# Competition and decision making

**Academic Year: ( 2020 / 2021 )** **Review date: 16-04-2018**

**Department assigned to the subject: Economics Department**

**Coordinating teacher: MORALES AGUILAR, MARIA JOSE**

**Type: Compulsory ECTS Credits : 6.0**

**Year : 2 Semester : 1**

## OBJECTIVES

- Tools for decision making with perfect, partial and imperfect information: decision trees, the value of information, Bayes rule

- Tools for decision making in strategic environments: static and dynamic game theory

- Theory of the firm: notions of marginal and average costs, marginal and average productivity

- Analysis of competitive and monopolistic markets

- Analysis of oligopolistic markets: Cournot, Bertrand, Stackelberg, entry and exit

## DESCRIPTION OF CONTENTS: PROGRAMME

THEME 1: "Consumer Theory: Preferences and demand functions"
1.1 Preferences
1.2 Utility functions: meaning and representation
1.3 Demand functions

THEME 2: "Decision Theory (I): Representation and decision methods"
2.1 Decision making
2.2 Graphical representation of decision making
2.3 Matrix representation of decision making
2.4 Decision methods

THEME 3: "Decision Theory (II): Attitude towards risk and the value of the perfect information"
3.1 Certainty Equivalent and Risk Premium
3.2 Attitude towards risk
3.3 The value of perfect information (1 and 2 variables)
3.4 The value of partial information

THEME 4: "Theory of the decision (III): The Value of the imperfect information"
4.1 Conditional Probability and Bayes theorem
4.2 The value of imperfect information

THEME 5: "Theory of the firm (I): Production"
5.1 Production function: returns
5.2 Marginal productivity and average productivity

THEME 6: "Theory of the firm (II): costs and offer"
6.1 Cost functions
6.2 Supply function

THEME 7: "Competitive markets and monopolistic markets"
7.1 Perfect competition
7.2 Monopoly

THEME 8: "Game theory (I): static games ¿ strategies"
8.1 Elements of a game
8.2 Representation of a game
8.3 Strategies

THEME 9: "Game theory (II): static games ¿ Nash equilibrium"
9.1 Nash Equilibrium in pure strategies
9.2 Nash Equilibrium in mixed strategies

THEME 10: "Game theory (III): dynamic games"
10.1 Representation
10.2 Subgame perfect equilibrium
10.3 Bayesian equilibrium

THEME 11: "Oligopolistic competence"
11.1 Cournot
11.2 Stackelberg
11.3 Bertrand

THEME 12: "Collusion"
12.1 Collusive equilibrium
12.2 Incentives to break agreements

THEME 13: "Strategic behavior: entry and exit"

## LEARNING ACTIVITIES AND METHODOLOGY

The course will be taught through lectures, in which the main concepts will be discussed, and practice classes, in which exercises will be solved. The students will also be required to do some research on practical cases. These cases will be taken from the recent news and will allow the students to apply the toldos they have learned in classes. In addition, the students will have to solve exercises on their own.

## ASSESSMENT SYSTEM

The grading will be based on continuous evaluation (40%) and on a final exam (60%). The former will take place through 3 midterm exams based on the material studied in previous classes. The above grading will be in accordance with current legislation.

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| **% end-of-term-examination:** | 60 |
| **% of continuous assessment (assigments, laboratory, practicals…):** | 40 |

## BASIC BIBLIOGRAPHY

- Juan Carlos Aguado Franco Teoria de la Decision y de los Juegos, Delta Publicaciones, 2007

## ADDITIONAL BIBLIOGRAPHY

- Robert S. Pindyck and Daniel L. Rubinfeld Micreconomia, Pearson Prentice Hall, 2009