ECON 210B
Game Theory
Winter 2013

Course Description

I. Contact information
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II. Location and time
Lectures will be held in NH 2212 on Mondays and Wednesdays from 2:00 to 3:15. My office hours will be from 2:00 to 3:30 on Tuesdays.

III. General information
The course will cover some of the main topics in game theory. The general style of the course is formal; however we will keep the number of theorems and formal proofs to a minimum. When possible we will concentrate on examples. For some parts, the math will be difficult. One thing you will need to do is become comfortable with mathematical notation. This will help you in this course and in the future.

IV. Text
The textbook for the course is Osborne M. and A. Rubinstein, A Course in Game Theory, MIT Press, 1994 (hereafter, OR). The book presents the main topics of game theory at the graduate level. This is good because you are graduate students. However, this can be problematic because not everyone has had an undergraduate game theory course. I think that in five years this will have changed. Most economics departments now offer an undergraduate game theory course and we will soon get to the point where almost all economics majors take this course. However, in the meantime, I will be mindful of the fact that this may be the first course in game theory for some of you.

V. Exams and problem sets.
There will be four graded problem sets, each worth 5% of your grade, one midterm worth 40% of your grade, and one final exam worth 40% of your grade. The midterm will be held on Wednesday, February 13. The date of the final is determined by the Registrar’s Office and is posted in the Fall Schedule of Classes.

VI. Broad Outline
The course covers non-cooperative game theoretic models, in which the sets of actions of individual players are the primitives of the analysis. The two types of games we will cover are (i) strategic games and (ii) extensive games with perfect and imperfect information. This course will concentrate on equilibrium concepts for these games.
(i) Strategic games. In a strategic game (or in the language of von Neumann and Morgenstern, 1944, a normal form game) each player chooses his plan of action once and for all, and these choices are made simultaneously. Topics will include Nash equilibrium, which is one of the most basic concepts of game theory, existence of Nash equilibrium, mixed strategies Nash equilibrium, correlated equilibrium, which is closely related to Nash equilibrium, and evolutionary equilibrium.

(ii) Extensive games. In an extensive game there is a specified order of events and each player can consider her plan of action whenever it is her turn to make a decision. We will first consider the basic issues involved in moving from strategic form to extensive form. Then, we will study solution concepts for these games, concentrating on subgame perfect equilibrium in games with perfect information (everyone is assumed to be informed of all the events that have already occurred) and perfect Bayesian equilibrium in games with imperfect information.

The material covered in the course is used widely in most fields of economics. So, although this is a pure theory course, it should appeal to those who are interested in applied economics.