ECO2030: Microeconomic Theory II
Winter 2014

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Overview

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Instructor: Martin J. Osborne

This module of PhD micro is designed (a) to equip students who do not intend to pursue research in economic theory with the main game-theoretic tools used in contemporary economics, and (b) to provide students who plan to pursue research in economic theory a solid grounding in game theory.

The text is

> Martin J. Osborne and Ariel Rubinstein, A course in game theory (MIT Press, 1994)

(The website for the book has a list of typos and other information you may find useful.)

If you have no background in game theory, you may also find useful my lower-level book An introduction to game theory (Oxford University Press, New York, 2004).

The course covers the following topics.

- Nash equilibrium (Ch. 2 through 2.5)
- Mixed strategy equilibrium (Ch. 3 through 3.3)
- Bayesian games (2.6)
- Extensive games with perfect information (Ch. 6)
- Bargaining games (Chs. 7 and 15)
- Repeated games (Ch. 8)

Problem Sets

The only way to learn analytical material is to do problems! I will assign problems after most classes; they will be taken up in the Tutorial Sessions.

Assessment

Your mark in the module will be based on the final examination, which will be held Monday, February 24 from 9:10am to 11am.
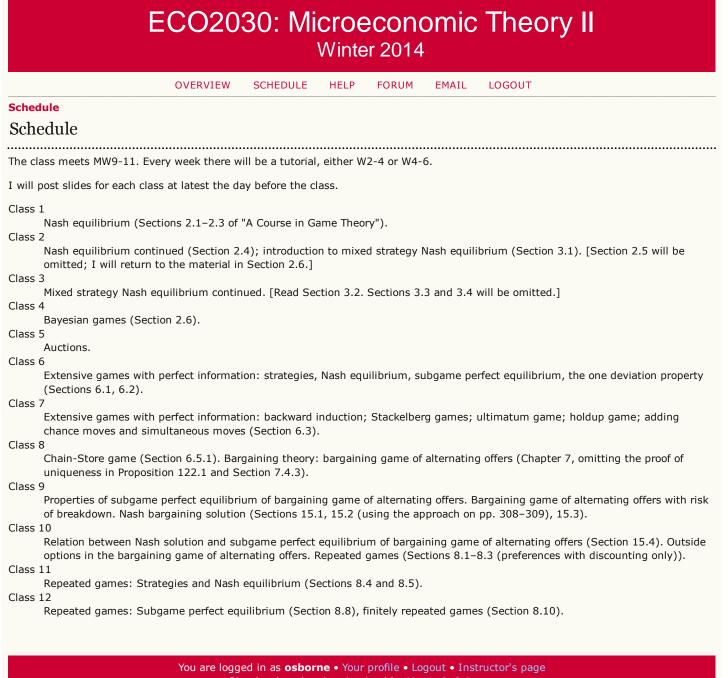
Your grade in ECO2030 will be the average of your grades in this module and the second module.

Past exams

Note that in 2005–2007 the course covered more material than it did in the other years.

- Winter 2013: without solutions, with solutions
- Winter 2012: without solutions, with solutions
- Winter 2011: without solutions, with solutions
- Winter 2010: without solutions, with solutions
- Winter 2009: without solutions, with solutions
- Winter 2007: without solutions, with solutions
- Winter 2006: without solutions, with solutions
- Winter 2005 [Solutions]
- Winter 2004 [Solutions]
- Winter 2003 [Solutions]
- Winter 2002 [Solutions]

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Schedule

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The class meets MW9-11. Every week there will be a tutorial, either W2-4 or W4-6.

I will post slides for each class at latest the day before the class.

Class 1
     Nash equilibrium (Sections 2.1–2.3 of "A Course in Game Theory").

Class 2
     Nash equilibrium continued (Section 2.4); introduction to mixed strategy Nash equilibrium (Section 3.1). [Section 2.5 will be omitted; I will return to the material in Section 2.6.]

Class 3
     Mixed strategy Nash equilibrium continued. [Read Section 3.2. Sections 3.3 and 3.4 will be omitted.]

Class 4
     Bayesian games (Section 2.6).

Class 5
     Auctions.

Class 6
     Extensive games with perfect information: strategies, Nash equilibrium, subgame perfect equilibrium, the one deviation property (Sections 6.1, 6.2).

Class 7
     Extensive games with perfect information: backward induction; Stackelberg games; ultimatum game; holdup game; adding chance moves and simultaneous moves (Section 6.3).

Class 8
     Chain-Store game (Section 6.5.1). Bargaining theory: bargaining game of alternating offers (Chapter 7, omitting the proof of uniqueness in Proposition 122.1 and Section 7.4.3).

Class 9
     Properties of subgame perfect equilibrium of bargaining game of alternating offers. Bargaining game of alternating offers with risk of breakdown. Nash bargaining solution (Sections 15.1, 15.2 (using the approach on pp. 308–309), 15.3).

Class 10
     Relation between Nash solution and subgame perfect equilibrium of bargaining game of alternating offers (Section 15.4). Outside options in the bargaining game of alternating offers. Repeated games (Sections 8.1–8.3 (preferences with discounting only)).

Class 11
     Repeated games: Strategies and Nash equilibrium (Sections 8.4 and 8.5).

Class 12
     Repeated games: Subgame perfect equilibrium (Section 8.8), finitely repeated games (Section 8.10).