

**Information Economics**

Code: 102339  
ECTS Credits: 6

Degree	Type	Year	Semester
2501572 Business Administration and Management	OT	4	0
2501573 Economics	OT	4	0

**Contact**

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**Use of languages**

Principal working language: spanish (spa)  
Some groups entirely in English: Yes  
Some groups entirely in Catalan: No  
Some groups entirely in Spanish: Yes

**Prerequisites**

Although not mandatory, it is advisable to have a good level of mathematics and microeconomics, as we will use tools of these disciplines.

**Objectives and Contextualisation**

To acquire the basic tools of the Economics of Information, a discipline that allows studying the effects that the existence of asymmetric information has on the terms of contracts.

To present the models of moral hazard, adverse selection and signaling, to explain the terms of the contracts in different situations, in particular depending on who has more information and how this agent may try to capitalize on it.

To develop tools of economic analysis as well as economic intuitions to understand the design of contracts and regulatory mechanisms.

**Skills**

**Business Administration and Management**

- Capacity for adapting to changing environments.
- Capacity for independent learning in the future, gaining more profound knowledge of previous areas or learning new topics.
- Capacity for oral and written communication in Catalan, Spanish and English, which enables synthesis and oral and written presentation of the work carried out.
- Demonstrate initiative and work individually when the situation requires it.
- Organise the work in terms of good time management, organisation and planning.
- Select and generate the information necessary for each problem, analyse it and take decisions based on that information.
- Show motivation for carrying out quality work and sensitivity to the consequences for the environment and society.
- Work well in a team, being able to argue proposals and validate or reject the arguments of others in a reasoned manner.

## **Economics**

- Analyse situation in which there is unequal information between the two sides involved.
- Capacity for adapting to changing environments.
- Demonstrate initiative and work individually when the situation requires it.
- Formulate recommendations of economic policy that improve efficiency and equity in market operations.
- Identify the processes that govern the operation of markets in different competition systems, different scenarios of interrelationship and different timescales.
- Organise the work in terms of good time management, organisation and planning.
- Select and generate the information necessary for each problem, analyse it and take decisions based on that information.
- Take decisions in situations of uncertainty, demonstrating an entrepreneurial and innovative attitude.

## **Learning outcomes**

1. A capacity of oral and written communication in Catalan, Spanish and English, which allows them to summarise and present the work conducted both orally and in writing.
2. Analyse the operating conditions of markets and other forms of social interaction.
3. Capacity to adapt to changing environments.
4. Capacity to continue future learning independently, acquiring further knowledge and exploring new areas of knowledge.
5. Consider formal models which can be used to study situations with information asymmetry between the parts.
6. Demonstrate initiative and work independently when required.
7. Demonstrate motivation regarding the quality of the work performed and sensitivity regarding the consequences on the environment and society.
8. Identify the basic elements that characterise the organisation of a market.
9. Identify the conditions and processes that generate externalities as well as the problems posed by public goods.
10. Identify the consequences of the existence of information asymmetry among different economic agents on the way in which these organise themselves and on the efficiency of the relationship they establish.
11. Make decisions in situations of uncertainty and show an enterprising and innovative spirit.
12. Organise work, in terms of good time management and organisation and planning.
13. Propose the optimum design of the institutions regulating the markets and of its equipment.
14. Select and generate the information needed for each problem, analyse it and make decisions based on this information.
15. Solve the models formulated to obtain empirically stable predictions.
16. Use basic optimisation tools and the game theory, and include these elements in a theoretical model.
17. Work as part of a team and be able to argue own proposals and validate or refuse the arguments of others in a reasonable manner.

## **Content**

### **1. INTRODUCTION**

1.a. Introduction

1.b. Elements of the problem

1.c. Timing of the relationship

1.d. Typology of asymmetric information problems

\* Moral Hazard

\* Adverse Selection

\* Signaling

## **2. CONCEPTS THAT WILL USE**

(REVIEW AND/OR EXPOSITION FOR OUR COURSE PURPOSES)

- 2.a. Expected utility and expected value
- 2.b. Sequential Equilibrium (sub-game perfection)
- 2.c. Maximization methods

## **3. THE BASIC MODEL**

- 3.a. introduction
- 3.b. Model description
- 3.c. The symmetric information contracts
- \* The optimal payment mechanism
- \* The level of effort training

## **4. THE MORAL HAZARD PROBLEM**

- 4.a. Introduction
- 4.b. The two efforts case
- 4.c. Consequences for the contract of the presence of moral hazard
- 4.d. Extensions

Exercises, applications and examples

## **5. ADVERSE SELECTION PROBLEM**

- 5.a. Introduction
- 5.b. Case of two types
- 5.c. Consequences for the contract of the existence of adverse selection

Exercises, applications and examples

## **6. SIGNALLING**

- 6.a. Introduction
- 6.b. The value of private information and signaling
- 6.c. The informative power of contracts

Exercises, applications and examples

## **Methodology**

The course combines theoretical and applied classes. The first will be devoted to the presentation of models of contracts under asymmetric information and the resolution of these models to obtain general conclusions applicable to the study of specific problems. The second type of sessions will be devoted to analyze examples and discuss the application to different real problems of the theoretical conclusions and their implications. In these sessions, students must participate in solving exercises and discussing the proposed topics.

## Activities

Title	Hours	ECTS	Learning outcomes
<b>Type: Directed</b>			
Lectures with ICT support. Discussion and exercises. Presentation of applications to specific cases.	45	1.8	2, 3, 4, 8, 9, 10, 12, 5, 13, 15, 14, 16
<b>Type: Supervised</b>			
Mentoring and monitoring the work done.	12.5	0.5	3, 1, 4, 6, 10, 7, 12, 5, 11, 15, 14, 17, 16
<b>Type: Autonomous</b>			
Studying. Further reading. Search documentation. Preparation of exercises and applications..	85	3.4	2, 3, 1, 4, 6, 8, 9, 10, 7, 12, 5, 11, 13, 15, 14, 17, 16

## Evaluation

The evaluation will consist of class participation, a midterm exam and a final exam. Class participation includes answering the lists of exercises and participating in the discussion topics. The weight of each of the above items in the calculation of the final grade is as follows: Final exam 60%, 30% the midterm exam, 10% for participation, exercises and other work.

### Evaluation procedure

Students who obtain in the evaluation a mark equal to or greater than 4 but less than 5 are entitled to a reevaluation. This reevaluation will take the form of an exam, and will be scheduled in the calendar of exams. In this reevaluation if the student passes the exam, she/he will have a final grade a 5 in the course. Otherwise she/he will keep the previous note.

A student is considered "not evaluable" to the course if she/he as not participated in any of the evaluation activities. Therefore, if a student has participated in one of the assessment components will not be eligible for the rating "not evaluable".

The evaluation will consist of class participation, a midterm exam (of maximum duration of 90 minutes) and a final exam (of maximum duration 3 hours). Class participation includes answering the lists of exercises and participating in the discussion topics. The weight of each of the above items in the calculation of the final grade is as follows: Final exam 60%, 30% the midterm exam, 10% for participation, exercises and other work.

Students who obtain in the evaluation a mark equal to or greater than 4 but less than 5 are entitled to a reevaluation. This reevaluation will take the form of an exam, and will be scheduled in the calendar of exams. In this reevaluation if the student passes the exam, she/he will have a final grade a 5 in the course. Otherwise she/he will keep the previous note.

A student is considered "not evaluated" to the course if she/he as not participated in any of the evaluation activities. Therefore, if a student has participated in one of the assessment components will not be eligible for the rating "not evaluated".

### Honor code:

Without prejudice to other disciplinary action that would be considered appropriate and in accordance with current academic regulations, any irregularities committed by the student that could lead to a change in the rating of an act of evaluation will qualify with a zero. Therefore, to copy or allow copying a problem set or any

other evaluation activity will involve to fail it with a mark equal to zero, and if this would be need to pass the whole subject then the course will considered no pass.

## Evaluation activities

Title	Weighting	Hours	ECTS	Learning outcomes
Exercises, participation in class and discussion of topics.	10%	1.5	0.06	2, 3, 1, 4, 6, 8, 9, 10, 7, 12, 5, 11, 13, 15, 14, 17, 16
Final exam.	60%	3	0.12	2, 3, 1, 4, 6, 8, 9, 10, 7, 12, 5, 11, 13, 15, 14, 17, 16
Midterm exams.	30%	3	0.12	2, 3, 1, 4, 6, 8, 9, 10, 7, 12, 5, 11, 13, 15, 14, 17, 16

## Bibliography

### Basic References:

MACHO STADLER, Ines and David PEREZ CASTRILLO: Introduction to Economics of Information, Oxford University Press.

In addition be recommended readings in class to complete the basic bibliography. This material and other material such as lists of exercises will be incorporated into the "Campus Virtual".