Advanced Game Theory
ICPSR Summer Program 2013-Second Session

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Office Hours: TBA, by appointment, or just drop by my office in ISR

This course presents research that uses game theoretic models in detail. The object is to lead the student through how such models are used in research. The two goals of the course are building technical ability to solve and use such models in research and providing a deep understanding of key articles in this type of research.

The class covers the topics with a combination of sessions on general types of models and others which discuss a particular example of that model in the literature. Sessions that cover a general type of model will often be followed with a problem set. I have organized the course by topics in game theory and attempted to have the level of technical difficulty increase throughout the course. The papers also cover a range of topics across all subfields of political science in addition to a range of types of models. The focus of discussion will be the motivation of the model, the proof of the equilibrium, and how the paper might be extended.

I am open to the idea of covering other papers of particular interest to students at their suggestion. If there is a paper you always wanted to understand in detail, this is your chance. Please send any such suggestions to me as soon as possible.

Although the course seeks to teach modeling skills, it also assumes that the student has had at least one course in game theory already at least at the level of the Introduction to Game Theory course in the first session. Students should be aware that I do not intend to teach the basic concepts of game theory.

The course requires students to complete the homework assignments. We will also spend class time discussing student projects where they develop their own models, with Friday’s session of each week set aside for those discussions. Students are encouraged to bring topics that they are interested in developing for this course. In some cases, students will be encouraged to develop a model on their topic and then write a short paper presenting it.

This course does not use a book. For those students who would like to purchase a high-level game theory book for their own reference, I have the following three recommendations:

- Fudenberg and Tirole, *Game Theory*, MIT Press
- Osborne and Rubinstein, *A Course in Game Theory*, MIT Press

Schedule of Classes

July 23: Introductory Meeting: Review of Math and Basics of Game Theory

Problem Set 1 out

July 24: Backwards Induction, Bayesian Nash Equilibrium


July 25: Signaling Games: Continuous Types


July 26: First Discussion of Projects

**Problem Set 1 due, Problem Set 2 out**

July 29-30: Bargaining Models


**July 29: Problem Set 2 due, Problem Set 3 out**

July 31: Cheap Talk and Multiple Equilibria


August 1: Repeated Games, Folk Theorem


August 2: Second Discussion of Projects

**Problem Set 3 due, Problem Set 4 out**

August 5: Commitment


August 6: Stochastic Games and Markov Perfect Equilibrium


**Problem Set 4 due, Problem Set 5 out**

August 7-8: Selectorate Models; Microeconomic Models

Bueno de Mesquita et al., *The Logic of Political Survival*, Ch. 3
August 9: Third Discussion of Projects

August 12: More Markov Perfect Equilibrium
   **Problem Set 5 due**

August 13: War of Attrition Models

August 14: Global Games

August 15: Wrap Up