UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

SYLLABUS DEL CORSO

Games and Strategic Behaviour

2425-2-F5602M017

Learning objectives

This course is an introduction to topics in APPLIED game theory. Its objective is to equip the students with tools essential to study the economics of information and strategic behaviour and to set up and solve a wide range of micro and macroeconomic problems.
At the end of the course, students are expected to be able to formalize situations of strategic interaction, with specific attention to the role of information in determining strategic behaviour, and consequently the likely outcome of strategic interaction itself. In this way, students should be able to understand the crucial role of institutions in determining the effects of strategic behaviour in terms of efficiency, equity, and sustainability.

Contents

1. rational behavior both under certainty and under uncertainty
2. game representations: extensive form, strategic form and Bayesian games
3. Nash equilibria and refinements in extensive form, with applications
4. Nash equilibria and refinements in strategic form, with applications
5. Bargaining models and applications.

Detailed program

1. Rational Behavior under Uncertainty
2. Extensive Form Games
3. Strategic Forms Games
4. Bayesian Games
5. Bayesian Rationality and Rationalizability

6. Nash and Bayes Nash Equilibria
7. Calculation of Nash Equilibria
8. Applications in Strategic Form Games
9. Equilibria in extensive form games
10. Sequential rationality in imperfect information games
11. Weak Perfect Bayesian Equilibria
12. Sequential Equilibria
13. Refinements of Sequential Equilibria
14. Sequential Equilibria and signaling games.

Prerequisites

Basic economics and mathematics

Teaching methods

Lectures, exercises, online experiments, and students' group presentations. 30% percent of the lectures will be online, directly interacting with students.

Assessment methods

There are two assessment methods, for attending and non-attending students.

For attending students, the final evaluation is the weighted average between

1. a short paper to present a scientific work to be chosen among different possible topics, so that the students experiment with reading, understanding, and presenting advanced research in game theory
2. three groups' homework, to practice the concept presented in the lectures, possibly in groups
3. a final written examination consisting of an exercise to test the student's capability of solving specific game theory models.

For non-attending students, the final evaluation will be based on a written examination to test the students' capability of solving specific game theory models.

The students are strongly suggested to attend the course

Textbooks and Reading Materials

1. Jurgen Eichberger, Game Theory for Economists, Academic Press,1993.
2. P. K. Dutta, Strategies and Games, The MIT Press, 1999 = D.
3. H. S. Bierman – L. Fernandez, Game Theory with Economic Applications, Addison Wesley Publishing Company, 1993 = B-F.
4. Lecture notes

5. Original papers

Semester

First semester

Teaching language

English

Sustainable Development Goals

QUALITY EDUCATION | GENDER EQUALITY | DECENT WORK AND ECONOMIC GROWTH | REDUCED INEQUALITIES | CLIMATE ACTION | PEACE, JUSTICE AND STRONG INSTITUTIONS