Econ 241 Game Theory **Spring 2022**

TTh 2:40–3:55 pm
Baxter 114

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Game theory analyzes strategic behavior. What happens when my decisions affect outcomes for others and when the decisions of others affect my outcomes? This type of analysis is useful in many areas including, but not limited to, economics, political science, and biology. This class will introduce you to the basic concepts of game theory and explore some applications of these concepts.

Student Learning Outcomes:

1. Students will solve for the equilibrium in various simultaneous and sequential games.
2. Students will discuss how well predicted equilibria match real-life and experimental outcomes.
3. Students will create a game to reflect a real-life situation.

Office Hours

Connecting with faculty outside of class is an important part of your Wabash education. Don't miss out! You are welcome to use office hours to discuss the course material, or anything else on your mind. I will generally be in 1-4 pm Mondays and Fridays, and 1-2:30 pm Tuesday through Thrusday. Details for each week are posted on my door.

Grading

Your grade will be a weighted average of the following items:

Two Exams	20% each
Final Exam	22%
Quizzes	10%
Homework	12%
Group Project/Presentation	10%
Attendance/Participation	6%

Assignments

Homework: To help you keep up with the material, I will assign daily homework. Expect 3 or 4 problems per day, due at the *beginning* of the next class. Late homeworks will receive half credit. No homeworks will be accepted after the last day of class.

Quizzes: There will be a brief quiz at the end of class each Thursday. There are two reasons for having such frequent quizzes. First, the quizzes provide an incentive to keep up with the material. Second, the quizzes actually help you learn. Here's what cognitive scientists say about learning: "One of the most striking research findings is the power of active retrieval – testing – to strengthen memory, and that the more effortful the retrieval, the stronger the benefit."[1]

Participation: Your participation grade reflects both attendance and participation in discussions. While most classes will be a combination of lecture, playing the games, and practice problems, some classes will focus on discussing the assigned reading.

[1] P. Brown, H. Roediger, and M. McDaniel, *Make it Stick: The Science of Successful Learning*, Belknap 2014, p. 19.

Group Project: You will work in groups of three students. Your task is to take a "real-life" situation, model it as a game, and apply the solution concepts learned in this class. The "real-life" situation may come from a movie or book, or from an actual historical instance. Your group will produce a short paper (4-6 pages) and present your game to the class.

How to Succeed in this Class:

- Attend class, pay attention, and take notes by hand. Taking notes by hand is correlated with better academic performance, compared to typing them on a computer.[2] Plus, you will not be able to type the games as fast as you can write them on paper.
- Do the assigned homework problems. You wouldn't try to run a marathon without training. Taking the exams without having done the homework will have similarly disastrous results.
- Read the assigned chapters carefully.
- Ask questions if you are lost. Come to office hours. Do not wait until you have failed an exam to ask questions.

Texts

The textbook for this class is:

Avinash Dixit, Susan Skeath, and David Reiley, *Games of Strategy*, 4th ed., Norton, 2015

In addition to the textbook the following supplementary readings are available on Canvas:

Michael Shermer, "The Doping Dilemma" *Scientific American*, April 2008, 298:82–89.

Joseph Henrich, "Does Culture Matter in Economic Behavior? Ultimatum Game Bargaining Among the Machiguenga of the Peruvian Amazon," *American Economic Review*, Sept. 2000, 90:973–979.

Lisa Cameron, "Raising the States in the Ultimatum Game: Experimental Evidence from Indonesia," *Economic Inquiry*, Jan. 1999, 37:47–59.

Richard Thaler, "Anomalies: The Ultimatum Game," *Journal of Economic Perspectives,* Autumn 1988, vol. 2, no. 4, pp. 195-206.

Richard Thaler, "Anomalies: Cooperation,: *Journal of Economic Perspectives,* Summer 1988, vol. 2, no. 3, pp. 187-197.

Ernst Fehr and Simon Gachter, "Cooperation and Punishment in Public Goods Experiments," *American Economic Review*, Sept. 2000, 90:980–994.

Richard Thaler, "Anomalies: The Winner's Curse," *Journal of Economic Perspectives,* Winter 1988, vol. 2, no. 1, pp. 191-202.

Ernst Fehr and Urs Fischbacher, "Why Social Preferences Matter," *The Economic Journal*, March 2002, 112:C1-C33.

Academic Honesty

Your work must be your own and original for this class and its assignments. Should circumstances require you to attend class virtually, specific instructions on what constitutes academic dishonesty will be given for each assignment. See http://www.wabash.edu/news/docs/AcademicHonestyGuide.pdf.

Academic Credit

This course complied with the Wabash College Academic Credit Policy. In addition to regular class meetings, direct faculty instruction takes place in this course through faculty office hours, advising for papers, and detailed feedback on student work.

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[2] Pam A. Mueller and Daniel M. Oppenheimer "The Pen is Mightier than the Keyboard," *Psychological Science,* 2014.

Schedule:

Date	Event	Topic	Reading
Jan. 18		Normal Form Games, Nash Equilibrium, Dominance	Ch. 2.1–2.4
20		Prisoner's Dilemma, 3 players	Ch. 4.1–4.5
25		Motivation in Prisoner's Dilemma; Coordination	Michael Shermer, "The Doping Dilemma" Ch. 4.6–4.7
27		Best Response Functions, Critiques of Nash Equilibrium	Ch. 5
Feb. 1		Extensive Form Games	Ch. 3
3		Experimental Evidence; The Ultimatum Game	Henrich, "Does Culture Matter in Economic Behavior?"; Cameron, "Raising the Stakes"
8		The Ultimatum Game	Thaler, "The Ultimatum Game"
10		Order of Play; Nature	Ch. 6
15		Applications	
17	TEST ONE		
22		Mixed Strategies	Ch. 7.1–7.5
24		Mixed Strategies	Ch. 7.6–7.9
Mar. 1		Signaling	Ch. 8.2–8.4
3		Signaling	Ch. 8.5-8.6
SPRING BREAK			
15		Threats and Credibility	Ch. 9
17		Brinkmanship	Ch. 14
22		Repeated Prisoner's Dilemma	Ch. 10
24		Public Goods	Ch. 11
29		Cooperation and Public Goods	Thaler, "Cooperation"
31	TEST TWO		
Apr. 5		Public Goods Experiments; Auctions	Fehr and Gachter, "Cooperation and Punishment in Public Goods Experiments"
7		Auctions	Thaler, "The Winner's Curse"; Ch. 16
12	Presentations		
14	Presentations		
19		Voting	Ch. 15
21		Evolution	Ch. 12.1-12.4
26		Evolution	Ch. 12.5-12.8
28		Reciprocity	Fehr and Fischbacher, "The Economics of Strong Reciprocity"
May 5	FINAL 1:30 pm		