Prof. William H. Sandholm
Department of Economics
University of Wisconsin
Spring 2017

Syllabus - Economics 713, Part 2

Course Description

Economics 713 is the second half of the first-year graduate microeconomics sequence. Lones Smith teaches the first half of the course (partial and general equilibrium theory, etc.), and I teach the second (information economics).

Reading Materials

Andreu Mas-Colell, Michael D. Whinston, and Jerry R. Green (1995). *Microeconomic Theory*. Oxford.

Geoffrey A. Jehle and Philip J. Reny (2011). *Advanced Microeconomic Theory*, third edition. Financial Times/Prentice Hall/Pearson.

Drew Fudenberg and Jean Tirole (1991). *Game Theory*. MIT.

Roger Myerson (1991). *Game Theory*: *Analysis of Conflict*. Harvard.

Bernard Salanié (2005). *The Economics of Contracts*, second edition. MIT.

John G. Riley (2001). "Silver Signals: Twenty-Five Years of Screening and Signaling." *Journal of Economic Literature* 39, 432–478.

Jean-Jacques Laffont and David Martimort (2002). *The Theory of Incentives*: *The Principal-Agent Model*. Princeton.

Patrick Bolton and Mathias Dewatripont (2005). *Contract Theory*. MIT.

Steven A. Matthews (1995). "A Technical Primer on Auction Theory I: Independent Private Values." Working paper, Northwestern University.

Vijay Krishna (2002). *Auction Theory*. Academic Press.

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

Versions of most of the models we will consider can be found in MWG, Ch. 13, 14, and 23. Versions of most of them are also in Jehle-Reny, Ch. 8–9, whose treatments I generally prefer. Many are also in Fudenberg-Tirole, Ch. 7 and Sec. 8.2 and 11.2. Myerson, Ch. 6 offers a fine Myersonian overview of many of the ideas we will see.

Salanié provides streamlined presentations of the classic signaling and screening models and contract theory. Riley is a useful survey of signaling and screening models and their applications. Laffont-Martimort and Bolton-Dewatripont are detailed treatments of contract theory.

Matthews gives a very careful introduction to auctions and mechanism design in the basic independent private values environment. Krishna and Milgrom and are excellent books on auction theory and mechanism design which emphasize different aspects of the theory; Krishna covers the basics in somewhat more detail.

Readings, Problem Sets, and Exams

The course is divided into five sections whose contents are described in the course outline below. The readings listed before the parentheses (mostly from MWG) cover all of the topics I'll lecture about. The readings in parentheses are equally good and provide different perspectives on the same material.

Section 1:   Lecture notes (Jehle-Reny, sec. 7.2.3 and 9.2, MWG, sec. 8.E; Krishna, ch. 2)

Section 2:   MWG, ch. 13 (Jehle-Reny, sec. 8.1)

Section 3:   MWG, ch. 14 and p. 900–903 (Salanié, sec. 5.1–5.2 and ch. 2, but not the (incorrect) proof on p. 23–24).

Sections 4, 5: MWG, ch. 23 except p. 873–876 and 906–910; Jehle-Reny, sec. 9.5 (Jehle-Reny, sec. 9.3–9.4; Krishna, ch. 5)

There will be five problem sets. The due dates for the first four are as follows: #1, Monday, April 3; #2, Monday, April 10; #3, Monday, April 24; #4, Monday, May 1. The fifth problem set will not be collected.

The lone exam will take place on Saturday, May 6 from 9:30 to 11:30.

Contact information

My office is 7436 Social Science. You can reach me by e-mail at whs@ssc.wisc.edu or by phone at 263-3858. My office hours are on Wednesdays and Fridays from 2:30 to 3:30, or by appointment. The course website is

http://www.ssc.wisc.edu/~whs/teaching/713

Course Outline

Section 1 (3 lectures): Bayesian games
           Definitions
           Computing Bayesian equilibria
           Interpretation
           Auctions and other examples

Section 2 (2 lectures): Signalling and screening with competing uninformed players
           The market for lemons
           Job market signalling
           Screening in insurance markets

Section 3 (4 lectures): Principal-agent models
           Moral hazard
           Adverse selection: monopolistic screening

Section 4 (3 lectures): Mechanism design I
           Mechanism design problems and the revelation principle
           Incentive compatibility, payoff equivalence,
             and revenue equivalence
           Revenue maximization and optimal auctions

Section 5 (2 lectures): Mechanism design II
           Allocative efficiency, budget balance,
             and individual rationality