Game Theory

Academic Year: (2023 / 2024) **Review date: 28-03-2022**

Department assigned to the subject: Social Sciences Department

Coordinating teacher: DOMENECH FELIU, JORDI

Type: Compulsory ECTS Credits : 5.0

Year : 1 Semester : 2

OBJECTIVES

Core Competences

Possess and understand knowledge that provides a basis or opportunity to be original in the development and/or application of ideas, often in a research context.
Students know how to apply their acquired knowledge and problem-solving skills in new or unfamiliar settings within broader (or multidisciplinary) contexts related to their field of study.
Students are able to integrate knowledge and face the complexity of making judgments based on incomplete or limited information that includes reflections on the social and ethical responsibilities linked to the application of their knowledge and judgments.
Students know how to communicate their conclusions and the knowledge and the reasons behind them to both specialised and non-specialised audiences in a clear and unambiguous way.
Students possess the learning skills that will enable them to continue studying in a way that will be largely self-directed or autonomous.

General Competences

To understand analytical tools from economics and political science.
To understand and know how to synthesize the main theories into one or more contemporary debates in the social sciences.
To develop a scientific argument with clarity and precision.

Specific Competencies

Apply formal models in the study of strategic decisions, negotiation and delegation processes and collective action phenomena.

Learning outcomes

1. Ability to calculate normal game equilibriums.
2. Ability to calculate game equilibriums extensively.
3. Ability to calculate the equilibriums of repeated games.
4. Ability to model situations of incomplete information.
5. Knowledge of the main negotiation models.
6. Knowledge of Nash equilibrium refinements.
7. Ability to analyze the problems of multiplicity of equilibriums.
8. Ability to formulate game theory models applied to strategic problems in the social sciences.

DESCRIPTION OF CONTENTS: PROGRAMME

Static Games. Normal Form. Solution Concepts.
Mixed Strategies. Continuous Variables
Introduction to Dynamic Games. Continuous Variables
Dynamic Games with imperfect information
Credibility and Strategic Commitment
Bargaining
Finitely Repeated Games
Infinitely Repeated Games
Bayesian Games
Other topics

LEARNING ACTIVITIES AND METHODOLOGY

TRAINING ACTIVITIES

Theoretical class
Practical classes
Tutorials
Individual student work

TEACHING METHODS

Presentations in the professor's lecture room with computer and audiovisual support, in which the main concepts of the subject are developed and a bibliography is provided to complement the students' learning.
Critical reading of texts recommended by the subject professor:
Press articles, reports, manuals and/or academic articles, either for later discussion in class, or to expand and consolidate knowledge of the subject.
Resolution of practical cases, problems, etc. raised by the professor, either individually or in a group.
Presentation and discussion in class, under the moderation of the professor, of topics related to the content of the subject, as well as practical case studies.
Developing pieces of work and reports, individually or in group.

ASSESSMENT SYSTEM

Weekly exercises: 30 %.
Partial examination: 30%
Final exam: 40%.

BASIC BIBLIOGRAPHY

- Gibbons, R Game Theory for Applied Economists, Princeton University Press, 1992
- McCarty, Nolan; Meirowitz, Adam Political Game Theory: An Introduction, Cambridge University Press, 2007
- Morrow, James D. Gme theory for political scientists, Princeton University Press, 1994

ADDITIONAL BIBLIOGRAPHY

- Dixit, A., Skeath, S; Reiley, DH Games of strategy, WW Norton, 2010
- Dixit, A.; B. Nalebuff The Art of Strategy, WW Norton, 2010
- Fudenberg, D.; J. Tirole Game theory, MIT Press, 1991
- Myerson, R. Game theory, Harvard University Press, 1997
- Osborne, M. An Introduction to Game Theory, Oxford University Press, 2003
- Osborne, M.; Rubinstein, A. A course in game theory, MIT Press, 1994