

ECON 324: Game Theory

Syllabus, Fall 2021

Section:	01
Time:	Monday, Wednesday, Friday: 11 am – 11:50 am
Classroom:	Education Center, Room 103
Textbook:	<u>Games, Strategies and Decision Making, 1st or 2nd Edition</u> , by Joseph E. Harrington
Prerequisites:	ECON 200, 201; MATH 104 or 250; MATH 105/116 or 120
Instructor:	Calvin Blackwell
Office:	J.C. Long, Room 312
Office Hours:	Monday 1 pm – 3 pm and by appointment
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Suppose that you are a contestant on the quiz show “Jeopardy.” At the end of the half-hour contest (during Final Jeopardy) you have to make a wager on being able to answer a final question (that you have not yet been asked). If you answer correctly, your wager will be added to your winnings up to that point; otherwise, the wager will be subtracted from your total. The two other contestants face identical decisions. Only one of you can win – how much should you wager?

This question can be answered by Game Theory, the study of strategic interaction. Any situation in which one person’s actions can potentially influence another person’s actions can be modeled as a game, making Game Theory a powerful means of understanding human behavior. With applications ranging from business to biology to political science to economics, Game Theory is an exciting, interdisciplinary field that has something to offer almost anyone.

Course Description

Introduction to game theory and its applications to economics. Topics: strategic and extensive form games, dominant strategies, Nash equilibrium, subgame-perfect equilibrium, Bayesian equilibrium, and behavioral game theory.

Class Objective

To introduce students to Game Theory and its applications in economics, business, political science, the law, and everyday life. After taking this course, the student should:

- understand the model of rationality assumed by Game Theory;
- understand the equilibrium concepts used in Game Theory; and
- be able to apply basic Game Theory (economic) models to novel situations.

This class addresses the Department of Economics/School of Business' learning goal of quantitative fluency.

Policies

1. **You should come to class.** I lecture on material not covered in the textbook; you are responsible for all the information in both the lectures and the text. I will broadcast class on Zoom from our classroom – you may attend physically or virtually. Zoom recordings will be posted on OAKS.

2. **You must behave yourself while in class.** I expect all students to behave appropriately while in the classroom. If you have a question, raise your hand and I will be more than happy to answer your question. For Zoom participants, please ask questions using the chat feature. I expect you to arrive for class on time and prepared. Classroom disturbance of any kind will not be tolerated – you impose a cost not only on yourself but also upon your classmates when you disrupt my class. Please do not talk to your neighbors while I am lecturing. Please turn off all electronic devices while you are in my class!

3. **You must complete your assignments on time.** No excuses! Problem set deadlines will not be extended for any reason! Most students submit all their assignments on time.

4. **You must take the exams at the scheduled time.** I want you to take the exams at the times they are scheduled. If you have any problems with the timing of tests, please notify me in advance. You must give me your excuse before the test begins. You can send me an email or leave me a message, but you must inform me of your absence before the test. Failure to provide a legitimate excuse prior to the exam will result in a grade of zero. If you have a legitimate excuse you will not take a makeup exam; instead, I will re-weight

your final exam to cover the exam missed and the final exam. Example: You miss Exam 1, which is worth 15% of the course grade. Normally the final exam is worth 35% of the course grade, but for you, it will be worth $(15\% + 35\%) = 50\%$ of the course grade.

5. **Cheating will be dealt with severely.** All students are expected to follow the College Honor Code and Code of Student Conduct (consult your student handbook if you need to review the codes.) Cases of suspected academic dishonesty will be reported directly to the Dean of Students. A student found responsible for academic dishonesty will receive a grade of XF in the course, indicating failure of the course due to academic dishonesty. The student may also be placed on disciplinary probation, suspended or expelled. Students can find the complete Honor Code and all related processes in the Student Handbook at <http://deanofstudents.cofc.edu/honor-system/studenthandbook/>

6. **All course materials will be available on OAKS.** The website will contain copies of homework and paper assignments, practice questions for exams, and general class announcements.

7. **The College will make reasonable accommodations for persons with documented disabilities.** Students should apply at the Center for Disability Services / SNAP, located on the first floor of the Lightsey Center, Suite 104. Students approved for accommodations are responsible for notifying me as soon as possible and for contacting me one week before accommodation is needed.

8. **If you have a problem, you must express it to me in writing.** If you have a “problem,” you must provide the proper paperwork for me to solve it. A “problem” could be anything. Some examples: You have to miss the midterm exam because you are going out of town and you need an excused absence or you believe that I graded an assignment unfairly. In order to address your problem, I need to know the nature of the problem and your proposed solution to this problem. This information must all be in writing, using my “I have a problem...” form. I will need two (2) copies of this form. I will keep one for my records and return one to you with my response. You may only appeal my decision with another problem form. For certain requests, I require supporting documentation, e.g. doctor’s excuse, court summons, etc. I will not consider any problem unless it is presented in this format. If you want to challenge a grade on an assignment, you must explain which problems were graded incorrectly and why you should receive more credit.

9. **Substantial Interruption of Instruction.** If In-person classes are suspended, the instructor will announce a detailed plan for a change in modality to ensure the continuity

of learning. All students must have access to a computer equipped with a web camera, microphone and internet access. Resources are available to provide students with these essential tools.

Grading

I base your grade on four criteria:

1. Knowledge of material covered in the textbook and class;
2. Ability to apply knowledge;
3. Ability to relay that knowledge back to me; and
4. Responsibility – assignments turned in on time, exams taken at the appropriate time.

Notice grades are only indirectly based on effort! Instead, your grade is based primarily on your competence with Game Theory.

You will earn a grade of zero if you fail to take an exam (and do not have an appropriate excuse) on time or fail to turn in a problem set or paper on time.

The breakdown for points is as follows:

Assignment	Value	Description
2 Midterm Exams	15% each	Each covers approximately one-third of the course material. See the calendar for dates.
Final Exam	30%	Cumulative final exam. Longer version of midterm.
Homework Problem Sets	30%	Every Friday you will have a short (2-3 problems) homework assignment due. I will count the highest ten homework scores.
Applied Game Theory paper	10%	A 4-6 page paper analyzing and explaining a familiar “natural” phenomenon. Details will be provided later in the course.

Your class grade depends on the total amount of points you earn. I do not rule out a curve, but I promise that I never curve down, only up. Therefore, the following scale shows sufficient but not necessary conditions for a particular grade:

A	B	C	D	F
100 – 90%	89 – 80%	79 – 70%	69 – 60%	Below 60%

Important Dates

Date	Assignment
29 September	EXAM 1
10 November	EXAM 2
6 December	PAPER DUE
8 December	Final Exam, 1 pm to 3 pm

Note: Reading and homework assignments will be posted on OAKS. I expect you to have read the given assignment when you come to class.

Tips for Success

This class is about learning how to apply the tools of Game Theory. The single best way to learn this process is practice. In addition to assigned problem sets, the textbook provides many extra problems. I strongly suggest using them. You will soon discover that I am also very concerned that you learn the intuition behind why we engage in the procedures. In addition to knowing how to work each type of problem, you should also understand why we do each type of problem.

If you are having trouble following the material in the course, you are encouraged to seek additional help early so that you do not fall behind. Do not wait until it's too late. You may see me during my office hours or you may make an appointment for some other time. If your class schedule and/or work schedule makes it impossible for you to meet with me during my scheduled office hours, please let me know by sending a list of times that you are free to my email address. Remember, your tuition pays for my time, so use it!

This is your course. You will find that I am extremely flexible about many aspects of this class. I value your input and will use it to make the class better for you, so if there is anything that you feel will enhance your learning experience, please let me know.

I have a problem...

Name: _____ Date: _____ ECON 324 Fall 2021

Directions: *Fill out this form completely. Remember, you are trying to convince me to do something for you! Don't forget, you must submit 2 copies.*

State the nature of your problem:

State your proposed solution to this problem:

Supporting documentation:

My decision:

ECON 324: Game Theory

Contract

Name: _____ Student ID#: _____

I have received a syllabus from Professor Blackwell for **ECON 324**. I understand and agree that I will follow all the policies listed in that syllabus, including but not limited to:

- I accept the attendance policy, which requires my presence in class at each meeting time, and for which there are no excused absences except in exceptional circumstances for midterm exams.
- I accept the responsibility to know of assignment deadlines, and not to ask for special treatment or favors.
- I understand that under no circumstances will late assignments be accepted after the posted deadlines.
- I understand that if I wish Professor Blackwell to respond to any of my requests, I must submit 2 copies of an appropriately completed **I have a problem** form.

I understand that in return for accepting these conditions, Professor Blackwell agrees to the following:

- To be prepared for each class with well-organized, meaningful material.
- To return all exams within five class periods after the assignment is submitted.
- To carefully consider all student requests made through the **I have a problem** form.
- To maintain current records so that each student may know at any time his or her grade status.
- To provide details of assignments at least one week before they are due.
- To maintain regular office hours and be available at other times for students as requested.
- To provide a meaningful and productive learning experience for those students willing to do the work.

Signed: _____ Date: _____