Advanced Microeconomics II (2020 Spring)

Instructor:

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Office: 508 in Guanghua campus

Classes:

I will upload course materials online.

Office Hours:

Contact me via e-mail or on wechat.

Course Website

https://sisogai.com/2020-spring-advanced-microeconomics-ii/

Course Description

In the latter half, we study basic materials on game theory. The course aims to provide analytical skills that are needed in any field of economics and also provide the (very) basic knowledge on the topic for students interested in theoretical research.

Tentative Schedule

- Introduction
- Formulation of strategic situations
  - Formulation of strategic-form games
- Formulations of extensive-form games
- Notion of “strategy”
- Equivalent representations of strategic-form games

• Strategic-form games
  - Notion of Nash equilibrium
  - Mixed strategies
  - Rationalizability
  - Existence of equilibrium
  - Equilibrium selection

• Extensive-form games
  - Subgame-perfect equilibrium
  - Application to dynamic bargaining
  - Repeated games

• (Static) Games of incomplete information
  - Formalization of incomplete information
  - Bayesian Nash equilibrium
  - Application to Auction
  - Mechanism design

• Dynamic games of incomplete information
  - Perfect Bayesian equilibrium
  - Application to signaling
  - Application to cheap-talk game
  - Equilibrium selection

*: Time Permitting

Prerequisite
Basic knowledge of calculus and “mathematical sophistication” is desired, but the class will be self-contained.

Textbooks

The class follows the lecture note written by the instructor. To understand the course material, you are not required to read any other textbook or paper.

Still, if you are interested in the field, the textbooks described below are highly recommended.

The standard textbook on game theory for 1st-year PhD students worldwide is Gibbons (1992) (For book titles, see the Reference below). This textbook concisely yet readably explains essence of theory and interesting applications of the field. I strongly recommend you to have a copy and read through it (and solve as many exercises as possible).


FT is more application-oriented than the other two and is a very nice reference for those who are into applied theory. OR is the most abstract but has very nice discussion on how to interpret theory. I personally recommend Myerson’s textbook. His book builds up arguments of how to apply the mathematical theory to real world problems and how formulation of the theory affects our analysis.

For other interesting topics, I also recommend the following textbooks: Krishna (2010) for Auction theory Roughgarden (2016) for computational game theory and many interesting applications of game theory to tech industries

Grading

70% Final Exam + 30% Assignments.

The format for the final exam will be announced later.

I am planning to have 3 assignments during the course.
Miscellanea

- I will try to respond to your message as soon as possible, but please allow me as long as one day (or two on weekends). If I do not respond to you for 3 days (or shorter if you are in hurry) and if you would like to urge me, please write to me again. In that case, you do not have to take time to compose another message; you could just copy & paste your previous message and just send it to me.

- You need to observe academic integrity.

Reference


