

Doctoral Program in Economics



Academic year 2021/22

GAME THEORY

Period:

Second term: January/February 2022

Course hours:

20

Teachers:

Annalisa Luporini (10), Stefano Vannucci (10)

Exam methods:

Written exam

Prerequisite

Microeconomics 1

Module 1: Non-Cooperative Game Theory (Annalisa Luporini: 10 hours)

Programme

Representation forms: information and strategies, extensive form and strategic form. Solution concepts: dominated strategies, rationalizability, Nash equilibrium. Equilibrium refinements: backward induction, subgame perfection, perfect Bayes-Nash equilibrium, sequential equilibrium, trembling hand perfection, forward induction. Repeated games and Folk Theorems. Classes of games: prisoner dilemma, stag hunt, hawk-dove, centipede game, public goods game, ultimatum game, dictator game.

Educational objectives

Learn the methods and techniques of non-cooperative game theory, and the ability to apply them to represent and understand socio-economic phenomena

Bibliographical references

Fudenberg D, Tirole J. : Game Theory. MIT Press 1991.

Lecture slides will be made available.

Module 2: Game Formats (S.Vannucci: 10 hours)

Programme

Games as data structures for multi-agent system modeling. Classical game theory and evolutionary game theory: the main differences. Game formats: strategic, extensive, coalitional. Cooperative and non-cooperative solution rules. Examples: toy games, auction games, voting games, two-sided matching games.

Educational objectives This module is meant to provide a firm grasp of the basic syntax of game-theoretic models, and a glimpse at their scope.

Bibliographical references

H. Keiding: Game Theory. A Comprehensive Introduction. World Scientific 2015.

H. Moulin: Game Theory for the Social Sciences (2nd edition). New York University Press 1986.

M. Osborne, A. Rubinstein: A Course in Game Theory. MIT Press 1994.

Lecture slides will be made available.