

ECON 7006
Microeconomic Theory II
Spring 2022

Instructor: Dr. Subhasish Dugar
Lecture Location: GC 3153
Lecture Days/Time: MW 3:00 PM – 4:20 PM
Email: subhasish.dugar@economics.utah.edu
Virtual office hours via zoom: Friday 12 Noon - 1 PM
Zoom Meeting ID: 993 5495 2894

Course Overview

This is a tentative list of topics to be covered in this course. Risk and Uncertainty, Games in Strategic Form, Dominated Strategies, Rationalizability, Pure-strategy Nash Equilibrium, Mixed-Strategy Nash Equilibrium, Extensive Form Games, Behavioral Strategies, Strategic Form Representation of Normal Form Games, Backward Induction and Subgame Perfection, (finitely and infinitely) Repeated games, Bayesian Games and Bayesian Equilibrium, Perfect Bayesian Equilibrium, The Basic Signaling Games, Moral Hazard and Incentives, Adverse Selection. Time permitting: Social Preferences, Arrow's Impossibility Theorem, Social Choice Functions, The Utility Possibility Sets, Axiomatic Bargaining Theory.

Course Objectives

This is an advanced course in microeconomic theory. The course is purely theoretical. The goal of the course is to introduce you to a self-contained analysis of some of the major building blocks of microeconomic theory: choice under uncertainty, non-cooperative game theory, information economics, and social choice. Some of the topics listed above may not be covered if we run out of time. This course is designed to meet the needs of those Ph.D. students who may go on to work on applied theory. The course is also designed to teach material that all graduate students should know. Others are used to introduce methodologies.

Suggested Textbooks

Strictly speaking, I will not follow any textbooks. Instead, I will teach from my notes, which is how most of the graduate-level game theory courses are taught. This is because a single book most often fails to meet all the properties (notation, coverage, depth, examples, exercises, etc.) of a “desirable textbook”. If you want a reference book to use, I have a few suggestions (not in my order of preference). Any editions of the books listed below will serve your purpose. For a few topics, I may distribute lecture notes.

- Robert Gibbons, *Game Theory for Applied Economists*, Princeton University Press, 1992.
- Andreu Mas-Collel, Michael Whinston, and Jerry Green, *Microeconomic Theory*, Oxford University Press, 1995.
- Geoffrey A. Jehle and Philip J. Reny, *Advanced Microeconomic Theory*, Pearson, 2011.
- Drew Fudenberg and Jean Tirole, *Game Theory*, The MIT Press, 1991.
- Martin J. Osborne and Ariel Rubinstein, *A Course in Game Theory*, The MIT Press, 1994.

Course Communication

From time to time some course materials (assignments, exams, answer keys, papers, etc.) will be posted on Canvas. It’s your responsibility to check Canvas accordingly. I will, of course, alert you to such postings in the class. Sometimes I will send you course-related emails to your registered email address. It’s your responsibility to check emails accordingly. Use my university email address, given above, to contact me regarding the course.

Tentative Schedule of Topics

- Choice under uncertainty: Jan 10, 12, 19, 24.
- Normal-form games (representation, strict and weak dominance, rationalizability, pure and mixed-strategy Nash equilibrium): Jan 26, 31; Feb 2, 7, 9, 14.

- Extensive-form games (representation, strategies, and actions, SPNE, finitely and infinitely repeated games): Feb 23, 28; March 2, 14, 16, 21, 23.
- Bayesian games (representation, BNE, PBE): March 30; April 4, 6, 11, 13.
- Moral hazard and adverse selection: April 18, 20, 25.

Course Evaluation Components and their Weights

- There will be three exams. All exams will be conducted via Canvas; no proctoring tools such as ProctorU will be used. The best of your three exam scores will receive 40% weight, the second-best will receive 30% weight and the lowest score will receive 20% weight. An exam will be available on canvas from 11 AM to 9 PM on the day of the exam. Within this ten-hour time window, you will have two hours to submit your solutions through the canvas. Canvas will start your clock from the time you first access an exam. All examinations will be open-book and open notes and will be comprehensive. The dates for the first two exams may change with reasonable notice.
 - Exam 1 on February 16, 2022
 - Exam 2 on March 28, 2022
 - Exam 3 on May 3, 2022

Two important notes about the exams:

- You must combine all your answer files into one single file, preferably in PDF format, and upload that single answer file to Canvas.
- Do not send me all individual answer files.

Students who cannot write a midterm should supply written evidence (an email with the attached document will do) of their reason for missing the Exam. If the cause is an illness, a doctor's note (with the doctor's office address and phone number clearly shown) is needed. If you miss an exam because you are participating in a university-sponsored activity, I will allow you to miss the exam. Documentation for missing an exam **MUST** be provided. I **DO NOT** give exams for missed exams. When a student has

a legitimate (documented) reason for missing one exam, the exam's weight will be distributed equally to the other exams. No make-up exams are given. All students are expected to abide by the academic code of conduct as laid out by the University available at <https://regulations.utah.edu/academics/6-400.php>

Assignments

I will upload four assignments on Canvas. They must be handed in the class for marking. These assignments will represent the remaining 10% of your final grade, each assignment weighing 2.5%. All assignments must be handed in by all individuals in the class, including anyone who is auditing or just sitting in for fun. In addition, please note: A PASSING GRADE ON ASSIGNMENTS IS A NECESSARY CONDITION FOR PASSING THE COURSE. Assignments must be submitted before the start of the class. No exceptions will be entertained. Assignments' purpose is to make you solve questions to develop intuitions as to how to solve problems in the exams.

Course Grading (based on aggregate weighted score 's')

- A : $s \geq 92\%$, A- : $92\% > s \geq 90\%$
- B+ : $90\% > s \geq 88\%$, B : $88\% > s \geq 82\%$, B- : $82\% > s \geq 80\%$
- C+ : $80\% > s \geq 75\%$, C : $75\% > s \geq 70\%$, C- : $70\% > s \geq 65\%$
- D+ : $65\% > s \geq 60\%$, D : $60\% > s \geq 55\%$, D- : $55\% > s \geq 50\%$
- E : $50\% > s$

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. Any changes will be announced on Canvas.

Teaching & learning methods and other important aspects of this class

- You are encouraged to utilize virtual office hours to discuss your questions and concerns.

- All students are expected to abide by the academic code of conduct as laid out by the university: <https://regulations.utah.edu/academics/6-400.php>
- Incompletes are not generally given for non-medical reasons.
- If you have any questions regarding your grades, you must ask within a week from the day the grades are posted on the Canvas. No exceptions to this rule will be entertained.
- This syllabus is meant to serve as an outline and guide for the course. Please note that I may modify it with reasonable notice to you. Any changes will be announced on Canvas.

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 - www.wellness.utah.edu; 801-581-7776.

Covid-19 Information

University leadership has urged all faculty, students, and staff to model the vaccination, testing, and masking behaviors we want to see in our campus community. These include:

- o Vaccination
- o Masking indoors
- o If unvaccinated, getting weekly asymptomatic coronavirus testing.

Please visit the following link to learn more about the above three sub-bullet points (vaccination, masking, and coronavirus testing). Also, you can always visit the following website to find out the University's policies regarding Covid-19: <https://coronavirus.Utah.edu/>

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 the class, reasonable prior notice needs to be given to the Center for Disability Services, 162 Olpin Union Building, 581-5020 (V/TDD). CDS

will work with you and the instructor to make arrangements for accommodations. All information in this course can be made available in an alternative format with prior notification to the Center for Disability Services. (www.hr.utah.edu/oeo/ada/guide/faculty/)

Student Names & Personal Pronouns

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.

Addressing Sexual Misconduct

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).

LGBT Resource Center

If you are a member of the LGBTQ community, I want you to know that my classroom is a safe zone. Additionally, the U of Utah has an LGBT Resource Center on campus. They are located in Room 409 in the Oplin Union Building. Hours: M-F 8-5 pm. You can visit their website to find more information about the support they can offer, a list of events through

the center, and links to additional resources: <http://lgbt.utah.edu/>. Please also let me know if there is any additional support you need in this class.

Veterans Center

If you are a student veteran, the U of Utah has a Veterans Support Center located in Room 161 in the Olpin Union Building. Hours: M-F 8-5 pm. Please visit their website for more information about what support they offer, a list of ongoing events, and links to outside resources: <http://veteranscenter.utah.edu/>. Please also let me know if you need any additional support in this class for any reason.

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