

**Game Theory**  
**Econ 45100 – Distance Learning**  
**May 2018**

*Please refer to video titled “Lesson 1. Topic 1: syllabus” for brief overview.*

## **Instructor**

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Zoom Office hours: Tuesdays 11-12pm (EST), Thursdays 11pm-12am (EST), or by appointment via zoom.

## **Course Description**

This course introduces you to the study of strategies in a game-theoretic approach which has applications in Business, Economics, Biology, and our everyday social life (yes! even during lock down). Game theory studies our tendency to intuitively consider others’ preferences when making decisions and attempts to mathematically model these decisions. The end purpose of these models is to understand how rational economic agents optimize their decisions and give insight into how individuals, firms, and governments can use these knowledges to improve their institutions.

## **Prerequisites**

Undergraduate level ECON 34000 Minimum Grade of C- or Undergraduate level MA 16200 Minimum Grade of C- or Undergraduate level MA 16600 Minimum Grade of C-

## **Course Objective**

- 1) Understand how to model various strategic settings into different kind of games.
- 2) Learn how rational economic agents optimize their decision in strategic settings.
- 3) Apply the knowledge to improve our decision-making skills in public policy, business, and organizations.

## **Course Format**

The format of the class will be completely virtual due to the ongoing threats of COVID19. I apologize for those who were expecting the class to be held in person. There are pros and cons of online courses. Online courses offer tremendous flexibility in learning, but it is also easy to get lost and become less engaged. Depending on how you utilize my materials, I believe this course will offer a great learning experience. To this end, I am available to help you every step of the way. Please email me if you have any trouble following the materials or have other issues that affect your learning.

## **Text book**

- Title: Strategy: An Introduction to Game Theory (Third Edition)
- Author: Joel Watson
- Publisher: W. W. Norton & Company

- ISBN: 9780393918380 For example:
- **Although I recommend buying & reading the book, my lecture materials will be comprehensive enough to do well in your homework and exams, so no need to worry if the book does not arrive on time.**

## Learning Platform (Brightspace)

We will be using Brightspace instead of Blackboard for this course. I have some links down below that will help you get started. Please email me if you have questions getting started.

To get to the login page (click the “west Lafayette” campus):

<https://purdue.brightspace.com/d2l/login?logout=1> Video

on how to navigate through Brightspace:

<https://www.youtube.com/watch?v=5ic1tA7eCuA&feature=youtu.be>

## Discussion Board

Brightspace has a discussion board where you can ask questions to the class. I will check regularly to answer your questions, but I encourage you all to comment and give feedback to your peers’ questions as well. Here is a snapshot of how you can access this board.

The screenshot shows the Brightspace interface. At the top, a navigation bar includes 'Course Home', 'Content', 'Classlist', 'Grades', 'Class Progress', 'Course Tools', and 'Help'. Below this, the 'Discussions' page is visible, with a 'Course Admin' dropdown menu open. The 'Discussions' option in the menu is circled in red. Other options in the menu include Assignments, Quizzes, Intelligent Agents, Announcements, Checklist, Groups, Surveys, Virtual Classroom, Video Assignments, Awards, Kaltura Media Gallery, Kaltura My Media, and Portfolio. The main content area shows a 'Learner Lounge' section with a welcome message and a table with columns for 'Topic', 'Posts', and 'Last Post'. A topic titled 'Please feel free to ask questions in this discussion board and see and comment.' is listed with 0 posts.

## Virtual Office Hours

I will have regular office hours via Zoom. You can register Zoom for free using your Purdue account at the link below:

<https://zoom.us/signup>

I will have two different office hours a week considering the different time-zones.

One will be on **Tuesdays from 11am to 12pm (EST)** for those who are primarily logging in from the US. The other one will be on **Thursdays from 11pm to 12am (EST)** for those who are primarily logging in from outside of the US. Feel free to email me to set up a private zoom meeting as well if these times don’t work.

Link to my zoom office:

## Course Schedule

The course will be divided into several lessons. Each lesson will be divided into topics. It is your responsibility to thoroughly go through all the lecture videos in order to do well in the homework and exams. **Some lessons will also a short motivational video that you can either watch or skip.**

Week Beginning	To be completed	Type
May 18 – May 22	Lesson 1-Lesson 3	Lecture
May 22	HW 1 due	Homework
May 25 – May 29	Lesson 4-Lesson 6	Lecture
May 27	HW2 due	Homework
May 29	Midterm due	Exam
June 1 – June 5	Lesson 7- Lesson 8	Lecture
June 5	HW 3 due	Homework
June 8 – June 10	Lesson 9	Lecture
June 10	Hw4 due	Homework
June 12	Final due	Exam

## Grading

Component	Percentage weight
Homework Assignments	30% (4 homeworks each weighing 7.5%)
Midterm	30%
Final	30%
Moblabs (attendance)	10%
<b>Total</b>	<b>100%</b>

In this class grades reflect the sum of your achievement throughout the semester. At the end of the semester, final grades will be calculated by adding the weighted percentage of each component using the above weight. (for example, if your final exam score is 90/100, it will translate to  $30\% \times (9/10) = 27\%$  of your final grade.)

Here is a break down of the cutoff for each letter grade. **This grading scheme is subject to change, but it will not be stricter than the one below.**

**NOTE:** I will round up to the nearest whole number. (e.g. 89.99  $\approx$  99%)

- A+: [98% - 100%]
- A: [90 – 98)
- A-: [88 – 90)
- B+: [85 – 88)
- B: [80 – 85)
- B-: [75-80)
- C+: [73-75)
- C: [70 – 73)
- C-: [67 – 70)
- D+: [63- 67]

- D: [60 – 63)
- F: below 60

## Homework

- There will be four homeworks(or HWs) during the maymester.
- Homeworks will appear under the topical videos (on some lessons). You can also access it by clicking “Assignments” under “course tools” tab.
- Each HW must be a single pdf or word file that contains all the typed or scanned answers to the questions (taking a smart phone photo will do).
- For each homework, you can upload it on the same location you downloaded the questions from. Please upload with the file title “HW\_#\_LastName” (ex: HW\_1\_Oh).
- For questions that require you to show work, I will give partial credit for good effort.

## Moblab

- There will be occasional moblab exercises. (playing against bots)
- If a moblab exercise is contained in say, lesson 1, **it should be completed before** the week of lesson 1 ends. (You cannot cram these exercises at the last minute)
- Moblabs are easy attendance points (graded on completion).
- *However, I will give **Extra Credit opportunity** for those who do well:*
  - 10 extra points (out of 100) on final exam: Cumulative Moblab score is top 10% of class distribution.
  - 5 extra points (out of 100) on final exam: Cumulative Moblab score is between 11%-50%.
- Will drop lowest two scores.
- Sign in at [www.moblab.com](http://www.moblab.com) and either input this code or scan QR code to join my class. There is a **\$25** fee.



### Econ 451\_GameTheory

use code or scan QR:

**z 9 3 z x g d t 3**



Student sign up at [moblab.com](http://moblab.com)

## Exams

- 2 online exams
- Will be a mix of lecture materials and HW questions but will have some twists.

- It will be open book and open notes, but it will be essential to know how to solve you HW questions and know lecture materials by heart to have a high score.
- Exam due dates are tentatively set at May 29<sup>th</sup> and June 12<sup>th</sup>.
- Both midterm and Final will each take up 30% of the course grade.

## Miscellaneous Information

### Academic Integrity.

Academic integrity is one of the highest values that Purdue University holds. Individuals are encouraged to alert university officials to potential breaches of this value by either [emailing](#) or by calling 765-494-8778. While information may be submitted anonymously, the more information that is submitted provides the greatest opportunity for the university to investigate the concern.

*The Honor Pledge Task Force, a student organization responsible for stewarding the mission of the Honor Pledge and encouraging a culture of academic integrity, asks all instructors to prominently include the student-initiated Purdue Honor Pledge on their syllabus, as well as exams and key assignments:*

The [Purdue Honor Pledge](#) "As a boilermaker pursuing academic excellence, I pledge to be honest and true in all that I do. Accountable together - we are Purdue"

You may also want to refer students to Purdue's [student guide for academic integrity](#).

### Nondiscrimination Statement

*Purdue University is committed to maintaining a community which recognizes and values the inherent worth and dignity of every person; fosters tolerance, sensitivity, understanding, and mutual respect among its members; and encourages each individual to strive to reach his or her own potential. In pursuit of its goal of academic excellence, the University seeks to develop and nurture diversity. The University believes that diversity among its many members strengthens the institution, stimulates creativity, promotes the exchange of ideas, and enriches campus life. [Link to Purdue's nondiscrimination policy statement.](#)*

### Students with Disabilities

Purdue University strives to make learning experiences as accessible as possible. If you anticipate or experience physical or academic barriers based on disability, you are welcome to let me know so that we can discuss options. You are also encouraged to contact the Disability Resource Center at: [drc@purdue.edu](mailto:drc@purdue.edu) or by phone: 765-494-1247.

*Purdue has assistance available to help you make learning materials accessible. Some examples include:*

- Information on [Universal Design for Learning](#)
- Guidance on [creating accessible documents](#)

## Mental Health Statement

- **If you find yourself beginning to feel some stress, anxiety and/or feeling slightly overwhelmed, try [WellTrack](#).** Sign in and find information and tools at your fingertips, available to you at any time.
- **If you're struggling and need mental health services:** Purdue University is committed to advancing the mental health and well-being of its students. If you or someone you know is feeling overwhelmed, depressed, and/or in need of mental health support, services are available. For help, such individuals should contact [Counseling and Psychological Services \(CAPS\)](#) at 765-494-6995 during and after hours, on weekends and holidays, or by going to the CAPS office of the second floor of the Purdue University Student Health Center (PUSH) during business hours.

## Netiquette

*Especially in online and hybrid courses, you may wish to develop course netiquette “do’s and don’ts” to further underscore the importance of harmony and respect within the online learning environment.*

*For example:*

Your instructor and fellow students wish to foster a safe online learning environment. All opinions and experiences, no matter how different or controversial they may be perceived, must be respected in the tolerant spirit of academic discourse. You are encouraged to comment, question, or critique an idea, but you are not to attack an individual. Our differences, some of which are outlined in the University's nondiscrimination statement below, will add richness to this learning experience. Please consider that sarcasm and humor can be misconstrued in online interactions and generate unintended disruptions. Working as a community of learners, we can build a polite and respectful course ambience.

Please read the Netiquette rules for this course:

- Do not dominate any discussion. Give other students the opportunity to join in the discussion.
- Do not use offensive language. Present ideas appropriately.
- Be cautious in using Internet language. For example, do not capitalize all letters since this suggests shouting.
- Avoid using vernacular and/or slang language. This could possibly lead to misinterpretation.
- Keep an “open-mind” and be willing to express even your minority opinion.
- Think and edit before you push the “Send” button.
- Do not hesitate to ask for feedback.

## Disclaimer

*This syllabus is subject to change. Describe how you will announce and share changes made to the syllabus.*