Syllabus: Economics 703, Advanced Microeconomics

Instructors: David Malec, Professor Lixin Ye

Tuesday and Thursday, 9:30 am to 10:45 am, Tydings 0111, Fall 2015

Course Description. Economics 703, Advanced Microeconomics, presents a formal treatment of game theory, and then introduces market design. The game theory portion covers foundations, dynamic games, games with incomplete information, mechanism design and signaling. Then we turn to market design. Market design combines behavioral and experimental economics with auction and matching theory to design innovative markets. Applications are seen in almost all markets and government programs that attempt to assign and sometimes price scarce resources. Market design research leads to better understanding of the incentives that guide behavior. Then the incentives can be designed to better achieve goals. Applications include matching students to schools, interns to hospitals, and kidneys to patients. In settings where prices are used to motivate behavior, auctions have been developed to assign and price scarce resources. Applications include the assignment of radio spectrum for mobile communications, the allocation of emission allowances, electricity market design to price and allocate wholesale electricity, and financial market microstructure to trade financial securities.

Course Logistics. We will meet twice a week for one hour and fifteen minutes. There are weekly problem sets and a final examination (8 am to 11 am, Tuesday, 15 December 2015). You are encouraged to do the problem sets as much as you can on your own; however, you may wish to discuss the problem sets in small groups (two or three students). The problem sets are sometimes quite difficult; you are not expected to be able to answer all the questions correctly. Your course grade will be based 1/3 on the problem sets and 2/3 on the final exam. Good class participation can improve your evaluation. I expect you to come to class prepared to respond intelligently to questions about the readings and assignments.


Office Hours. Office hours are by appointment; contact details:

David Malec: email is dmalec@umd.edu, office is Tydings 4101A.
Lixin Ye: email is ye.45@osu.edu, office is Tydings 4130A.
Outline

Notes, problem sets, and other course materials are available at www.cramton.umd.edu.

F&T = Fudenberg and Tirole, *Game Theory*;
L = David Levine, *Is Behavioral Economics Doomed?*,
K = Vijay Krishna, *Auction Theory*,
M = Paul Milgrom, *Putting Auction Theory to Work*,
O&R = Osborne and Rubinstein, *A Course in Game Theory*.
CSS = Peter Cramton, Yoav Shoham, and Richard Steinberg, *Combinatorial Auctions*.

0. Introduction and Motivation

L entire book.

1. **Strategic-Form Games**

F&T, chapters 1 and 2; O&R, chapters 1 and 2.

2. **Extensive-Form Games**

F&T, chapter 3; O&R, chapter 6.

3. **Repeated Games**

F&T, chapters 4 and 5; O&R, chapter 8 and 9.

4. **Bayesian Games and Bayesian Equilibrium**

F&T, chapter 6.

5. **Dynamic Games of Incomplete Information**

F&T, chapter 8; O&R, chapter 11.

6. **Refinements of Sequential Equilibrium**

F&T, chapter 11; O&R, chapter 12.

7. **Bargaining Theory**

F&T, chapter 10; O&R, chapters 7, and 13-15.

8. **Auction Theory and Market Design**

K chapters 1-17; M entire book; CSS entire book.