

GAMES THEORY: MARKET BEHAVIOUR

COURSE: THIRD

SEMESTER: FIRST

TIPO ASIGNATURA: MANDATORY

CREDITS: 3

LANGUAGE: ENGLISH

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OBJECTIVES:

Companies (managers, individuals) often make decisions that affect the well-being of others. In turn, our payoff (compensation, well-being) is often affected by the choices made by others. In simpler terms, people often operate in situations of strategic interaction. Game Theory is the discipline that studies strategic interaction. We will present the concepts required to analyze different forms of strategic interaction.

COMPETENCES:

GENERAL:

G1 - Observing with global vision, planning, organizing and managing activities in the enterprise and business world.

G2 - Acting in a proactive way, generating ideas and proposals and implementing initiatives and changes in the heart of the organization, as well as showing willingness to geographic mobility.

G3 - Develop the ability to empathize, adapt, work and lead international and multicultural groups, interdisciplinary, competitive, changing and complex and understand and apply the concept of network.

G5 - Developing a high communicative capacity in English, orally and written.

G6 - Find and explore new information resources and apply quantitative criteria and qualitative aspects in decision making.

BASIC:

CB2 – That the students know how to apply their knowledge of work or vocation in a professional way and possess the skills that are usually demonstrated through the elaboration and defense of arguments and problem solving within their area of study.

CB3 – That students have the ability to gather and interpret relevant data (usually within their area of study) to make judgments that include a reflection on erratic social, scientific or ethical issues.

CB4 - Capacity of transmitting information, ideas, problems and solutions to a specialized or not specialized public.

TRANSVERSAL:

T1 – To act with a critical spirit and reflection before the knowledge in all its dimensions, showing intellectual, cultural and scientific restlessness and commitment to the rigor and quality in the professional requirement.

T2 – To project the values of entrepreneurship and innovation in the exercise of the academic and professional personal trajectory, through the contact with different realities of the practice and with motivation towards the professional development.

T3 - Interacting in global and international contexts to identify necessities and new realities that allow the transfer of knowledge to actual or emergent professional development context, with capacity to adapt and self-manage professional and investigational processes.

T7 - Getting to be the principal actor of the formative process itself in views of personal and professional improvement, as well as acquisition of integral formation allowing them to learn and coexist in a context of language diversity, with social, cultural and economic different realities.

SPECIFIC:

E1 - Analyzing an international business organization based on the economic principles that allow the identification of the key factors in the results.

E3 – Understand the main legal implications of business activity, especially in relation to the processes of businesses internationalization and understand and use the main legal schemes that regulate trade relations worldwide.

E4 - Knowing the principal sources of economic statistic and business information, national and internationally; analyzing and using it in decision-making processes in international business.

E5 - Knowledge of the cultural, social, geopolitical and legislative context of different economies in the world as the foundations to international business development.

E8 – Identify the economic, cultural, political, legal, demographic and technological environments that can represent opportunities and threats for the development of the activity in international business.

E11 – Locate, understand and value existing information in the international environment in order to define target markets, according to the type of company and product.

LEARNING OUTCOMES:

R1- Understands and applies the key aspects of the processes of strategic direction.

R2- Performs strategic diagnosis through analytical technique, identifying and evaluating critically external and internal information to organizations.

R3- Analyzes and assesses critical variables which allow for the establishment of a strategy that would lead to the positioning and/or consolidation of the company in the international market

R4- Understands and sets out the implications of decisions and strategies of the company on other actors (stakeholders) or on the environment.

R8- Solves problems and situations of professional performance with innovative and entrepreneurial attitudes.

R10- Exposes and adequately communicated to all kinds of audiences the different ways of doing business in different international markets.

CONTENT:

- I. **Lesson 1.** Games: key concepts. Types of games. Representation of games. Decision criteria (attitudes to risk). Expected utility.
- II. **Lesson 2.** Static games with complete information. Clark-Groves auctions. Clark-Groves mechanism. Nash's equilibrium. Oligopolistic applications of Nash's equilibrium
- III. **Lesson 3.** Dynamic games with complete and perfect information. Nash's equilibrium in sub-games. Backwards induction. Dynamic games with complete but imperfect information. Generalized backwards induction. Applications.

EVALUATION SYSTEM:

We meet once a week for two hours. There are weekly exercises, one final exam, and three cases that we discuss in class, and the conclusions are presented both in the form of a written document and in an oral presentation.

The final exam includes exercises and short theoretical questions of the three lessons.

The exam is worth 40% of the grade.

Every activity not delivered is a zero, and there is no possibility to deliver it after deadline, as all solutions to the exercises will be posted on the virtual campus. Weekly exercises are worth 20% of the grade.

Three cases are presented and discussed in class, articles about an application of game theory and the concepts seen in class is read, and the students work on the cases in groups of 4. The conclusions on each of the cases are presented in a written document. The average of the grade for the three reports is worth 20% of the grade. The groups will also present their conclusions orally in the discussion session, and the oral presentation will be worth 20% of the grade.

In addition, the teacher will take into consideration the evolution, progress, proactivity, effort and development of the continuous evaluation; besides taking into account the assistance and active participation. An outstanding consideration will be given to the contributions made by the students.

Evaluation system	PROPORTION
Oral presentation cases	20
Written conclusions cases	20
Activities	20
Exams	40

METHODOLOGY:

Although this is an introductory course on game theory, it will cover a substantial amount of the methods and topics in the field. To follow the course therefore will require careful and deep understanding of the subtle ideas introduced in class.

It is important to attend to the classes and spend many hours per week in personal study.

BIBLIOGRAPHY:

Essential

Bierman, H.S, Fernández, L. (1998). Game Theory with Economic Applications. Segunda Edición. Reading, Massachusetts, Addison-Wesley.

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- Eichberger, J. (1993). Game Theory for Economists. San Diego, California, Academic Press.
- Gintis, H. (2000). Game Theory Evolving. Princeton, New Jersey, Princeton University Press.
- Krishna, V. (2002). Auction Theory. San Diego, California, Academic Press.
- Moulin, H. (2003). Fair Division and Collective welfare. Cambridge, Massachusetts, MIT Press.
- Ritzberger, K. (2002). Foundations of Non-Cooperative Game Theory. Oxford, Oxford University Press.