

**COURSE DATA****Data Subject**

<b>Code</b>	44957
<b>Name</b>	Industrial Economics
<b>Cycle</b>	Master's degree
<b>ECTS Credits</b>	5.0
<b>Academic year</b>	2023 - 2024

**Study (s)**

<b>Degree</b>	<b>Center</b>	<b>Acad. Period</b>
2242 - M.D. in Economics	Faculty of Economics	1 First term

**Subject-matter**

<b>Degree</b>	<b>Subject-matter</b>	<b>Character</b>
2242 - M.D. in Economics	11 - Materia analítico-conceptual	Optional

**Coordination**

<b>Name</b>	<b>Department</b>
AÑON HIGON, MARÍA DOLORES	132 - Economic Structure
MONER COLONQUES, RAFAEL	10 - Economic Analysis
SEMPERE MONERRIS, JOSE JORGE	10 - Economic Analysis

**SUMMARY**

This course provides the student with a basic understanding of the building blocks of Industrial Organization models, which are the modelling tools commonly used in the modern economic analysis of markets. Specifically, the course focuses on the study of oligopoly markets, leaving some time to deal with some selected topics such as product differentiation, R&D competition and cooperation, and productivity measurement.



## PREVIOUS KNOWLEDGE

### Relationship to other subjects of the same degree

There are no specified enrollment restrictions with other subjects of the curriculum.

### Other requirements

Good knowledge of Mathematics and, in particular, of Game Theory is recommended

## OUTCOMES

### 2242 - M.D. in Economics

- Students should apply acquired knowledge to solve problems in unfamiliar contexts within their field of study, including multidisciplinary scenarios.
- Students should be able to integrate knowledge and address the complexity of making informed judgments based on incomplete or limited information, including reflections on the social and ethical responsibilities associated with the application of their knowledge and judgments.
- Students should communicate conclusions and underlying knowledge clearly and unambiguously to both specialized and non-specialized audiences.
- Students should demonstrate self-directed learning skills for continued academic growth.
- Students should possess and understand foundational knowledge that enables original thinking and research in the field.
- Develop time management skills for learning: skills for organisation, planning and decision making in the process of learning advanced economics.
- Develop a critical capacity, show a research concern and interest in the field of economy, specialise in the use of bibliographical materials, in the use of economic databases and econometric, mathematical and statistical software. Also, learn to adequately disseminate research findings through scientific articles and presentations in congresses.
- Gain the capacities of abstraction and logical reasoning that are essential for the creation of economic models: ability to express oneself using formal, graphic and symbolic languages, to apply analytical and mathematical methods to economics, and to relate and manipulate concepts according to a purpose.
- Know how to promote, in academic and professional contexts, technological, social or cultural progress in a knowledge-based society that is founded on the respect for: (a) fundamental rights and the principles of equal opportunities for men and women, which involves using an inclusive and egalitarian language that promotes the visibility of women; (b) the principles of equal opportunities and universal accessibility for people with disabilities, and (c) the distinctive values of a culture of peace and democratic values.



- Know how to identify the relevant market and the competition model that is best suited to the strategic behaviour of the agents in the market.
- Know how to analyse the models of imperfect competition in the markets, both under certainty and under imperfect and incomplete information.

## LEARNING OUTCOMES

- To be familiar with Industrial Organization Theory that allows the student to understand more sophisticated models, as well as the implications of public policies.
- Being able to show the acquired knowledge and abilities in exams.

## DESCRIPTION OF CONTENTS

### 1. Introduction

- 1.1 Markets and Strategies
- 1.2 Market power and welfare
- 1.3 Tools

BP 1, 2, 3  
Cabral 2, 3, 9  
CW 1, 2, 15

### 2. Monopoly

- 2.1 Monopolist equilibrium and welfare loss
- 2.2 Price discrimination

BP 2, 8  
Cabral 5, 10  
CW 4, 5  
Tirole 1, 3

### 3. Basic models in oligopoly

- 3.1 Bertrand
- 3.2 Cournot
- 3.3 Repeated interaction
- 3.4 Sequential choice
- 3.5 Entry deterrence

BP 3, 4, 16  
Cabral 7, 8, 15



CW 8, 10, 13, 14

Tirole 5, 6, 8

#### **4. Product differentiation and the strategic value of commitment**

4.1 The representative consumer approach

4.2 The address approach

4.3 The Mussa-Rosen Model

4.4 Strategic complements and substitutes and strategic commitments in: International markets, R&D investments and Managerial incentives

BP 3, 5, 16

Cabral 12, 13

CW 11, 15, 16

Tirole 7, 8

#### **5. Production functions I**

5.1. Introduction

5.2. Unobserved efficiency, simultaneity and selection

5.3. Traditional approaches to estimation: fixed effects and IV models

5.4. The Blundell and Bond model

Aguirregabiria, V. (2021). Empirical Industrial Organization: Models, Methods, and Applications. Chapter 3. [http://aguirregabiria.net/wpapers/book\\_dynamic\\_io.pdf](http://aguirregabiria.net/wpapers/book_dynamic_io.pdf)

Blundell, R. and S. Bond, (2000). GMM estimation with persistent panel data: an application to production functions. *Econometric Reviews*, 19, 321-340

De Loecker, J. and C. Syverson (2021). Chapter 3 An industrial organization perspective on productivity. In *Handbook of Industrial Organization*, vol. 4, edited by K. Ho, A. Hortaçsu, and A. Lizzeri. Elsevier, 141223. <https://www.sciencedirect.com/science/article/pii/S1573448X21000030>.

#### **6. Production functions II**

6.1 The structural approach: Olley and Pakes; Levinsohn and Petrin

6.2 Wooldridge estimation method

6.3 Akerberg, Caves, Frazer approach

6.4 Endogenizing the law of motion of productivity

Akerberg, D. A., K. Caves, and G. Frazer (2015). Identification Properties of Recent Production Function Estimators. *Econometrica*, 83(6):24112451.

De Loecker, J. (2013). Detecting learning by exporting. *American Economic Journal: Microeconomics*, 5(3):121.



Doraszelski, U. and J. Jaumandreu (2013). R&D and productivity: Estimating endogenous productivity. *Review of Economic Studies*, 80(4):13381383.

Gandhi, A., S. Navarro, and D. Rivers (2020). On the Identification of Gross Output Production Functions. *Journal of Political Economy*, 128(8):29733016.

Levinsohn, J. and A. Petrin (2003). Estimating Production Functions Using Inputs to Control for Unobservables. *Review of Economic Studies*, 70:317341.

Olley, G. S. and A. Pakes (1996). The Dynamics of Productivity in the Telecommunications Industry. *Econometrica*, 64(6):12631297.

Wooldridge, J. M. (2009). On estimating firm-level production functions using proxy variables to control for unobservables. *Economics letters*, 104(3):112114.

## **7. The economics of R&D**

- 7.1. Introduction
- 7.2. Innovation and R&D
- 7.3. Private returns to R&D
- 7.4. Measuring R&D spillovers and channels of knowledge transmission
- 7.5. Policy Implications

Bloom, N, M. Schankerman & J. van Reenen (2013), Identifying Technology Spillovers and Product Market Rivalry, *Econometrica*, 81(4), pp. 1347-1393.

Griliches, Z. (1992). The Search for R&D Spillovers, *Scandinavian Journal of Economics*, 94, pp. 29-47.

Hall B.H., J. Mairesse and P. Mohnen (2010). Measuring the Returns to R&D, in B. H. Halland and N. Rosenberg (Eds.), *Handbook of the Economics of Innovation Vol-II*, Burlington: Academic Press, 1033-1082. <https://www.nber.org/papers/w15622.pdf>

Mohnen, P. (2019). R&D, innovation and productivity, in *The Palgrave Handbook of Economic Performance Analysis*. Palgrave Macmillan, Cham., 97-122. [https://link.springer.com/chapter/10.1007/978-3-030-23727-1\\_4](https://link.springer.com/chapter/10.1007/978-3-030-23727-1_4)

## **8. The economics of digitalization**

- 8.1. How does digital technology change economic activity?
- 8.2. Digital technologies and productivity
- 8.3. Digital technologies and trade
- 8.4. Digital technologies and labor demand.

Añón Higón, D. and D. Bonvin (2022). Information and communication technologies and firms export performance. *Industrial and Corporate Change*. <https://doi.org/10.1093/icc/dtac017>





Añón Higón, D. and D. Bonvin (2023). Digitalization and trade participation of SMEs. Small Business Economics. <https://doi.org/10.1007/s11187-023-00799-7>.

Cardona, M., Kretschmer, T., and Strobel, T. (2013), ICT and productivity: conclusions from the empirical literature. Information Economics and Policy, 25(3): 109-125.

Goldfarb, A. and C. Tucker (2019). Digital economics. Journal of Economic Literature, 57(1): 3-43.

Kneller, R. and J. Timmis (2016). ICT and Exporting: The Effects of Broadband on the Extensive Margin of Business Service Exports. Review of International Economics, 24(4): 757-796.

Koch, M., I. Manuylov and M. Smolka (2021). Robots and firms. The Economic Journal, 131(638), 2553-2584.

## WORKLOAD

ACTIVITY	Hours	% To be attended
Theory classes	40,00	100
Classroom practices	10,00	100
Preparation of evaluation activities	60,00	0
Preparation of practical classes and problem	15,00	0
<b>TOTAL</b>	<b>125,00</b>	

## TEACHING METHODOLOGY

Students are expected to attend all lectures and practical sessions. Additionally, students must devote a considerable amount of time to personal study, as well as to working out the problem sets that will be distributed. Solutions to the problem sets as well as some extensions will be discussed. In some lectures an IO article will be assigned to students, who will have to prepare a short presentation summarizing the article and explaining the main ideas.

## EVALUATION

### Grading:

Problem sets: 20%

Presentation: 10%

Final exam: 70%



It is required to pass the final exam in order to pass the subject

## REFERENCES

### Basic

- (BP) Belleflamme, P. and M. Peitz. 2010. Industrial Organization: Markets and Cambridge University Press, UK. See also 2nd Edition, 2015.
- (Cabral) Cabral, L. 2000. Introduction to Industrial Organization. The MIT Press.
- (CW) Church, J. and R. Ware. 2000. Industrial Organization. A Strategic Approach. Irwin McGraw-Hill"
- (Tirole) Tirole, J. 1988. The Theory of Industrial Organization. The MIT Press.