

14E024

6 ECTS

Microeconomics II

Overview and Objectives

This course extends the analysis of Microeconomics I to situations with strategic interactions, that is, of economic situations where the choice of an agent has an impact on the utility of other agents. This involves, for example, externalities, public goods, and different mechanisms to allocate goods such as auctions or bargaining.

We will first provide the basic elements of (non-cooperative) game theory, the main tool to analyze strategic interactions in economics. This will include the basic notions of equilibrium and refinements (Nash, subgame perfection, Bayesian equilibrium, Perfect Bayesian Equilibrium...). As we proceed, we will apply this toolbox to the study of several economic questions including firms' decisions in oligopoly markets, individual provision to a public good, bidding behavior in several auction formats, bargaining decisions in negotiations, repeated interactions, and reputations. If there is time, we are going to introduce basic ideas of cooperative game theory.

We will also point to a fundamental question in economics: is it possible to aggregate the individual preferences of a group or society to derive optimal collective decisions? This is an essential question in economics and a main concern of social choice theory. We will discuss here a very negative answer due to Arrow, as well as some more optimistic but restrictive approaches to try to overcome the pessimism of Arrow's result.

Finally, we are going to explore mechanism design theory, that deals with the question of the design of optimal institutions, given a particular set of goals, when individual information is private. The analysis in this section connects with a number of questions covered previously such as adverse selection problems, public good provision games, or auctions.

Course Outline

Strategic Interactions. Game Theory.

Normal Form and Extensive Form Games

Rationalizability and Equilibrium Concepts

Imperfect Information

Incomplete Information

Strategic Interactions. Applications.

Public Goods

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Contracts
Auctions
Bargaining
Signaling

Mechanism Design

Designing the Rules of the Game
The Adverse Selection Problem Revisited
Optimal Mechanisms. VCG Mechanisms.
Auctions and Revenue Equivalence

Social Choice

From Individual to Collective Preferences.
A Negative Result: Arrow's Theorem
Alternative Approaches

Required Activities

There will be several problem sets that students must complete.

Evaluation

30% problem sets and 70% final exam.

Materials

These textbooks can prove particularly useful:

Jehle, G. and P. Reny (2001), *Advanced Microeconomic Theory*, Addison Wesley.

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Osborne, M. (2003) *Introduction to Game Theory*, Oxford University Press

Tadelis, S. (2013) *Game Theory: An Introduction*, Princeton University Press

Vega-Redondo, F. (2003) *Economics and the Theory of Games*, Cambridge University Press.

Watson, J (2013) *Strategy*, WW Norton & Co

The following are more formal treatments:

Fudenberg, D. and J. Tirole (1991) *Game Theory*, MIT Press.

Kreps, D. (1990), *A Course in Microeconomic Theory*, Princeton University Press.

Mas-Colell, A., M. Whinston and J. Green (1995), *Microeconomic Theory*, Oxford University Press.

Myerson, R. (1991) *Game Theory: Analysis of Conflict*, Harvard University Press.

Osborne, M and A. Rubinstein (1994) *A Course in Game Theory*, MIT Press.