Syllabus

We will start out by covering some of the main topics in auction theory with independent private values and related topics in mechanism design. These are listed under the first two groups of papers below. Next, we will talk about matching theory, connections between matching theory and auction theory, and some applications (specifically, sponsored search auctions). We will also talk about information in auctions (covering such topics as auctions with interdependent/common values, winner’s curse, and others). We will conclude with presentations by graduating PhD students discussing their work.

There will be lecture notes for some of the lectures – I will post them on coursework. I also expect you to read the book(s) whenever the topic is covered in them, and also some of the papers (I will usually tell you which ones are particularly worth reading).

There will be four graded homework assignments. All problems will be on coursework. I will post solutions there as well. There will also be one “referee report” assignment midway through the course. At the end, there will be a 24-hour take-home final exam.

Recommended textbooks for auction topics are:

Paul Milgrom, “Putting Auction Theory to Work”

For matching, the textbook is “Two-sided matching” by Roth and Sotomayor.

“*” in the list of papers indicates the main readings.

1. Introduction to Auctions; Revenue Equivalence


* Vijay Krishna “Auction Theory” Chapters 2, 3.

Paul Milgrom “Putting Auction Theory to Work” Chapters 1, 2.


* Vijay Krishna “Auction Theory” Chapter 5.

Paul Milgrom “Putting Auction Theory to Work” Chapters 3,4


3. Linkage Principle, Affiliation, Common and Interdependent Values, Auctions with Contingent Payments


* Vijay Krishna “Auction Theory” Chapters 6, 7 and 10.

Paul Milgrom “Putting Auction Theory to Work” Chapter 5.


4. Matching theory

* Alvin Roth and Marilda Sotomayor, “Two-sided matching”. Chapters 2, 3, 4, 7, 8.1, 8.2.


5. **Multi-unit auctions, VCG, and connections to matching**

* Vijay Krishna, “Auction Theory”, Chapters 12, 13, 14, 16.


* Alvin Roth and Marilda Sotomayor, “Two-sided matching”, Chapters 8.3, 8.4.

“Combinatorial Auctions”, edited by P. Cramton, Y. Shoham, and R. Steinberg

* Larry Ausubel and Paul Milgrom, “The Lovely but Lonely Vickrey Auction” (Chapter 1 in “Combinatorial Auctions”)  


6. **Internet advertising auctions**


* Michael Ostrovsky and Michael Schwarz (2009), "Reserve Prices in Internet Advertising Auctions: A Field Experiment", working paper.


7. **Presentations by Graduating PhD students**

