



UNIVERSITÀ  
DEGLI STUDI DI MILANO-BICOCCA

## SYLLABUS DEL CORSO

### Games and Strategic Behaviour

2223-2-F5105P016

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#### 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 economics of information and of strategic behaviour and for setting up and solving a wide range of economic problems, both micro and macro.

#### 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. Presentation of the course and utility maximization
2. Set 1 of Experiment

3. Rational Behavior under Uncertainty
4. Set 1 of exercises
5. Discussion of Experiment and Solution of Set 1 of Exercises
6. Extensive Form Games-1
7. Set 2 of Experiment
8. Discussion of Experiment
9. Extensive Form Games-2
10. Strategic Forms Games
11. Set 2 of exercises
12. Set 3 of Experiment
13. Solution of set 2 of exercises
14. Discussion of set 3 of experiment
15. Bayesian Games
16. Dominance: strict and weak, iterated
17. Bayesian Rationality and Rationalizability
18. Set 3 of exercises
19. Solutions of set 3 of exercises
20. Nash and Bayes Nash Equilibria
21. Set 4 of experiment
22. Discussion set 4 of Experiment
23. Calculation of Nash Equilibria
24. Application of Nash and Bayes Nash Equilibria
25. Set 4 of Exercises
26. Solution of Set 4 of Exercises
27. Equilibria in extensive form games
28. Sequential rationality in imperfect information games
29. Set 5 of Experiment
30. Discussion of set 5 of Experiment

31. Weak Perfect Bayesian Equilibria
32. Set 5 of Exercises
33. Sequential Equilibria
34. Solution of set 5 of Exercises
35. Refinements of Sequential Equilibria - 1
36. Refinements of Sequential equilibria and applications
37. Set 6 of Exercises
38. Sequential Equilibria and signaling games - 1
39. Sequential Equilibria and signaling games - 2
40. Applications of Signaling Games
41. Set 7 of Exercises
42. Bargaining Theory – 1
43. Bargaining Theory - 2
44. Set 8 of Exercises
45. Students' presentations
46. Review and mock exam

## **Prerequisites**

Basic economics and mathematics

## **Teaching methods**

Lectures, exercises, on line experiments and students' group presentations

## **Assessment methods**

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

For attending students the final evaluation is the average between

1. a short students' paper based on different possible topics, which will count for 50% and
2. a final written examination consisting of an exercise.

For non attending students the final evaluation will be based on a written examination.

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**

REDUCED INEQUALITIES

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