

# Economics 5330/6330 Game Theory

Instructor: Subhasish Dugar  
Phone: 801 587 1294

Lecture Location: BUC, Room # 106  
Lecture Days/Time: MW 1:25 PM – 2:45 PM

Preferred Communication Mode: Email  
subhasish.dugar@economics.utah.edu

Teaching Assistant (TA): None  
Email of the TA: None

Office: Building Gardner Commons Room # 4039  
Office Hours with me: MW 12:00 Noon – 1:00 PM

Fall 2019

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**Textbook:** Gibbons, Robert, **Game Theory for Applied Economists**, Princeton University Press.

For each topic covered in the class, we will follow the corresponding chapter in the book; however, at times we will skip some of the material from the book as I deem fit. What we will skip and what we will not will be at the discretion of the professor.

**Course Description:** The course will introduce students to basic and some advanced theoretical concepts in game theory and will also show how these concepts can be applied to real world problems of strategic importance. The following topics may be covered in the course: strategic-form games, strict and weak dominance, pure strategy Nash equilibrium, mixed strategies, correlated equilibrium, rationalizability, iterated elimination of dominated strategies, evolutionary game theory, extensive-form games, backward induction and subgame perfect equilibrium, finitely and infinitely repeated games, folk theorems, games of incomplete information (Bayesian games), mechanism design, etc. Some of the topics listed above may or may not be covered which is at the discretion of the professor.

The prerequisites for this course are: C- or better in ECON 3620 or MATH 1100 or MATH 1210 or MATH 1310 or MATH 1250 or MATH 1311 or AP Calculus AB score of 3 or better or AP Calculus BC score of 3 or better. In general, this is perhaps one of the most difficult economics courses you will take as an undergraduate. I can't overemphasize the importance of engaging with the material. Every problem that you solve and every lecture that you attend will push you further down the road toward a better understanding of the material. This course is dense and, therefore, requires an absolute commitment on your part.

**Course Materials:** From time to time some course materials (assignments, answer keys, etc.) will be posted on Canvas. I will also send you important emails about the class. It's your responsibility to check Canvas accordingly. I will, of course, try to alert you to such postings/notifications in the class.

**Learning Outcomes:** At the end of the course, students are expected to know how individuals make optimal decisions in various strategic contexts and how to arrive at those optimal decisions by using analytical and conceptual tools developed in the class.

**Schedule of Topics:** I generally don't like to provide such a list because most often than not I fail to abide by my own suggestions, mainly because each class is a different entity and has its own character. Some of the topics listed below may not be covered which is at the discretion of the professor.

Week 1 -3: Normal or strategic form games

Week 4 - 7: Extensive form games

## Economics 5330 Fall 2019 Course Outline continued

Week 8 -11: Repeated games

Week 12 - 15: Moral hazard, adverse selection

**Evaluation Methods and Criteria:** There will be three midterms and a final, all given in class.

Midterm Exam I date: September 9

Midterm Exam II date: October 2

Midterm Exam III date: November 11

Final Exam date: TBD

All examinations will be closed-book and closed notes. Midterm I will cover all material up to the point of the exam, midterm II the material from midterm I up to midterm II, midterm III the material from midterm II up to midterm III and final exam will cover the final part of the course. Each midterm is worth 20% weight of the final grade and the final exam will be worth 40% weight of the final grade. At the end of the semester, your course grade will be based on these weights and nothing else: there is no way to do “extra work” at the end of the semester to raise your grade. To repeat: if you ask me at the end of the semester if there is any extra work you can do to raise your grade, the answer will be no. The way to get a good grade is to study hard for the exams. Students often tell me that they worked hard and despite that they did not do well on the exams. My categorical answer to such replies is this: your exams will be evaluated for your demonstrated knowledge in the subject and accuracy of your answers; but you will not be evaluated and graded for how hard you worked, etc.

**Assignments:** I will upload four assignments on Canvas. The assignments will not be graded. Their purpose is to make you solve questions on your own so that you develop intuitions as to how to solve questions in the exams. In case you want to solve the questions on the assignments before I solve them in the class (which I will do for each assignment) and check your understanding of the material, you are welcome to set up an office appointment with me or with the TA by sending me or the TA an email to the respective email address. I will also solve some of the questions from the exercises in the textbook. In general, in each class I will try to solve at least one question selected either from my own question bank or from the textbook exercise or from the assignment. I think all of this will give you enough practice opportunities. My criterion for selecting questions from these sources will be this: each question should make you approach the given material from a different point of view and/or expose you to a different intuition for a given material; I don't find it useful to solve similar types of questions or the same question multiple times. You should solve as many problems on your own as you can. Doing well in a game theory course, among other things, is to solve as many problems as possible. Finally, it's your responsibility to attend lectures on a regular basis and know how to solve questions. I will not solve a question more than once in the class or in my office hours (if you drop by) just because you missed a class during which that question was solved.

**Exam Blue Book:** You do need to bring a blue book to exams. You may use a calculator, but only a simple one; it should not be able to graph or store text.

**Missed Exams etc.:** Students who are unable to write a midterm must receive my permission to miss an exam before the scheduled exam date. To get my permission, you must give me a notice at least a week before the class takes its exam. You must supply written evidence of your reason for missing the in-class exam. If the reason is illness, a note from a doctor (with the doctor's office address and phone number clearly shown) will be sufficient. If the reason is not illness, I will let you know if I think your reason is good enough to warrant letting you miss the exam. If your reason is that you are participating in a university sponsored activity, I will allow you to miss the exam. Documentation MUST be provided.

Otherwise, I will make the decision on a case-by-case basis. I do not give exams for missed exams. Students who are unable to write a midterm will have the midterm weight shifted to the final examination. You cannot miss more than one midterm. In case you do miss more than one midterm, you will lose the corresponding weights of those additionally missed (i.e., in excess of one midterm) midterms.

**Grading:** Midterms and final exam are marked on a numerical basis, then converted to letter grades. The course grade is then calculated using the weights indicated above. As a guide to determining standing, these letter grade equivalences will apply:

A ≥ 93%  
93% > A- ≥ 90%  
90% > B+ ≥ 87%  
87% > B ≥ 83%  
83% > B- ≥ 80%  
80% > C+ ≥ 77%  
77% > C ≥ 73%  
73% > C- ≥ 70%  
70% > D+ ≥ 65%  
65% > D ≥ 60%  
60% > D- ≥ 50%  
50% > E

If you have questions regarding grading of an exam question, you must ask within **two weeks** from the day the graded exam is handed back in the class. No exceptions to this rule will be entertained.

**Notes:**

- **Academic Code of Conduct Statement**  
Cheating on exams and other forms of academic dishonesty may lead to expulsion from the class, failure of the class, or more severe penalties such as dismissal from the University. In accordance with University regulations. For related University policy, please refer to this link: <http://regulations.utah.edu/academics/6-400.php> (Section I). If you are caught cheating in this class, I must send a letter to your dean about that, and the letter will be put in your permanent University file. I punish cheating quite severely.
- **The Americans with Disabilities Act (ADA) Statement**  
The University of Utah seeks to provide equal access to its programs, services, and activities for people with disabilities. If you will need accommodations in this class, reasonable prior notice needs to be given to the Center for Disability Services, 162 Olpin Union Building, 801-581-5020. CDS will work with you and the instructor to make arrangements for accommodations. All written information in this course can be made available in an alternative format with prior notification to the Center for Disability Services.
- **Addressing Sexual Misconduct Statement**  
Title IX makes it clear that violence and harassment based on sex and gender (which includes sexual orientation and gender identity/expression) is a civil rights offense subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories such as race, national origin, color, religion, age, status as a person with a disability, veteran's status or genetic information. If you or someone you

know has been harassed or assaulted, you are encouraged to report it to the Title IX Coordinator in the Office of Equal Opportunity and Affirmative Action, 135 Park Building, 801-581-8365, or the Office of the Dean of Students, 270 Union Building, 801-581-7066. For support and confidential consultation, contact the Center for Student Wellness, 426 SSB, 801-581-7776. To report to the police, contact the Department of Public Safety, 801-585-2677(COPS).

- **Wellness Statement**

Personal concerns such as stress, anxiety, relationship difficulties, depression, cross-cultural differences, etc., can interfere with a student's ability to succeed and thrive at the University of Utah. For helpful resources contact the Center for Student Wellness at [www.wellness.utah.edu](http://www.wellness.utah.edu) or 801-581-7776.

- **Student Names and Personal Pronouns Statement**

Class rosters are provided to the instructor with the student's legal name as well as "Preferred first name" (if previously entered by you in the Student Profile section of your CIS account). While CIS refers to this as merely a preference, I will honor you by referring to you with the name and pronoun that feels best for you in class, on papers, exams, group projects, etc. Please advise me of any name or pronoun changes (and update CIS) so I can help create a learning environment in which you, your name, and your pronoun will be respected. If you need assistance getting your preferred name on your UIDcard, please visit the LGBT Resource Center Room 409 in the Olpin Union Building, or email [bpeacock@sa.utah.edu](mailto:bpeacock@sa.utah.edu) to schedule a time to drop by. The LGBT Resource Center hours are M-F 8am-5pm, and 8am-6pm on Tuesdays.

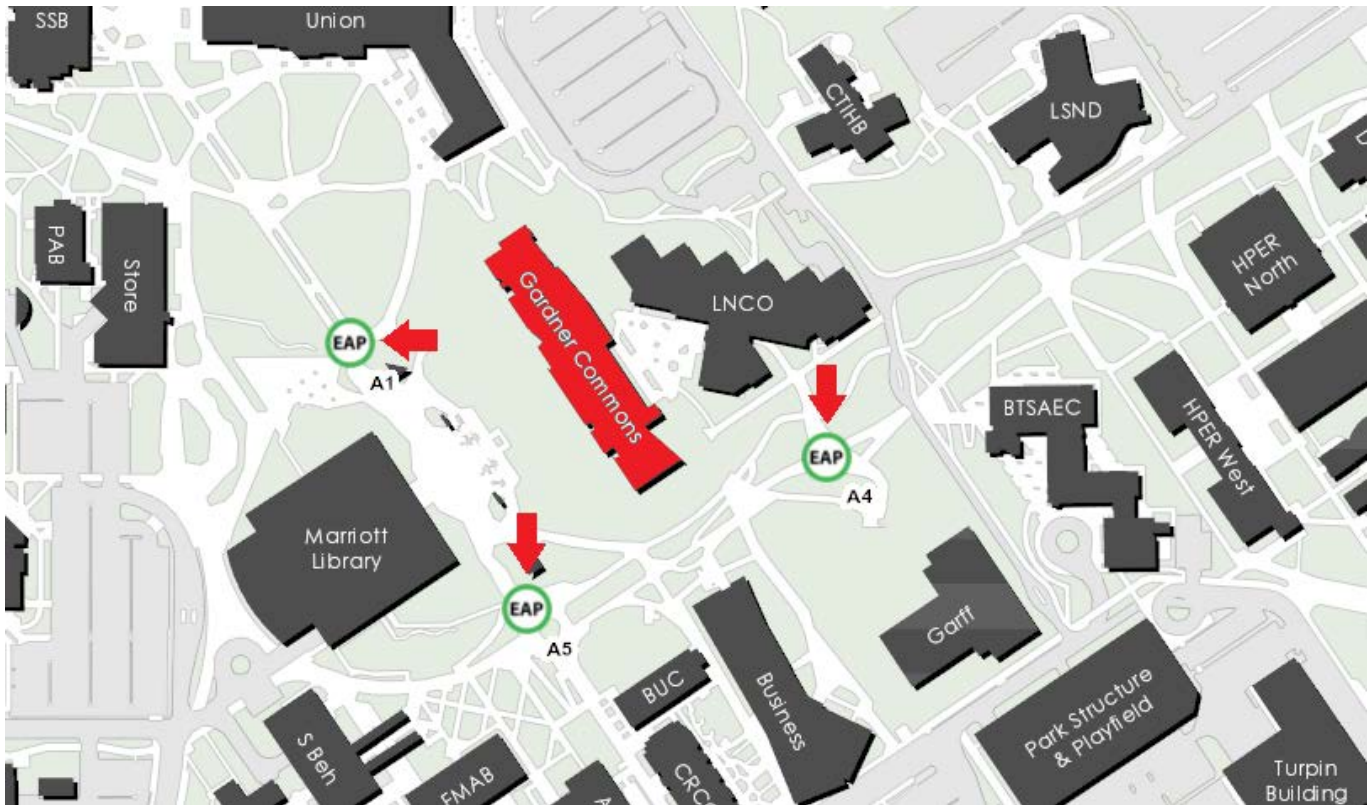
- **Non-Contract Note**

This syllabus is meant to serve as an outline and guide for our course. Please note that I may modify it with reasonable notice to you. I may also modify the Course Schedule to accommodate the needs of our class. Any changes will be announced in class and posted on Canvas under Announcements.

- **Safety on Campus**

The University of Utah values the safety of all campus community members. To report suspicious activity or to request a courtesy escort, call campus police at 801-585-COPS (801-585-2677). You will receive important emergency alerts and safety messages regarding campus safety via text message. For more information regarding safety and to view available training resources, including helpful videos, visit [safeu.utah.edu](http://safeu.utah.edu)

# CSBS EMERGENCY ACTION PLAN



## BUILDING EVACUATION

EAP (Emergency Assembly Point) – When you receive a notification to evacuate the building either by campus text alert system or by building fire alarm, please follow your instructor in an orderly fashion to the EAP marked on the map below. Once everyone is at the EAP, you will receive further instructions from Emergency Management personnel. You can also look up the EAP for any building you may be in on campus at <http://emergencymanagement.utah.edu/eap>.



## CAMPUS RESOURCES

**U Heads Up App:** There's an app for that. Download the app on your smartphone at [alert.utah.edu/headsup](http://alert.utah.edu/headsup) to access the following resources:

- **Emergency Response Guide:** Provides instructions on how to handle any type of emergency, such as earthquake, utility failure, fire, active shooter, etc. Flip charts with this information are also available around campus.
- **See Something, Say Something:** Report unsafe or hazardous conditions on campus. If you see a life threatening or emergency situation, please call 911!

**Safety Escorts:** For students who are on campus at night or past business hours and would like an escort to your car, please call **801-585-2677**. You can call 24/7 and a security officer will be sent to walk with you or give you a ride to your desired on-campus location.