MODULE SPECIFICATION

1. GENERAL

SCHOOL	SCHOOL OF ECONOMICS AND REGIONAL STUDIES
DEPARTMENT	DEPARTMENT OF ECONOMICS
LEVEL OF STUDY	UNDERGRADUATE
MODULE CODE	OI0803 **SEMESTER OF STUDY** 6TH / 8TH
MODULE TITLE	**GAME THEORY**
INSTRUCTOR	FILIPPIADIS ELEFTHERIOS

INDEPENDENT TEACHING ACTIVITIES		TEACHING HOURS PER WEEK	CREDITS (ECTS)
	Lectures	4	5.5

MODULE STATUS	Scientific field
PRE-REQUISITE MODULES:	No
INSTRUCTION AND EXAMINATION LANGUAGE:	English
THE MODULE IS OFFERED TO ERASMUS STUDENTS	Yes
MODULE WEBPAGE (URL)	**https://openeclass.uom.gr/courses/ECO130/**

2. LEARNING OUTCOMES

Learning Outcomes

Game theory studies and analyzes cases of interdependent decisions and strategic interactions between decision makers. Its scope is general, and it is a very useful analytical tool in social sciences. This course covers in depth important topics in non-cooperative game theory. The objective is to enhance student ability to understand the applications of game theory to economics and economic related fields.

Upon successful completion of the module the student will be able to:
• identify the main characteristics of a situation of conflict (interdependent decisions of "opponents") and describe it as a "game."
• analyze a situation of conflict using elements of Game Theory.
• propose appropriate equilibrium concepts to different types of games.
• recognize the limits of all proposed equilibrium concepts.
• apply theoretical results to specific examples in economics and economic related fields.

General Competences

• Autonomous work
• Promote free, creative and inductive thinking

3. MODULEOUTLINE

PART I: Strategic form games of perfect information
• Nash equilibrium (in pure and mixed strategies) and efficiency
• Multiple Nash equilibria
• Applications:
    o Pareto Coordination and coordination failure
    o Quantity competition (Cournot) and price competition (Bertrand)
    o Political Competition

- o Externalities
- o Crime and punishment

PART II: Extensive form games of perfect information
- Strategies vs. actions, information sets
- Sub-game perfect Nah equilibrium
- Repeated games
- Applications:
  - o Quantity leadership (Stackelberg) model
  - o Ultimatum bargaining game
  - o Electoral competition
  - o Differentiation and first/second mover's advantage
  - o Collusion

PART III: Games of imperfect information
- Bayesian games
- Perfect Bayesian Nash Equilibrium and Signaling games
- Applications:
  - o Auctions
  - o Job market signaling
  - o Firm competition under cost uncertainty

4. TEACHING AND LEARNING METHODS - ASSESSMENT

DELIVERYMETHOD.	Face-to-face lectures	
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY	Support the learning process using the COMPUs online platform.	
TEACHING METHODS	*Activity*	*Semester Workload*
	Lectures	52
	Studying – working on distributed problem sets	20
	Independent and semi-guided study	93
	Module Total	165
STUDENT ASSESSMENT METHODS	Student evaluation is based on (a) two online assignments (throughout the semester), and (b) written exam at the end of the semester (during the examination period). Weighing of assessment methods: • Assignments (20% of the grade) • Final Examination (80% of the grade) *All written work must be in English.	

5. SUGGESTED BIBLIOGRAPHY

- *Muñoz-Garcia, F., & Toro-Gonzalez, D. (2016). Strategy and Game Theory: Practice Exercises with Answers. (available in electronic form)*
- *Lecture notes (will be distributed through eclass)*

ACADEMIC YEAR	2021-2022