ECON 2803/4813: Game Theory

Summer 2012

Class	**5:05 pm - 7:50 pm** **Management (Tech Sq) 102**	**TWR**
Instructor	Byung-Cheol Kim (byung-cheol.kim@econ.gatech.edu) Room 324 Old CE Building	
Course home page	http://tsquare.gatech.edu	

Course Description

This course provides an introduction to game theory and some of its applications. Game theory is the study of strategic interactions among multiple parties (individuals, organizations, groups, etc.) in a game situation. In studying game theory, you will be able to think strategically, understand and explain a wide range of problems. We will use mathematical tools to formalize the analysis, but economic intuition will be most important. The major topics covered are decision theory, strategic form games, extensive form games, Bayesian games, repeated games and evolutionary games.

Textbook

Strategy: An Introduction to Game Theory, 2nd Edition, by Joel Watson (Required)

Learning Objectives

- Learn basic representations of a "game"
- Learn basic solution concepts of a game
- Learn how to analyze static games and dynamic games with complete information
- Learn how to analyze Bayesian game
- Learn how to analyze dynamic games with incomplete information
- Learn how to apply game theoretic approaches to various strategic situations
- Learn repeated games and reputation building
- Learn how to translate a strategic situation into a game to be systemically analyzed

Grading

Your grade in this course will be based on attendance (10%), homework including in-class exercises (20%), one midterm exam (30%), and the final exam (40%). Thus, attendance is very important and active class participation is the key to the success in this course. Do not be shy to ask and answer questions.

For those who take this course as EC 4813, there will be extra problems in the homework. More details about this will be announced in the class.

Class Conduct

- Please turn off cell phones. Please do not use headphone or earphone during the class.
- Be on time at the class. Do not leave earlier. I will check your attendance either at the beginning of the class (5:05PM) or at the end (7:40PM). We have only five weeks for this course. Each week is equivalent to three weeks in a regular semester. If you have three unexcused absence, you will get course failure.
- Any violation of Honor Code will be referred to the Dean of Students Office.

Course Calendar and Content

Week (Class dates)	Topics we teach/learn	Relevant chapter(s)	Note
Week 1 (June. 26-28)	• Introduction to Game Theory • The Extensive Form • Strategies and The Normal Form • Beliefs, Mixed Strategies, and Expected Payoffs • Rationality, Common Knowledge, Solution Concepts • Dominance and Best Response • Iterated Dominance • Nash Equilibrium	Part I Ch 1-9	
Week 2 (July. 3, 5)	• Strategic Tensions 1-3 • Oligopoly Models • Mixed-Strategy Nash Equilibrium • Backward Induction and Subgame Perfection	Part II-III Ch 10-16	No Class on July. 4th
Week 3 (July. 10-12)	• Bargaining Problems • Hold-Up Problems • Repeated Games and Reputation • Collusion, Trade Agreements	July. 11 Part III Ch 18-23	**Midterm on July 10th (Tue)**
Week 4 (July. 17-19)	• Incomplete Information • Bayesian Nash Equilibrium • Perfect Bayesian Equilibrium • Signaling	Part IV Ch 24-29	
Week 5 (July. 24-26)	• Games with Incomplete Information • Applications • Review	Part IV Ch 24-29	
Final Exam 6:00-8:50 pm, Aug. 2nd (Thu)			

Note: This schedule is tentative and may be subject to some changes.