# Game Theory

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## Program

**1. Introduction.**

**2. Complete Information Games in Strategic Form.**

2.1. Strategic Form Games. Dominated Strategies. Nash Equilibrium. Comments on Pure-Strategy Equilibria, Multiple Nash Equilibria, Focal Points, and Pareto Optimality. Existence of Mixed-Strategy Nash Equilibrium. Nash Equilibrium in Infinite Games with Continuous Payoffs.

2.2. Iterated Elimination of Dominated Actions. Rationalizability. Correlated Equilibrium.

**3. Extensive Games with Observed Actions.**

3.1. Extensive Games with Perfect Information. Subgame Perfect Equilibrium and Backward Induction. Multi-Stage Games with Observed Actions.

3.2. The Rubinstein-Stahl Bargaining Model.

3.3. Simple Timing Games. The War of Attrition.

3.4. Repeated Games. The Folk Theorems for Repeated Games.

**4. Games of Incomplete Information.**

4.1. Incomplete Information. Type and Strategy. Bayesian Equilibrium. Mechanism Design.

4.2. Extensive Games of Incomplete Information. Signaling Games. Perfect Bayesian Equilibrium. Sequential Equilibrium. Trembling Hand Perfect Equilibrium. Proper Equilibrium.

**5. Economics of Information.**

5.1. The Base Model: Symmetric Information

5.2. Moral hazard. The Two-Effort Level Case. The Continuous-Effort Level Case. Moral Hazard with Hidden Information. Extensions.

5.3. Adverse Selection. The Two-Type Case. The Continuous-Type Case. When Principals Compete for Agents. Extensions.

**M**ain **References**:

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

Osborne, M.J. and A. Rubistein, 1994, *A Course in Game Theory*, MIT Press.

Macho-Stadler, I. and D. Pérez-Castrillo, 2001 (2$^{nd}$ Edition), *An Introduction to the Economics of Information*, Oxford UP.

Other **good texbooks** are:

Binmore, K., 1992, *Fun and Games: A Text on Game Theory*, D.C. Heath.

Mas-Colell, A., M.D. Whinston, and J. Green, 1995, *Microeconomic Theory*, Ox. UP.

Myerson, R., 1991, *Game Theory and Analysis of Conflict*, Harvard UP.

Osborne, M.J., 2003, *An Introduction to Game Theory*, Ox. UP.

P. Bolton and M. Dewatripont, 2005, *Contract Theory*, MIT Press.

D. Martimort and J.-J.. Laffont, 2001, *The Theory of Incentives: The Principal-Agent Model*, Princeton UP.

Complete novices can look at a simple an intuitive **introduction**:

Dixit, A and B. Nalebuff, 1991, *Thinking Strategically*, Norton.