Economics 200B Part 2: Basic Game Theory – Complete Information
Winter 2014, Professor Joel Watson

This is the first part of the core-sequence section on game theory and information economics. Game theory is a technical framework for rigorously analyzing decision-making in settings of interdependence, where the agents care about each other's behavior. Almost every type of interaction between living things is strategic. The material covered in this first part includes representations of games and the analysis of static and dynamic games of complete information. In settings of complete information, there is no exogenous randomness (moves of nature) about which players have different knowledge. Some applications will also be presented, in particular on bargaining and reputation. Settings of incomplete information are covered in Econ 200C, along with standard applications in information economics.

Schedule: MW 11:00 – 12:50 p.m. in Econ 300. There will also problem-solving/discussion sessions led by the teaching assistant, Isla Globus-Harris (iglobush@ucsd.edu, SH 238).

Problem Sets and Examination: Some exercises will be assigned. You must complete the exercises to learn the material. You are encouraged to work on exercises both alone and in study groups. The final examination will take place on Monday, March 17, from 11:30 a.m. until 2:30 p.m., or at another time that the class agrees on.

Watson's Office Hours: Mondays 2:00 – 3:00 p.m. **Please do not disturb Watson outside of office hours unless you have an appointment.**

Textbooks: You are encouraged to consult whatever books match your learning style. Here are some popular texts, in alphabetical order:

  Binmore, *Fun and Games*
  Fudenberg and Tirole, *Game Theory*
  Gibbons, *Game Theory for Applied Economists*
  Kreps, *A Course in Microeconomic Theory*
  Mas-Colell, Whinston, and Green, *Microeconomic Theory*
  McMillan, *Games, Strategies, and Managers*
  Osborne and Rubinstein, *Game Theory*
  Varian, *Microeconomic Analysis*
  Watson, *Strategy: An Introduction to Game Theory*

This is not a comprehensive list. Talk to Watson for more suggestions. You are probably familiar with Kreps, Mas-Colell-Whinston-Green, and Varian. These cover most of the essential material for the course and should be sufficient for students who wish to merely complete the course and pass the micro qualifying exam. If you used only one of these texts as a primary reference for 200A and 200B1, then it will probably be adequate for your studies in 200B2, although Varian's coverage of game theory is thin. Fudenberg-Tirole, Gibbons, and Osborne-Rubinstein are graduate level game-theory texts. Fudenberg-Tirole is the most comprehensive and difficult. Binmore's book is quirky. Watson's book is primarily for advanced undergraduates and beginning graduate students. It discusses all of the essential concepts, definitions, and results without too many technical details. Students who are struggling to grasp some of the basic ideas might find it useful to read Watson's text first.

How to Study: Try to read the textbook coverage of specific topics prior to attending lectures. You must work diligently on exercises to learn the course material; attending lectures is not nearly enough and would give you, at best, a false sense of understanding. There are many exercises in the textbooks. Watson will provide some solutions and additional exercises.

Topics to be Covered

A. Representing Games

Extensive form
Strategies
Beliefs/mixed strategies, behavioral strategies
Normal form

B. Analysis of Static Settings

Best response, dominance, security strategies
Iterated dominance, rationalizability
Applications using rationalizability
Equilibrium, applications
Existence (rationalizability, equilibrium)
Strictly competitive games

C. Analysis of Dynamic Settings

Sequential rationality
Backward induction, subgame-perfect equilibrium
Examples and applications
Bargaining games
Repeated games, applications