are recommended resources:

- 1) The chapter on game theory in any intermediate microeconomic textbook. I recommend the following two textbook.

- a. I use the following text as one of my sources: "Microeconomics and Behavior" by Robert H. Frank (9th edition). McGraw Hill Education.
 - b. "Microeconomics: Competition, Conflict, and Coordination" by Samuel Bowles & Simon D. Halliday. A free PDF version is posted in the Canvas/Modules/Course Material/Lecture Notes.
 - c. This is a more advanced textbook: "Microeconomics: Behavior, Institutions, and Evolution" by Samuel Bowles. Princeton University Press. 2003
- 2) The Economy by the CORE project: <http://core-econ.org/>. To access the text for free you must register as a learner at this link: <https://www.core-econ.org/register-as-a-learner/>.
 - 3) "Game Theory for Applied Economists" by Robert Gibbons. Princeton University Press.

Attendance Policy

- Regular attendance is expected. This includes arriving on time and staying until the end of each session.
- If you are unable to attend certain classes due to university-approved reasons, please notify me in advance.
- Students with more than **three** unexcused absences will be reported to the College Dean, in accordance with the sections (i) and (j) in the student code outlined in the following [link](#):
To receive an excused absence, the student must provide an explanation and supply supporting evidence.

University policy includes as excused absences: illness, death in the family or other emergency, or other reasons beyond the student's control; a student's religious beliefs, observances, and practices; a student serving as a volunteer emergency worker, as defined in the Volunteer Emergency Worker Job Protection Act; formal participation in scheduled activities of officially recognized groups such as athletic teams, performing groups, and the Urbana-Champaign Senate (this does not include registered student organizations).

Cellphone and Laptop Policy

I have a no-technology policy. Store devices completely away and set them to silent mode during class.

Assignments:

There are a variety of graded assignments in this class. The class-by-class schedule indicates their due dates.

In-class Quizzes: Occasionally, I will administer short, graded quizzes during lectures to encourage adequate preparation and consistent engagement with the course material. *The quiz with the lowest grade will be dropped.* Any missed quiz without a documented university-approved excuse will receive a score of zero.

Homework: Homework assignments will be given approximately every two weeks and will be distributed and collected during class. Your solutions should be neat, legible, and include the following information in the top right corner of each page: your name, assignment identification, and the date. *The homework assignment with the lowest grade will be dropped.*

Midterms and Final Exams: There will be two in-class midterm exams and a final exam given at the University-designated time. Plan accordingly.

Exam I: Thursday March 5 During the class time

Exam II: Tuesday April 7 During the class time

Final Exam: Thursday, May 14, 7:00-10:00 p.m.,

Exam policies:

- You can use a simple calculator.
- There are to be no books, papers other than the exam itself.
- **No cell-phone use is allowed during the exam.** Students found to be using unapproved items are in violation of the Academic Integrity policy of the University and will be subject to disciplinary action.
- If an extreme circumstance occurs (e.g., illness), notify me prior to the exam and provide appropriate documentation. Otherwise, there will be no make-up exams. (read the part of attendance policy above.)

Final Exam Conflict Policy: From the University's final exam policy:

- Any student having more than two consecutive final examinations is entitled to rescheduling as follows if he or she takes the following action no later than the last day of classes:
- The student must investigate whether a conflict examination is being held at another time for any of the examinations involved.
- If a conflict examination has been scheduled for any of the courses, the student must take one or more of these conflict examinations. If conflict examinations are offered for more than one course, the student must take the conflict for the course that has the largest number of students.
- If no conflict examinations have been scheduled, the student must contact the instructor of the course having the largest number of students. The contact must be made no later than the last day of classes, and that instructor must provide a makeup examination: [the University's final exam policy](#)

Paper: The paper is only required from the students who are taking the course for 4 credit hours. The goal of this assignment is to connect the concepts you have learned in the class to real-world events and observations. Note that it is not enough to choose a general topic and write a summary of information about it. I expect you to pose a specific question. Your paper should explore the possible answers to that question using economic reasoning, evidence, and analysis. When I read your essay, I will be looking especially for appropriate use of the concepts and terms that we discussed in class - your explanations should provide sufficient background for a reader who has not taken the course.

- **Teamwork:** Students may work together on a single term paper that they submit as a group. These groups must not exceed two people.
- **Paper proposal (due 11:00 am Thursday March 12):** In approximately one page, the proposal should:
 - o Clearly identify the question that you plan to address.
 - o Give some background on the question's context and explain why it is interesting.
 - o Indicate at least two specific of information that you will use to answer the question.

- **Final Paper** (due 11:00 am Tuesday May 5): The final paper should clearly state a well-defined question or questions related to the course material, explain the context and significance of those questions, and discuss their possible answers.
- **Paper length:** I expect the paper to be 15 to 20 pages long. However, I am more interested in the quality of your output than the quantity.

Make-up work and extra credit. I do not offer extra credit in any circumstance. Missed exams, the final, quizzes, and all other for-credit opportunities may not be made up. Exceptions are granted only when your absence is excused (as outlined in the box above). To receive accommodation, students with legitimate conflicts with exam or assignment dates should inform me as soon as possible, but in any case at least two weeks prior to the conflict date.

Grading:

3 credit hours: Grades will be based on homework assignments (15%), Quizzes (10%) exam 1 (20%), exam 2 (25%) and a cumulative final exam (30%).

4 credit hours: Grades will be based on homework assignments (15%), Quizzes (10%) exam 1 (15%), exam 2 (20%) and a cumulative final exam (25%) plus a paper (15%).

Grade Scale: Those receiving 90% or more of total points possible will receive an A-range grade, those receiving 80% or more of total points will receive a B-range grade, those receiving 70% or more of total points will receive a C-range grade, and those receiving 60% or more of total points will receive a D-range grade. Failure to earn at least 60% of total points will result in failure to receive credit for the class. I reserve the right to adjust cutoffs when it unambiguously benefits the class.

Academic Integrity: “The University has the responsibility for maintaining academic integrity so as to protect the quality of education and research on our campus and to protect those who depend upon our integrity. *Expectations of Students.* It is the responsibility of each student to refrain from infractions of academic integrity, from conduct that may lead to suspicion of such infractions, and from conduct that aids others in such infractions. Students have been given notice of this Part by virtue of its publication. Regardless of whether a student has actually read this Part, a student is charged with knowledge of it. Ignorance is not a defense.”

Econ Tutoring Center: Free service offered by the Economics Department for all students during the fall and spring semesters, starting the third week of classes. Tutors are advanced-level economics undergraduate students who meet high academic and tutoring standards. For more information go to this [link](#).

Emergency Response Recommendations: The university maintains guidelines for emergency responses. A list of recommendations when to evacuate and when to find shelter are available at this [link](#).

Statement on Disability Accommodations: To obtain disability-related academic adjustments and/or auxiliary aids, students with disabilities must contact the course instructor and the Disability

Resources Educational Services (DRES) as soon as possible. To contact DRES you may visit 1207 S. Oak Street, Champaign, call 333-4603 (V/TTY), or email a message to disability@illinois.edu.

Community of Care: As members of the Illinois community, we each have a responsibility to express care and concern for one another. If you come across a classmate whose behavior concerns you, whether in regards to their well-being or yours, we encourage you to refer this behavior to the Student Assistance Center (217-333-0050 or at this [link](#)). Based on your report, the staff in the Student Assistance Center reaches out to students to make sure they have the support they need to be healthy and safe. Further, we understand the impact that struggles with mental health can have on your experience at Illinois. Significant stress, strained relationships, anxiety, excessive worry, alcohol/drug problems, a loss of motivation, or problems with eating and/or sleeping can all interfere with optimal academic performance. We encourage all students to reach out to talk with someone, and we want to make sure you are aware that you can access mental health support at the [Counseling Center](#) or [McKinley Health Center](#). For mental health emergencies, you can call 911 or walk into the Counseling Center, no appointment needed.

Disruptive Behavior: Behavior that persistently or grossly interferes with classroom activities is considered disruptive behavior and may be subject to disciplinary action. Such behavior inhibits other students' ability to learn and an instructor's ability to teach. A student responsible for disruptive behavior may be required to leave class pending discussion and resolution of the problem and may be reported to the Office for Student Conflict Resolution for disciplinary action.

Religious Observances: The Religious Observance Accommodation Request form is available at this [link](#). Submit the form to the instructor and to the Office of the Dean of Students (helpdean@illinois.edu) by the end of the second week of the course; in the case of exams or assignments scheduled after this period, students should submit the form to the instructor and to the Office of the Dean of Students as soon as possible.

Family Educational Rights and Privacy Act (FERPA): Any student who has suppressed their directory information pursuant to Family Educational Rights and Privacy Act (FERPA) should self-identify to the instructor to ensure protection of the privacy of their attendance in this course. See this [link](#) for more information on FERPA. Student information and records will not be released to anyone other than the student unless the student has provided written approval or as required by law.

Sexual Misconduct Reporting Obligation: The University of Illinois is committed to combating sexual misconduct. Faculty and staff members are required to report any instances of sexual misconduct to the University's Title IX and Disability Office. In turn, an individual with the Title IX and Disability Office will provide information about rights and options, including accommodations, support services, the campus disciplinary process, and law enforcement options. A list of the designated University employees who, as counselors, confidential advisors, and medical professionals, do not have this reporting responsibility and can maintain confidentiality, can be found at this [link](#).

Other information about resources and reporting is available at this [link](#).

Student Support

The Counseling Center is committed to providing a range of services intended to help students develop improved coping skills in order to address emotional, interpersonal, and academic concerns. Please visit their website at this [link](#) to find valuable resources and services.

Counseling Center Information: Location & Phone: Room 206, Student Services Building (610 East John Street, Champaign IL); 217-333-3704

McKinley Mental Health Information: Location and Phone: 3rd Floor McKinley Health Center 1109 South Lincoln, Urbana, IL, 217-333-2705

Emergency Dean: The Emergency Dean may be reached at (217) 333-0050 and supports students who are experiencing an emergency situation after 5 pm, in which an immediate University response is needed, and which cannot wait until the next business day. The Emergency Dean is not a substitute for trained emergency personnel such as 911, Police or Fire. If you are experiencing a life-threatening emergency, call 911. Please review the Emergency Dean procedures at this [link](#).