This is an advanced topics course on market and mechanism design. We will study existing or new market institutions, understand their properties, and think about whether they can be re-engineered or improved. This course assumes knowledge of the first year economics PhD sequence, especially microeconomic theory (14.121-4). Game theory (14.126) and courses from the industrial organization sequence are helpful, but not essential as background.

Instructor: Parag Pathak, E17-240, ppathak@mit.edu OH: Wednesday 1-2pm, or by appt
TA: Yusuke Narita, narita@mit.edu, OH: TBD

Course requirements: There will be three problem sets and one final paper. Depending on final course enrollment, we may ask students to do a class presentation on their final paper. Details will be distributed later in the semester.

Recommended Textbooks:


These other books may be of interest:


Outline and References:

1. Introduction


2. Basic Mechanism Design and Strategy-Proofness


3. **One-Sided Matching**


4. **Stochastic Matching Mechanisms**


5. Axiomatic Resource Allocation


6. Two-sided matching

- Roth and Sotomayor, Chapters 2-5.


7. **Unraveling, timing, and congestion**


8. **Matching with richer commodity spaces**


9. LARGE TWO-SIDED MATCHING MODELS


10. STUDENT ASSIGNMENT AND SCHOOL CHOICE


11. SCHOOL CHOICE AND AFFIRMATIVE ACTION


12. MECHANISM DESIGN WITH TRANSFERS: VICKREY AUCTION

• Milgrom, Paul. Putting Auction Theory to Work. Chapter 2-3

13. BAYESIAN FOUNDATIONS


14. **Payoff and Revenue Equivalence**

• Milgrom, Putting Auction Theory to Work, Chapter 4-5


15. Noteworthy Auction Results


16. Online Markets


17. Information Interdependences and Aggregation


18. Multi Unit Auctions


19. Package and Combinatorial Auctions


20. Resale

21. Simplicity and Limited Rationality


22. **Financial Markets**


23. **Computer Science-Inspired Approaches, TBD**
