SS 211A: ADVANCED ECONOMIC THEORY

Fall 2009

LEEAT YARIV

CLASS MEETINGS

Tuesdays and Thursdays, 1 – 2:30PM, in 315 Baxter.

PREREQUISITES

Basic knowledge of probability and game theory are necessary.

REQUIREMENTS

Formal requirements will be composed of:

- **Class Presentations:** When presenting a paper, make sure to spell out the question, identify why it is important, extract the essence of the argument, describe what the paper does, and then provide your judgment of the paper.

- **Individual Papers:** You should hand a ~5 page (1.5 line spaced, 11 pt font) proposal for a paper on 10.30. This should outline a question, its context in the literature, why it is important, and the type of results you are looking for. You should hand an expanded 15 page version (1.5 line spaced, 11 pt font) by 12.11. The expanded version should include preliminary results. If your project is theoretical in nature, you should sketch a model and provide some basic insights from the model. If it is empirical, you should describe precisely the data sources you will be using and empirical techniques you plan to utilize. Short (15 mins) class presentations of the paper will take place on 12.10.

CONTACTING ME

Office: 301C Baxter Hall. Feel free to e-mail me at lyariv@hss.caltech.edu to schedule a time to talk about class material or about your research interests.

COURSE WEBSITE

http://www.hss.caltech.edu/~lyariv/SS211A.htm
OUTLINE

This class focuses on the formation and impact of social connections. To that effect, the class will bridge two fields of economic theory – matching and social networks. The goal of the class is to introduce students to the basic tools of formal modeling in these fields and suggest some interesting directions for future research.

In particular, we will discuss how connections between individuals get formed spontaneously (as in the economics job market, the marriage market, etc.) and through institutions (as in the medical residents matching program), and how different social structures affect behavior statically and dynamically. The interplay between the theoretical predictions and those observed in the field or in the lab will be explored throughout.

The following is a tentative road-map for the class. I am very open to spending more time on topics that students find exciting.

0. Introduction.

Matching

1. The Matching Problem

2. Matching in Centralized Markets
   Designing mechanisms to implement stable or efficient outcomes and their applications to labor markets, schooling, etc.

3. Matching in Decentralized Markets
   Search and matching, dynamic matching games.

Social Networks

4. Network Formation
   Random linking, strategic linking, and similarity across connections.

5. Diffusion and Learning on Social Networks
   How ideas and fashions get transmitted, learning processes accounting for social architecture.

6. Network Games
   How the structure of a network and the location within a network affect behavior and outcomes, with empirical and experimental implications.
READING LIST

A. MATCHING MARKETS

Textbook:

A.1. The Marriage Problem and the Gale Shapley Algorithm

A.1.a. Basic Theory


A.1.b. Testability, Empirics, and Experiments


A.2. The Structure and Computation of Stable Matchings


A.3. Stability and Efficiency

**A.4. Beyond the Basic Marriage Model**

**A.4.a. Many to One Matching**


**A.4.b. Matching with Transfers**


**A.5. Mechanism Design Aspects of Matching**


**A.6. Dynamic Models of Decentralized Matching**

**A.6.a. Search and Matching**


A.6.b. Dynamic Market Games


B. SOCIAL NETWORKS

Textbook:

B.1. Background and Fundamentals of Network Analysis


B.2. Network Formation Models

B.2.1. Random Graphs


B.2.2. Growing Networks

B.2.2. Strategic Formation of Networks and Homophily


B.3. Diffusion through Social Networks


B.4. Learning and Networks


B.5. Decisions, Behavior, and Games on Networks
