

27435 - Decisions and Games

Syllabus Information

Academic Year: 2019/20

Subject: 27435 - Decisions and Games

Faculty / School: 109 - Facultad de Economía y Empresa

Degree: 417 - Degree in Economics

ECTS: 6.0

Year: 3

Semester: Second semester

Subject Type: Optional

Module: ---

1.General information

1.1.Aims of the course

1.2.Context and importance of this course in the degree

1.3.Recommendations to take this course

2.Learning goals

2.1.Competences

2.2.Learning goals

2.3.Importance of learning goals

3.Assessment (1st and 2nd call)

3.1.Assessment tasks (description of tasks, marking system and assessment criteria)

4.Methodology, learning tasks, syllabus and resources

4.1.Methodological overview

The learning process of the course is based on the following items:

- 1 Lectures and interactive regular school class.
- 2 Active learning which involves reading, writing, discussion, and engagement in solving problems, analysis, synthesis, and evaluation. The teacher also favors any cooperative learning.
- 3 Weekly tutorial activities.

4.2.Learning tasks

The following activities help students to achieve the expected results and to pass the course:

- 1 Presentation and discussion of a significant collection of problems and exercises.
- 2 Defense of a report or theme and the elaboration of a detailed notebook (class notes) about the topics covered in the course.
- 3 Global final exam for those students who do not carry out the two previous requirements.

4.3.Syllabus

1. Basic elements of the game theory

- 1.1. What is a game? Historical notes and examples.
- 1.2. Utility theory.
- 1.3. Von Neumann-Morgenstern expected utility.
- 1.4. Attitudes toward Risk.

2.- Noncooperative and static games with complete information

- 2.1. Introduction.
- 2.2. Decision criteria: Prudent strategy, Nash equilibrium or best response strategy, Dominance and Pareto optimal outcome.
- 2.3. Finite two-person games with mixed strategies. The minimax theorem.
- 2.4. Applications.

3. Sequential or dynamic games with complete information

- 3.1. Introduction.
- 3.2. Subgame perfection.
- 3.3. Solution by backward induction. Credible treats and promises.
- 3.4. Repeated games.
- 3.5. Subgame perfect equilibrium in repeated games.
- 3.6. Repetition and bounded rationality.
- 3.7. Applications.

4. Games with incomplete information

- 4.1. Introduction.
- 4.2. Static Bayesian games. Harsanyi's framework.
- 4.3. Applications.

5. Bargaining Games

- 5.1. Introduction.
- 5.2. Criteria of rationality and Nash bargaining solutions.
- 5.3. Kalai-Smorodinsky solutions.
- 5.4. Sequential bargaining with perfect information.

6. Cooperative games

- 6.1. Introduction to cooperative games.
- 6.2. Imputations.
- 6.3. Core of an economic game.
- 6.4. Nucleolus of the game.
- 6.5. The Shapley value

4.4.Course planning and calendar

The timing schedule for lectures and regular school classes is established by the Faculty of Economics and Business. It usually is published in May or June.

Tutorial calendar will be announced at starting academic year in October

The course starts in the second half of February and ends in late May, with an approximate duration of 15 weeks. The contents will be a temporary development similar to the order shown in the program. Each topic will take approximately 2weeks.

4.5.Bibliography and recommended resources

Basic references

- Aguado Franco, Juan Carlos. Teoría de la decisión y de los juegos / Juan Carlos Aguado Franco Las Rozas (Madrid) : Delta Publicaciones, D.L. 2006
- Gardner, Roy. Juegos para empresarios y economistas / Roy Gardner ; traducción de Paloma Calvo y Xavier Vilà . - [1ª ed., reimp.] Barcelona : Antoni Bosch, D.L. 2009
- Pérez Navarro, Joaquín : Teoría de juegos / Joaquín Pérez Navarro, José Luis Jimeno Pastor, Emilio Cerdá Tena . - 2ª ed. Madrid : Ibergarceta, D.L. 2013

Additional references

Binmore, K.G.. La teoría de juegos : una breve introducción / Ken Binmore ; [traducción de Pepe Ventura López] . 2ª ed. Madrid : Alianza, 2011

Dixit, Avinash K.. Pensar estratégicamente : un arma decisiva en los negocios, la política y la vida diaria / Avinash K.Dixit y Barry J.Nalebuff ; traducción de Ana Varela y Alicia Valls Barcelona : Antoni Bosch, 1992

Friedman, James W.. Teoría de juegos con aplicaciones a la economía / James W. Friedman ; versión española de Manuel Pascual Morales Madrid : Alianza Editorial, D.L.1991

Girón Gonzalez-Torre, Francisco Javier. Teoría de juegos / preparada por Francisco Javier Girón González-Torre . - 2a. ed., 2a. reimp. Madrid : Universidad Nacional de Educación a Distancia, 2001

Luce, R.Duncan. Games and decisions : introduction and critical survey / R. Duncan Luce, and Howard Raiffa New York [etc.] : John Wiley & Sons, cop. 1957

Moulin, Hervé. Game theory for the social sciences / Hervé Moulin . - 2nd. ed. revised New York : New York University Pres, 1986

Vega Redondo, Fernando. Economía y juegos / Fernando Vega Redondo Barcelona : Antoni Bosch, D.L.2000