

Microeconomics 2

GAME THEORY

PhD in Economics and Finance, Bocconi University 2020-21

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Part I: STATIC GAMES

1. Introduction. Best responses and dominance
2. Rationalizability and iterated dominance
3. Nash equilibrium: motivations, existence
4. Generalizations: mixed equilibrium, hints on correlated and self-confirming equilibrium
6. Games with incomplete information: rationalizability and Bayesian equilibrium

Part II: DYNAMIC GAMES

7. Multistage games, pure, mixed and behavioral strategies
8. Rational planning, one-deviation principle
9. Subgame perfect equilibrium, backward induction
10. Repeated games, bargaining
11. Multistage games with incomplete information, signaling games
12. Sequential equilibrium

Pre-requisites: Although the course is self-contained, familiarity with game theory at the advanced undergraduate level is advisable. The following **mathematical background** is required: *familiarity with mathematical formalism* (sets, functions, proving theorems, proofs by induction), *elementary topology in Euclidean spaces* (closed, open, bounded sets, limits, continuity), *elementary linear algebra, convexity, elementary probability theory*. Calculus is not essential for the general theory, but it is used in some exercises and examples.

Grading: The final grade is based on the solutions of problem sets (20%) and a final, closed book exam (80%).

Textbook: Lecture notes *Game Theory: Analysis of Strategic Thinking* (unpublished). The graduate game theory textbook closest to the adopted approach is *A Course in Game Theory* by Osborne and Rubinstein.