

Syllabus for ECON 201B Game Theory

Winter 2013, Department of Economics UCLA

Time and Location

Lecture: Tuesday and Thursday, 9:30am – 10:45am, Pub. Aff. 1234

Section: Friday, 9:00am – 10:45am, Pub. Aff. 1246

Instructors

Simon Board

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Office Hour: tba

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Office Hour: Bunche Hall 9365, Tuesday and Thursday 11am to 12pm

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Overview

Game Theory provides a set of tools to study the interaction of multiple strategic agents. It can be used to analyze situations in which the payoff of one agent, say firm A's profit, depends not only on its own actions, say the quantity it produces, but also on the actions of other agents, say the quantity of A's competitor. This course introduces the basic concepts of game theory and illustrates them with numerous applications.

The best way to learn game theory is by applying it to examples and we will do so extensively in class, homework assignments, and practice problems over the course of the quarter. The prerequisites for this class are undergraduate game theory, and Econ 200 (mathematical methods in economics) or equivalent.

Grading

There will be weekly homework assignments and a final exam on Monday, March 18th, 11:30am – 2:30pm. The final grade is based 70/30 on exam/homeworks. We encourage you to work together on the problem sets, but require everybody to write down and hand in her solutions to the problem sets separately. Problem sets are due on Tuesday morning before class.

Textbooks

A Course in Game Theory, M.J. Osborne and A. Rubinstein, MIT press (this book can be downloaded from the authors' websites)

Game Theory, D. Fudenberg and J. Tirole, MIT press

Microeconomic Theory, A. Mas-Colell, M. Whinston and J. Green, Oxford University Press

Essential Microeconomics, J. Riley, Cambridge University Press

Lecture Plan (approximate)

Static Games

- Dominant strategies
- Iterated dominance and rationalizability
- Weak dominance
- Nash equilibrium in pure strategies
- Applications of Nash equilibrium
 - Bertrand competition
 - Cournot competition
 - Hotelling competition
- Mixed strategy Nash equilibrium
- Alternative equilibrium concepts
- Bayesian Nash equilibrium
- Applications of Bayesian Nash equilibrium
 - Auctions
 - Public goods

Dynamic Games

- Subgame perfect equilibrium
- Applications of subgame perfect equilibrium
 - Stackelberg competition
 - Entry deterrence
 - Bargaining
- Repeated games
- Perfect Bayesian equilibrium
- Sequential equilibrium
- Additional refinements
- Applications of sequential equilibrium
 - Reputation
 - Signaling
 - Cheap talk