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

Syllabus - Economics 711, Part 2

Course Description

Economics 711 is the first half of the first-year graduate microeconomics sequence. Dan Quint teaches the first half of the course (basic decision theory and consumer theory), and I teach the second (game theory).

Reading Materials

This course will closely follow my lecture notes, which will be distributed in class. Here is a list of books that may be helpful:

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

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

Julio González-Díaz, Ignacio García-Jurado, and M. Gloria Fiestras-Janeiro (2010). *An Introductory Course on Mathematical Game Theory*. AMS.

Klaus Ritzberger (2002). *Foundations of Non-Cooperative Game Theory*. Oxford.

R. Duncan Luce and Howard Raiffa (1957). *Games and Decisions*: *Introduction and Critical Survey*. Wiley.

Martin Osborne (2004). *An Introduction to Game Theory*. Oxford.

Eric van Damme (1991). *Stability and Perfection of Nash Equilibria*, 2nd ed. Springer.

George J. Mailath and Larry Samuelson (2006). *Repeated Games and Reputations: Long-Run Relationships*. Oxford.

Myerson, Fudenberg-Tirole, González-Díaz et al., and Ritzberger are fine graduate game theory textbooks: the first is encyclopedic; the second and third cover many basic topics in detail; and the fourth emphasizes foundational issues. Luce-Raiffa is excellent on classical topics in game theory. Osborne is my favorite undergraduate game theory textbook. van Damme is the standard reference on equilibrium refinements. Mailath-Samuelson is the definitive treatment of repeated games.

Readings, Problem Sets, and Exams

The course is divided into five sections whose contents are described in the course outline below. Below I mainly suggest readings from Fudenberg and Tirole, but one can substitute corresponding readings from the other graduate game theory textbooks listed above.

Section 1:   Fudenberg and Tirole, Sec. 1.1 and 2.1

Section 2:   Fudenberg and Tirole, Sec. 1.2–1.3 and 2.2–2.3
               Luce and Raiffa, App. 2–4

Section 3:   Fudenberg and Tirole, Ch. 3 and Sec. 4.1–4.2 and 4.4

Section 4:   Fudenberg and Tirole, Sec. 8.1, 8.3, and 11.2

Section 5:   Fudenberg and Tirole, Sec. 4.3 and 5.1

The due dates for the first four problem sets are as follows: #1, Thursday, Nov. 9; #2, Tuesday, Nov. 21; #3, Thursday, Nov. 30; #4, Thursday, Dec. 14. The fifth problem set will not be collected.

The lone exam will take place on Saturday, December 16th 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 Tuesdays and Thursdays from 2:45 to 3:45 or by appointment. The course website is

   http://www.ssc.wisc.edu/~whs/teaching/711

Course Outline

Section 1 (3.5 lectures):   Normal form games I
    Basic concepts
    Dominance
    Iterated strict dominance
    Rationalizability

Section 2 (3 lectures):   Normal form games II
    Nash equilibrium
    Correlated equilibrium
    The minmax theorem

Section 3 (2 lectures):   Extensive form games I
    Basic concepts
    The principle of sequential rationality
    Games of perfect information and backward induction

Section 4 (3 lectures):   Extensive form games II
    Games of imperfect information and sequential equilibrium
    Forward induction

Section 5 (1.5 lectures):   Repeated games
    Basic concepts
    Stick-and-carrot strategies and the folk theorem