Universidad Europea
LAUREATE INTERNATIONAL UNIVERSITIES

Course Syllabus

Name of course/module: GAME THEORY

Year: 2018/2019
Code: P954001201
Coordinating professor: Bruno Broseta Dupré, PhD
Degree program: Global Bachelor´s Degree
School: Social Sciences
Languages: English

The mission of Universidad Europea is to offer its students a holistic education, helping them become leaders and professionals capable of responding effectively to the needs of today's global world, adding value within their career fields, and contributing to social advancement through their entrepreneurial spirit and ethical integrity. We also strive to create and transfer knowledge through applied research, thus making our own contribution to progress and putting ourselves at the forefront of intellectual, scientific, and technological development.

Contents

1. Basic information on the course/module 4
2. Presentation of the course/module 4
3. Competencies and learning outcomes 4
4. Monitoring and assessment 7
4.1. First exam period 8
4.2. Second exam period 8
5. Bibliography 9
6. How to communicate with your professor 9
7. Study recommendations 9
Annexes with detailed information on the *Campus Virtual* ..... **¡Error! Marcador no definido.**

1. Basic information on the course/module

ECTS	6
Credit type	Mandatory
Language	English
Delivery mode	Presential
Trimester/Semester	2nd Semester

2. Presentation of the course/module

Game Theory studies simplified models of Strategic interactions in which the optimal decision for an agent depends not only on his/her actions but also of those chosen by other agents. As a result, choosing your best strategy depends on what you think others will do, which in turn depends on what others think that you will do, etc… The Nash equilibrium –and some similar concepts- is the main tool by which we solve this problem and make predictions. Game Theory covers many different situations, representing both conflict and cooperation environments, as for example in industrial organization and business competition, bargaining, auctions or strategic information management.

This is an introductory course in which we will analyze different equilibrium concepts for different environments – normal and extensive form games- and information conditions – complete and incomplete information- and we will study practical applications of Game Theory in economics and business, politics and sociology and international relations. The language of Game Theory is basically a mathematical one, but we will try to focus on the qualitative implications of Strategic situations; however, we will sometimes use some intermediate mathematics when needed.

3. Competencies and learning outcomes

Core competencies:

- CB2: Students should be able to apply their knowledge at work and in other environments in a professional manner, and exhibit the competencies related to debate preparation and presentation and problem solving within their study area.
- CB3: Students should be able to gather and interpret relevant data (within their area of study) in order to reason on important subjects of a social, scientific or ethical nature.
- CB4: Students should be able to transmit information, ideas, problems and solutions to both a specialized and non-specialized audience.

Cross-curricular competencies:

- CT4: Ability for analysis and synthesis: being able to decompose complex situations into their constituent parts; to evaluate other alternatives and perspectives to find optimal solutions. The synthesis attempts to reduce complexity in order to better understand it and/or solve problems.
- CT5: Ability to apply knowledge to practice, to use knowledge acquired in academic settings in situations as similar as possible to the reality of the profession for which they are being trained.
- CT13: Problem Solving: ability to find a solution to a confusing issue or a complicated situation without a predefined solution, which makes it difficult to achieve a given end.
- CT14: Innovation-Creativity: ability to propose and develop new and original solutions that add value to problems posed, even in different areas than the original problem itself.
- CT16: Decision making: ability to choose among alternatives or methods to effectively solve different situations or problems.

Specific competencies:

- CE5. Ability to analyze and evaluate the competitive environment of a firm, especially to the market, and use this analysis to develop new endeavors.
- CE16. Ability to understand anad analyze consumers´ behavior: to evaluate and predict behaviors and trends in the different customer segments for a given product or service, geographically, culturally or demographically.
- CE21. Ability to use the mathematical tolos needed to solve economic problems, as well as basic methods in calculus, algebra and programming..

Learning outcomes:

- LO1: Being able to know and understand decision making in Game Theory, to study individual and organizational behavior in interactive situations , design business strategies and build models for strategic decision making
- LO2: Being able to analyze and research decision making in Game Theory, applied to the study of individual and organizational behavior in interactive situations, design business strategies and to building models for strategic decision making.
- LO3: Being able to solve practical situations and develop real cases about decision making in Game Theory, individual and organizational behavior in interactive situations , design business strategies and build models for strategic decision making

The table below shows the relation between the competencies developed during the course and the envisaged learning outcomes:

Competencies	Learning Outcomes
CB2, CB3,CE5, CB21	LO1
CB2, CB3,CB4, CE16	LO2
CB2, CB4, CE21	LO3

The following table shows how the different types of activities are distributed and how many hours are assigned to each type:

Type of Educational Activity	Number of Hours
AF1: Lectures	20 h
AF2:Autonomous Work	20 h
AF3: Oral Presentations	15 h
AF4: Case Analysis and Problem Solving	20 h
AF5: Visits/External Activities	5h
AF6: Team Activities	20h
AF7: Graded Activities/Exams	10h
AF8:Tutoring	20h
AF9: Papers and Projects	20h
TOTAL	**150 h**

To develop the competencies and achieve the learning outcomes, you will have to complete the activities indicated in the table below:

Learning Outcomes	Learning Activity	Type of Educational Activity	Content

LO1, LO2	ACT1, ACT2	AF1, AF2, AF4, AF6, AF7,	Chapter 1 –Introduction
LO1, LO2, LO3	ACT1, ACT2, ACT4	AF1, AF2, AF3, AF4, AF6, AF7	Chapter 2 – Sequential Games
LO1, LO2, LO3	ACT1, ACT2	AF1, AF2, AF3, AF4, AF6, AF7	Chapter 3 – Simultaneous Games (1)
LO1, LO2, LO3	ACT1, ACT2, ACT4	AF1, AF2, AF3, AF4, AF6, AF7	Chapter 4– Simultaneous Games (2)
LO1, LO2, LO3	ACT1, ACT2	AF1, AF2, AF4, AF7	Chapter 5- Games with Incomplete Information
LO2, LO3	ACT2, ACT3, ACT4	AF2, AF3, AF4, AF5, AF6, AF8	Chapter 6- Practical Applications

When you access the course on the *Virtual Campus,* you'll find a description of the activities you have to complete, as well as the deadline and assessment procedure for each one.

4. Monitoring and assessment

The following table shows the assessable activities, their respective assessment criteria, and the weight each activity carries towards the final course grade.

Assessable Activity	Assessment Criteria	Weight (%)
ACT1: Classroom Lectures: attendance, participation and debate.	• Examination	40%
ACT2: Cases and Problems (Individual and/or Team based): exercises, guided activities of game theoretical applications in different contexts	• Case Analysis and Problems	20%
ACT3: Project based Learning: Team Projects on game theoretical analyses of political, sociological, international relations, economic situations.	• Papers/Projects	30%

ACT4: Individual or Group presentations of papers, proects, practical cases, flipped classroom,….	• Oral Presentations	10%

When you access the course on the *Campus Virtual*, you'll find a description of the activities you have to complete, as well as the deadline and assessment procedure for each one.

4.1. First exam period

The grading policy for the semester is based on continuous evaluation so that if you fail in completing (totally or partially) any of the Assessable Activities above, the grade for the corresponding activity will be a 0/10, unless explicitly stated otherwise by the instructor on an individual basis. Make up exams will only be given in exceptional, duly justified occasions and when requested at least 24 hours before the exam date. Class attendance will be registered either through the technological devices set by the University or, alternatively, through the attendance registration mechanism determined by the instructor.

In order to pass the course in the first exam period, you will need to have a final weighted average grade of at least 5/10 across all Assessable Activities above, a minimum weighted average of 4/10 in the midterm and final exams and a class attendance of at least 50%. Should you fail to satisfy any of these three requirements, you will fail the course in this period.

4.2. Second exam period

Students who fail the course in the First Exam Period will be allowed a second opportunity in the following conditions:

- If the student failed the course because the minimum weighted average in the midterm and final exams was less than 4/10, she/he will have to take another final exam that will count for 40% of the grade. The rest of grades obtained during the course will be maintained.
- If the student failed the course because he/she did not assist to at least 50% of the lectures, the instructor will assign the student the exams, case studies/exercises and/or written papers deemed necessary to pass the course under the weighted averages stated above.
- If the student failed the course because, possibly in addition to the above, he/she did not comply with any of the previous requirements, he/she will be assigned the remedial work

needed to pass the course. All this work will have to be given to the instructor by the deadlines that will be set accordingly.

5. Bibliography

In addition to the lecture notes, examples and business cases discussed in class

- A. Dixit, B. Nalebuff (2008), *The Art of Strategy: A Game Theorist´s Guide to Success in Business and Life*, W.W. Norton and Company. We will cover most of this book.
- S. Tadelis (2013), *Game Theory: An Introduction*, Princeton University Press. A good undergraduate text, but mathematically demanding.
- W. Spaniel (2011), *Game Theory 101 The Complete Textbook : A User Friendly Introduction to Game Theory*, self-edited (Amazon), and the accompanying video tutorials series on You Tube. We will use it sparingly in class.

6. How to communicate with your professor

Whenever you have a question about the content or activities, don't forget to post it to your course forum so that your classmates can read it.

You might not be the only one with the same question!

If you have a question that you only want to ask your professor, you can send him/her a private message from the *Campus Virtual*. And if you need to discuss something in more detail, you can arrange an advisory session with your professor.

It's a good idea to check the course forum on a regular basis and read the messages posted by your classmates and professors, as this can be another way to learn.

7. Study recommendations

When you study at university, you need to plan and be consistent from the first week. It's very useful to exchange experiences and opinions with professors and other students, as this will help

you develop core competencies such as flexibility, negotiating skills, teamwork, and, of course, critical thinking.

To help you, we recommend using a general method of study based on the following points:

- Study systematically and at a steady pace.
- Attend class and regularly check the course forum on the *Campus Virtual* so that you keep up to date with what's happening.
- Participate actively in the course by sharing your opinions, doubts and experiences relating to the topics covered and/or suggesting new topics of interest for discussion.
- Read the messages posted by your classmates and/or professors.

Active participation in physical and virtual classroom activities is of special interest and academic value. You can participate in many different ways: asking questions, giving your opinion, doing all the activities your professor suggests, taking part in collaborative activities, helping your classmates, etc. This way of working requires effort, but it will help you get better results as you develop your competencies.