



## Course guide

### 240764 - 240764 - Microeconomics III

**Last modified:** 12/06/2023

**Unit in charge:** Barcelona School of Industrial Engineering  
**Teaching unit:** 1039 - UPF - Universitat Pompeu Fabra.

**Degree:** BACHELOR'S DEGREE IN INDUSTRIAL TECHNOLOGIES AND ECONOMIC ANALYSIS (Syllabus 2018).  
(Compulsory subject).

**Academic year:** 2023    **ECTS Credits:** 6.0    **Languages:** English

#### LECTURER

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**Coordinating lecturer:** Sandro Shelegia

**Others:** Sandro Shelegia

#### TEACHING METHODOLOGY

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#### LEARNING OBJECTIVES OF THE SUBJECT

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The aim of this course is to introduce students to the economics of information. I start the course with a short introduction to decision making under uncertainty. After this we switch to the main topic of the course: how economic agents make contracts when faced with uncertainty and asymmetric information. Three main topics include Incentives, Games of Incomplete Information and Adverse Selection (Screening and Signaling). In the first part, we analyze games of incomplete information. We start by introducing the concept of Bayesian Nash Equilibrium for static games of incomplete information and we analyze auctions as the main application. Second, we move to dynamic settings and we introduce the Perfect Bayesian Nash Equilibrium that is key for signaling games and for understanding the concept of reputation. In adverse selection we study the principal-agent setting and we focus on situations in which the principal does not observe the type of the agent. Typically, the principal would like to hire high types, and again needs to design a contract that achieves this goal. Signaling setting is like adverse selection, but now the agent can take a costly action to signal his type. The course concludes with study of moral hazard. In the basic model a principal and an agent interact in a setting where the principal offers a contract of compensation for a task that the agent needs to perform. The principal does not observe the agent's effort, he is interested in high effort and needs to motivate the agent by appropriately designing the contract.



## CONTENTS

### Microeconomics III

**Description:**

1. Introduction
  - Introduction to the course
2. Static Games of Incomplete Information
  - Bayesian Equilibrium Nash Equilibrium.
  - Auction theory and other applications
  - Vickrey–Clarke–Groves Mechanism
3. Dynamic Games of Incomplete Information
  - (Weak) Perfect Bayesian Nash Equilibrium
  - Signalling
  - Intuitive Criterion
4. Adverse Selection and Screening
  - Monopolistic Screening
  - Competitive Screening
  - Spence's Model of Job Market Signalling
5. Moral Hazard
  - Model with continuous effort with or without risk aversion
  - Multitasking
  - Benchmarking
  - Relational contracting

**Full-or-part-time:** 39h

Theory classes: 30h

Practical classes: 9h

## GRADING SYSTEM

Students will be assigned a number problem sets. You can submit problem sets in groups of 3, but these groups have to be permanent throughout the trimester. You will have to scan your group's problem set and upload it in Aula Global.

The final exam may consist of open-ended and multiple-choice questions. In order to pass the course, you need to obtain at least 50% in the final exam (the same applies to the resit exam, see below). If you pass this bar, then the final grade is computed in the following manner: final exam counts 60%, problem sets and quizzes count 40%. The only exception are students who have failed the course previously, who as an option can choose to not submit problem sets and get their entire grade from the final exam. They must inform their professor about this choice before the first problem set is due.

According to the regulations of UPF and this syllabus, the retake exam can be taken only if the final was taken, and a minimum grade of 15% was earned, and the course has been failed. Furthermore, according to the rules, only students who have done the activities of the continuous assessment can do the retake exam.

If you go to the resit exam, the final grade is computed exclusively from the resit exam grade. The resit exam consists entirely of multiple-choice questions.

## BIBLIOGRAPHY

**Basic:**

- Gibbons, Robert. Game theory for applied economists. Princeton: Princeton University Press, 1992. ISBN 9781400835881.

- Macho Stadler Inés ; David Pérez Castrillo. Introducción a la Economía de la Información. 2nd ed. Barcelona: Ariel, 2005. ISBN 8434445212.