

12E014

6 ECTS

Advanced Microeconomics II

Professor: Antonio Penta

Overview and Objectives

This course builds on the knowledge students acquired in Advanced Microeconomics-I -- which largely focused on individual decision making -- introducing the main economic theories of interacting agents: General Equilibrium and Game Theory.

The first part of the course focuses on General Equilibrium Theory. We begin with a review of the main mathematical concepts and ideas in equilibrium theory within the context of a simple single-market economy (Cournot Model). We then introduce the proper General Equilibrium model, the standard model of the economy as a whole described as a set of competitive markets that interact with each other. We discuss conditions for existence of equilibrium, its main properties (welfare theorems), and the so called “market failures”. This part relies heavily on the consumer theory from the previous course of the micro sequence.

The second part of the course focuses on Game Theory, the modern conceptual apparatus to analyze the behavior of agents in strategic situations. The distinctive feature of a strategic situation is that the outcome of one's choice also depends on others' choices. Making an “optimal decision” therefore requires an agent to understand the behavior of others. But since this is true for all individuals, strategic reasoning typically gives rise to an infinite regress of interdependence, in which agents need to reason about others' reasoning about others' reasoning about others....and so on. Game theory provides the analytical and conceptual tools to study this kind of problems formally, and represents the core apparatus of modern economic theory. This part of the course also provides the necessary background for the Advanced Microeconomics-III course, taught in the next term.

Requirements

For Ph.D. and M.Res. students who have taken Advanced Math Brush-up(*). Exceptions to these criteria are possible, but they must be approved directly by Prof. Penta.

Course Outline

Part I (weeks 1-3): General Equilibrium

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1. Basic equilibrium theory in a single-market economy.
2. Walrasian Equilibrium: Existence and Welfare Properties.
3. Time and Uncertainty.

Part II (weeks 3-10): Game theory

1. Static Games with Complete Information (basic notions, solution concepts, applications, etc.)
2. Dynamic Games with Complete Information (basic notions, solution concepts, bargaining games, repeated games, applications, etc.)
3. Asymmetric and Incomplete Information (basic notions, solution concepts, auctions, global games, signaling, etc.)

Required activities

Students are expected to attend and participate in lectures and recitations, and solve the problem sets. Group discussions of assignments are strongly encouraged.

Evaluation

There will be problem sets to be solved by students and then discussed in recitations. That will count for 20% of the final grade, groups of up to 4 students can submit together. A final exam will account for the other 80% of the grade.

Materials

Most of the lectures will be based on Lecture Notes (LN), which will be updated throughout the course. The main textbooks of reference will be:

- Osborne, Martin J., and Ariel Rubinstein (1994, OR). A course in game theory. MIT press. (can be downloaded for free at: <http://arielrubinstein.tau.ac.il/books.html>)
- Kreps, D. (2013), Microeconomic Foundations I: Choice and Competitive Markets, Princeton University Press.
- Mas-Colell, M. Whinston and J. Green (1995, MWG), Microeconomic Theory, Oxford University Press

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Other useful references:

- Myerson, R. (1989). Game theory. Harvard university press, 1991.
- Fudenberg, D., and Tirole, J. (1991). Game theory. MIT press.
- Debreu, G. (1959), Theory of Value, Cowles Foundation Monograph 17, Yale Univ. Press