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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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