

Game Theory | ECU44122/ECU44124

Year	Senior Sophister
ECTS Credits	10/5
Contact Hours	22 hours of lectures and 4 hours of tutorials
Pre-Requisite	JS Economic Analysis A and B
Semester	2
Module Leader and Lecturer	Professor Tara Mitchell
Contact Email	mitchet@tcd.ie

Module Outline:

By the end of the module, students will be conversant with the core foundations of game theory and will be able to apply these tools to analyse economic problems.

Game theory has become a powerful tool of economic analysis for situations where a small number of economic agents (firms, governments, individuals) behave interdependently (anticipate how their decisions affect others and how these others will then react). This module will analyse simple games, introduce the most standard equilibrium concepts, and focus on applications of these techniques in a variety of economic settings. We will devote attention to applications in industrial organization, political economy, auctions. Some attention will be paid to recent developments in game theory and behavioural economics.

Topics covered will include the following:

5 ECTS (ECU44124):

- Introduction: What is Game Theory?
- Simultaneous Move Games with Perfect Information: Nash Equilibrium
- Simultaneous Move Games with Perfect Information: Mixed Strategy Equilibrium

- Simultaneous Move Games with Incomplete Information: Bayesian Nash Equilibrium
- Sequential Games with Perfect Information: Subgame Perfect Equilibrium

10 ECTS (ECU44122):

In addition to the topics covered in the 5 ECTS module, the 10 ECTS module will also cover the following topics:

- Sequential Games with Incomplete Information: Perfect Bayesian Equilibrium
- Signalling and cheap talk

Module Learning Outcomes:

Upon successful completion, students will be able to:

- Describe models in game theory, especially as they relate to economics
- Use game theory models to analyse applied economic problems

Satisfactory completion of this module will contribute to the development of the following key skills:

- Ability to apply game theoretic techniques to economic problems
- Ability to understand game-theoretic formulations of problems
- Ability to derive economic insights from models in game theory

Assessment:

10 ECTS (ECU44122): There will be two pieces of coursework due throughout the term: an assignment (30%) and a problem set (20%). The final exam will account for the remaining 50% of the grade.

5 ECTS (ECU44124): There will be an assignment due part-way through the term which will account for 50% of the final grade. The final exam will account for the remaining 50% of the grade.

Recommended Reading List:



Trinity College Dublin
Coláiste na Tríonóide, Baile Átha Cliath
The University of Dublin

Undergraduate: Economics | Module Outlines 2024/5

Joseph E. Harrington, Jr., 2015, Games, Strategies and Decision Making, Worth
Publishers