



UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

SYLLABUS DEL CORSO

Games and Strategic Behaviour

2021-2-F5105P016

Learning area

Applied Experimental Psychological Sciences

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.

*** Lessons will be held in presence or through online video lessons, according to the University's regulations regarding the COVID-19 emergency situation. In both cases, all lessons will be video recorded and made available to the students. ***

Assessment methods

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 simply on a written examination.

The students are strongly suggested to attend the course.

*** During the COVID-19 emergency, exams will be conducted according to the University's regulations regarding the COVID-19 emergency situation. ***

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
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