

European University Institute  
Microeconomics, Block II

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**Overview.** This covers the basics Game Theory, and some paradigmatic applications. Information economics, together with the game-theoretic tools required to study it, will be the object of Block III

**Reading.** For most of the course, I will refer to chapters of the following book

Fernando Vega-Redondo: Economics and the theory of games, Cambridge University Press 2013.

To complement these chapters, there are a number of good textbooks that can be used:

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

Myerson, R.: Game Theory: analysis of Conflict, Harvard University Press

Gibbons, R: Game theory for applied economists, Princeton University Press 1992

**Assignments.** There will be problem sets. Cooperation is encouraged, but they should be written up individually.

### Outline of Topics

1. The basic game-theoretical framework
  - a. Representation of a game in extensive form
  - b. Strategies: pure, mixed, behavioral
  - c. Representation of a game in strategic form
2. Fundamental solution concepts
  - a. Dominance and iterative dominance
  - b. Nash equilibrium
  - c. Correlated equilibrium
3. Nash equilibrium: applications
  - a. Cournot and Bertrand
  - b. Public good
4. Nash refinements in multi-stage games: theory and applications
  - a. Perfect subgame equilibrium
  - b. Stackelberg
  - c. Stahl-Rubinstein bargaining
5. Games with incomplete information: theory and application
  - a. Harsanyi approach: Bayesian game
  - b. Examples: One-sided auction (first and second price), Two-sided auction (bilateral case)
  - c. Introduction to signaling games