



UNIVERSITÀ  
DEGLI STUDI DI MILANO-BICOCCA

## SYLLABUS DEL CORSO

### Advanced Microeconomics

2526-2-F8204B037-F8204B038M

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#### Learning objectives

Learning area: Microeconomics

The course has a twofold objective. First, it is designed to provide students with a strong foundation in the advanced analytical tools of microeconomic theory. A particular emphasis will be placed on game theory, covering both static and dynamic settings, as well as games with complete and incomplete information. Students will be introduced to key solution concepts such as Nash equilibrium, subgame perfect equilibrium, and Bayesian equilibrium, and will develop a solid understanding of how strategic interactions unfold among rational agents in different economic contexts.

Second, the course aims to demonstrate how these theoretical tools can be effectively applied to the analysis of market structures and economic behavior. This includes the study of competition among firms (especially in oligopolistic markets), strategic pricing, auctions, and situations involving asymmetric information, such as adverse selection and moral hazard. Students will learn how to construct and analyze models that reflect real-world problems, and how to use these models to derive insights relevant to economic policy and business strategy.

By the end of the course, students will be able to apply advanced microeconomic methods to a variety of strategic and informational environments, interpret the outcomes of formal models, and critically evaluate economic behavior and market outcomes through a rigorous theoretical lens.

#### Contents

This course introduces the essential tools of non-cooperative game theory, focusing on both static and dynamic games under complete and incomplete information. Emphasis is placed on how these tools can be used to analyze real-world strategic interactions. Theoretical concepts are applied to key topics in industrial organization, such as pricing and output decisions in oligopolies, the sustainability of collusion, and strategies of product differentiation. Throughout the course, students will learn how to use game-theoretic models to interpret and predict firm behavior.

in various market environments.

## **Detailed program**

1. Market Structures and Strategic Interactions
  - a. Definitions and taxonomy of market structures: perfect competition, monopolistic competition, oligopoly, and monopoly
  - b. The role of firm conduct in determining outcomes
  - c. Welfare analysis under different market forms
  - d. Sources of monopoly power and measurement
  - e. Case studies on mergers and market concentration
2. Static Games of Complete Information
  - a. Strategic form games: definitions and examples
  - b. Applications:
    - i. Cournot competition
    - ii. Bertrand competition
3. Dynamic Games of Complete Information
  - a. Extensive form games and subgame perfection
  - b. Applications:
    - i. Stackelberg leadership models
    - ii. Entry deterrence and commitment strategies
    - iii. Empirical measures of entry deterrence and firm dominance
4. Repeated Games of Complete Information
  - a. Repeated interaction and collusion
  - b. Finitely vs. infinitely repeated games
  - c. Folk theorem and strategic punishments
  - d. Empirical tests of collusion
5. Games of Incomplete Information (Bayesian Games)
  - a. Introduction to uncertainty and types
  - b. Bayesian Nash equilibrium
  - c. Introduction to auctions, entry games, and signaling
6. Product Differentiation and Market Competition
  - a. Horizontal product differentiation (Hotelling model)
  - b. Vertical product differentiation
  - c. Welfare and firm strategy implications

## **Prerequisites**

Microeconomics M

The course is not suitable for undergraduate students enrolled in the Erasmus Program.

## Teaching methods

The course includes a total of 63 hours of teaching, which are divided into 42 hours of traditional frontal lessons and 21 hours of interactive lessons.

A portion of these lessons — not exceeding 15% of the total teaching hours — may be delivered remotely, in accordance with the academic calendar and specific scheduling for the 2025–2026 academic year.

The entire course will be conducted in English.

## Assessment methods

The final examination consists of a written test, designed to rigorously assess students' comprehensive understanding of the course content. In particular, the exam will evaluate:

- (i) Mastery of theoretical knowledge, including the ability to accurately reproduce, articulate, and critically reflect on key proofs and theoretical models presented during the course;
- (ii) Analytical competence, with a focus on the capacity to effectively apply theoretical frameworks to the resolution of exercises and practical problems;
- (iii) Economic intuition and critical reasoning, demonstrated through the ability to employ relevant models for the interpretation and analysis of real-world economic phenomena and case studies.

## Textbooks and Reading Materials

1. Church J. and R. Ware (2000), *Industrial Organization. A strategic Approach*, first edition, McGraw-Hill.  
(Available for free: [https://works.bepress.com/jeffrey\\_church/23/](https://works.bepress.com/jeffrey_church/23/))
2. Mas-Colell A., M.D. Whinston and J. Green (1995), *Microeconomic theory*, Oxford University Press.

## Semester

First Semester

## Teaching language

English

**Sustainable Development Goals**

RESPONSIBLE CONSUMPTION AND PRODUCTION

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