SYLLABUS [DRAFT : JAN 2012]

A. COURSE OVERVIEW

This half course explores the theory and practice of market design, drawing on examples from entry-level labor markets, school choice procedures, kidney exchanges, course allocation procedures, internet marketplaces, and financial exchanges. The main assignment is to write a final paper, due at the end of the quarter, that studies either an existing organized market or an environment with a potential role for an organized market.

Students are encouraged (though not required) to take Econ 30900 in the Fall on the theory of auction design, and Econ 40201 in the Winter for treatment of empirical methods for auction and matching markets. Additionally, in 2012 students are encouraged to take Econ 40701, which is a closely related and complementary reading course.

B. OFFICE HOURS

TBD

C. COURSE WEBSITE AND READINGS

I will use the course website to distribute information and materials relevant to the class. The site can be reached from http://chalk.uchicago.edu.

For readings, where possible I have included a hyperlink within this syllabus, so you can use this document as a portal to most of the class materials.

D. ASSIGNMENTS

Final Paper
The main assignment for this course is to write a final paper of approximately 15 pages. The paper should study either an existing organized market or an environment with a potential role for an organized market. At least one-third of the paper should describe the specific market design questions relevant to your chosen environment and outline a plan for how to answer them; outstanding papers will also conduct some preliminary analysis towards these answers (e.g., preliminary data collection/analysis or solving a toy model). Up to two-thirds of the paper can be a survey of existing literature relevant to your environment and questions.

A one-page proposal for your paper is due on the last class meeting (week 5), and the paper itself is due at the end of the quarter.

I will provide some ideas for paper topics, as well as highlight some useful resources for generating paper ideas, in our first class meeting (week 1).
**Weekly Response Papers**
Each week you should write a response paper of at most 2 pages to one of that week’s starred readings. There is no required format or structure, but some of the kinds of things that you might think about include:

- What is the main contribution of the paper?
- Is this important, why?
- What was the main insight in getting the result?
- What are the most important assumptions, are they limiting?
- What is not clear to you?
- What did the authors not do?
- What applications does this suggest?
- What extensions would be interesting?
- Can you suggest a two-sentence project idea based around the ideas in this paper?

For week 1, the response paper can be written after the first class meeting.

You may skip any one of the five response papers without penalty.

**E. Market Design Resources**

The following books, survey articles, and web resources are highly recommended:

**Books**
Cramton, Peter, Yoav Shoham, and Richard Steinberg (2006). *Combinatorial Auctions*


Krishna, Vijay (2002). *Auction Theory*

Milgrom, Paul (2004). *Putting Auction Theory to Work*

Nisan, Noam, Tim Roughgarden, Eva Tardos, and Vijay Vazirani (2007). *Algorithmic Game Theory*

Roth, Alvin and Marilda Sotomayor (1990). *Two-Sided Matching: a Study in Game-Theoretic Modeling and Analysis*

**Survey Articles**
Milgrom, Paul (2007). “*Package Auctions and Exchanges,*” *Econometrica*

Roth, Alvin (2002). “*The Economist as Engineer: Game Theory, Experimentation, and Computation as Tools for Design Economics,*” *Econometrica*
Roth, Alvin (2007). "What have we Learned from Market Design?" Economic Journal


Web Resources
- Market Design blog
F. Class Schedule and Readings

Week 1: Class Overview and Two-Sided Matching

What is Market Design?

(*) Roth, Alvin (2002). *The Economist as Engineer: Game Theory, Experimentation, and Computation as Tools for Design Economics*. *Econometrica*

See also Section E. of the syllabus.

Two-Sided Matching: Classics


Two-Sided Matching: Applications

The National Residency Matching Program


The Economics Job Market


Preference Signaling


Matching with Couples


Surveys

Roth, Alvin and Marilda Sotomayor (1990). Two-Sided Matching: a Study in Game-Theoretic Modeling and Analysis

Week 2: Assignment Problems

Assignment: Classics


See also the following survey: Sonmez and Unver (2009). Matching, Allocation, and Exchange of Discrete Resources.

Assignment: Applications

School Choice


Kidney Exchange


Course Allocation


Assignment with Externalities

Week 3: General Themes in Matching and Assignment Problems

Roth, Alvin (2007). “What have we Learned from Market Design?” *Economic Journal*

**Congestion, Unraveling, and Thickness**


**Incentives and Strategyproofness**


Abdulkadiroglu, Atila, Parag Pathak and Alvin Roth (2009). *Strategyproofness versus Efficiency in Matching with Indifferences: Redesigning the NYC High School Match* *American Economic Review*.


**Randomness and Fairness**


Moulin, Herve (2003). *Fair Division and Collective Welfare*

**Constraints against Monetary Transfers**


Legros, Patrick and Andrew Newman (2007). “Beauty is a Beast, Frog is a Prince: Assortative Matching with Non-Transferabilities.” *Econometrica*

**Generalized Matching**


Week 4: Internet Marketplaces


eBay Auctions


See also the following survey by Patrick Bajari and Ali Hortacsu: Economic Insights from Internet Auctions

Search Advertising Auctions


Look briefly at www.alibaba.com (or china.alibaba.com), which we will discuss in class.

Markets for Event Tickets


Look briefly at http://www.ticketmaster.com/ticketauctions which we will discuss in class.
**Shift Auctions**

Look briefly at [http://www.flexestaff.com/index.html](http://www.flexestaff.com/index.html) and [http://www.mckesson.com/en_us/McKesson.com/For%2BHealthcare%2BProviders/Hospitals/Workforce%2BManagement%2BSolutions/eShift.html](http://www.mckesson.com/en_us/McKesson.com/For%2BHealthcare%2BProviders/Hospitals/Workforce%2BManagement%2BSolutions/eShift.html) which we will discuss in class.

**Internet Marketplace Field Experiments**


Week 5: Financial Market Design

Market Microstructure


New Markets


Other (preliminary)


