

**EC 441/633**  
**Economic Systems Design II**  
**Spring 2012**  
**Monday 4:30 – 7:10 pm, Science and Technology I, room 124**

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**Office Hours:** Monday, 3:00-4:15pm, room 344 Enterprise Hall, or by appointment

**Course Objectives:** The course introduces students to exchange institutions in economics, focusing on matching institutions and contract design, both theoretically and empirically. The class will combine presentation of theoretical models and empirical evidence of existing institutions. While treatment in this literature can be quite mathematical, the class will attempt to present the material rigorously but not overly technically. Students will learn about market design and, by the end of the course, will complete a project that analyzes a real-life allocation problem. Students are not required to take EC 440/632 (ESD I) to enroll in this course, however having done so will not be unhelpful. For students interested in completing the certificate in Economic Systems Design, this is the second course in the required sequence.

**Prerequisites:** Calculus, probability theory, intermediate microeconomics, patience.

**Texts:** There are no required texts for the class. We will work from lecture notes and journal articles. On days when there are assigned readings, students are expected to have read them before class and participate in discussion of the research.

**In-class Quizzes:** There will be regular in-class quizzes. These will be announced ahead of time. Quizzes will be based on lecture material and readings. Quizzes count for 40% of the course grade. I will drop your worst two quiz scores and use the remaining to determine the grade.

**Project:** There will be no exams for the course, but students will be required to submit a project design paper. The purpose of the project is to have students draw upon the tools covered in class to study an existing market that solves an allocation problem or an environment with a potential role for a market. Papers should provide a clear description of the allocation problem and relevant market design questions, describe and evaluate what has been done previously to address this type of problem, describe improvements to the current design (or describe your new design) and provide predictions of how the design will work. Projects will be presented to the class during the last weeks of the semester. More details will be discussed as the semester progresses.

Look for project ideas in newspapers and from your own experience. Lists of project ideas used in other courses will be posted on Blackboard. To get you started thinking early about ideas, a one-page description of what you propose to do for your project must be submitted to me during the fourth week of class (Feb 13).

**Grading:** 40% in-class quizzes, 60% Project.

**Blackboard:** Class announcements, schedule of readings, and other important information will be posted on Blackboard.

**Academic Honesty:** I assume you know George Mason's Academic Code of Honesty, [www.gmu.edu/catalog/9798/honorcod.html](http://www.gmu.edu/catalog/9798/honorcod.html).

**Disabilities** If you are a student with a disability and you need academic accommodations please see me and contact the Office of Disability Resources at (703) 993-2474. All academic accommodations must be arranged through that office. You must contact me within the first week of classes to arrange accommodations.

## Course Outline

This is an outline. There will most likely be changes and additions during the semester as we adjust for time to cover the topics listed below and student interest. Any changes will be announced in class and posted on Blackboard

1. Introduction, Social Choice and Public Goods (3 weeks)
2. Matching, theory and applications (5 weeks)
3. Auction, applications (2 weeks)
4. Contracts (2 weeks)
5. Student Presentations (2 weeks)

## Reading List

### 1. Introduction, Social Choice and Public Goods

Roth, Alvin, "What Have We Learned from Market Design," *Economic Journal*, 118, 2008, 285-310.

Roth, Alvin, "The Economist as Engineer: Game Theory, Experimental Economics and Computation as Tools of Design Economics," *Econometrica*, 70(4), 2002, 1341-1378.

Mas-Colell, Andreu, Michael Whinston and Jerry Green, *Microeconomic Theory*, 1995, chpts 21 & 23. (Another treatment of the topics can be found in Varian's *Intermediate Microeconomics*, chpt 32 & 35, or other intermediate textbooks.)

### 2. Matching

Gale, David and Lloyd Shapley, "College Admissions and the Stability of Marriage," *American Mathematical Monthly*, 69, 1962, 9-15.

Roth, A.E. and M. Sotomayor *Two-Sided Matching: A Study in Game-Theoretic Modeling and Analysis*, Econometric Society Monograph Series, Cambridge University Press, 1990. (Chapters 2-4)

Roth, A.E., "The Evolution of the Labor Market for Medical Interns and Residents: A Case Study in Game Theory," *Journal of Political Economy*, 92, 1984, 991-1016.

### **Unraveling**

Roth, A.E., "New Physicians: A Natural Experiment in Market Organization," *Science*, 250, 1990, 1524-1528.

Roth, A.E., "A Natural Experiment in the Organization of Entry Level Labor Markets: Regional Markets for New Physicians and Surgeons in the U.K.," *American Economic Review*, vol. 81, June 1991, 415-440

Roth, Alvin and Xiaolin Xing, "Jumping the Gun: Imperfections and Institutions Related to the Timing of Market Transactions," *American Economic Review*, 84, September, 1994, 992-1044.

Niederle, Muriel and Alvin E. Roth, "Unraveling reduces the scope of an entry level labor market: Gastroenterology with and without a centralized match," *Journal of Political Economy*, 1. 111, no. 6, December 2003, 1342-1352.

### **Kidney Exchange**

Roth, Alvin E., Tayfun Sonmez, and M. Utku Unver, "Kidney Exchange," *Quarterly Journal of Economics*, 119, 2, May, 2004, 457-488.

### **Labor Markets**

Roth, Alvin E. and Elliott Peranson, "The Redesign of the Matching Market for American Physicians: Some Engineering Aspects of Economic Design," *American Economic Review*, 89, 4, September, 1999, 748-780.

### **School Choice**

Abdulkadiroglu, Atila, and Tayfun Sönmez, "School Choice: A Mechanism Design Approach," *American Economic Review*, 93-3: 729-747, June 2003.

Abdulkadiroglu, Atila , Parag A. Pathak, and Alvin E. Roth, "The New York City High School Match," *American Economic Review*, Papers and Proceedings, 95,2, May, 2005, 364-367.

Abdulkadiroglu, Atila , Parag A. Pathak , and Alvin E. Roth, "Strategy-proofness versus Efficiency in Matching with Indifferences: Redesigning the NYC High School Match," *American Economic Review*, 2009, 99(5): 1954–78.

Chen, Yan and Tayfun Sonmez, "School Choice: An Experimental Study" *Journal of Economic Theory*, 127: 2002-231, March 2006

### **Dating**

Fisman, Raymond, Sheena Iyengar, Emir Kamenica, and Itamar Simonson. 2006. "Gender Differences in Mate Selection: Evidence from a Speed Dating Experiment." *Quarterly Journal of Economics*, 121(2), 673-697.

Fisman, Raymond, Sheena S. Iyengar, Emir Kamenica, Itamar Simonson. 2005. "Searching For a Mate: Evidence From a Speed Dating Experiment." Working Paper, Columbia University.

Fisman, Raymond, Sheena Iyengar, Emir Kamenica, & Itamar Simonson. "Racial Preferences in Dating." *Review of Economic Studies*, 2008.

Hortacsu, Ali, Guenter Hitsch and Dan Ariely. 2006. "What Makes You Click? Mate Preferences and Matching Outcomes in Online Dating." MIT Sloan Research Paper #4603-06.

### **3. Auctions**

Roth, Alvin E. and Axel Ockenfels. 2002. "Last-Minute Bidding and the Rules for Ending Second-Price Auctions: Evidence from eBay and Amazon Auctions on the Internet." *American Economic Review*, 92(4), 1093-1103.

Ariely, Dan, Axel Ockenfels, and Alvin E. Roth. 2005. "An Experimental Analysis of Ending Rules in Internet Auctions." *RAND Journal of Economics*, 36(4), 891-908.

Plott, Charles, "Laboratory Experimental Testbeds: Application to the PCS Auction." *Journal of Economics & Management Strategy*, 6(3), Fall 1997, 605-638.

Rassenti, Steven, Vernon Smith, R. L. Bulfin, "A Combinatorial Auction Mechanism for Airport Time Slot Allocation," *The Bell Journal of Economics*, 13( 2), Autumn, 1982, 402-417.

### **4. Contracts**

Mas-Colell, Andreu, Michael Whinston and Jerry Green, *Microeconomic Theory*, 1995, chpts 13, 14, 23.

Milgrom, Paul and John Roberts, *Economics, Organization and Management*, Englewood Cliffs, NJ: Prentice Hall, 1992.