

FIN-620

**Game Theory**

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Cursus	Sem.	Type
Finance		Obl.

Language of teaching	English
Credits	3
Session	
Exam	Written
Workload	90h
<b>Hours</b>	<b>28</b>
Courses	28
<b>Number of positions</b>	

**Summary**

The course provides an introduction to non-cooperative game theory for PhD and advanced graduate students. It contains an analysis of static and dynamic games with special emphasis on the role of information.

**Content****1. Static Games of Complete Information**

- a. Course overview
- b. Strategic-Form Games
- c. Iterated Strict Dominance
- d. Pure-Strategy Nash Equilibrium
- e. Mixed-Strategy Nash Equilibrium
- f. Correlated Equilibrium

**2. Dynamic Games of Complete Information**

- a. Extensive Form Games
- b. Subgame Perfect Nash Equilibria
- c. Repeated Games and Folk Theorems
- d. Bargaining à la Rubinstein-Stahl

**3. Static Games of Incomplete Information**

- a. Bayesian Equilibrium
- b. Public good provision
- c. War of Attrition
- d. Purification and Mixed Strategies
- e. Market for Lemons
- f. No trade theorems

**4. Auctions**

- a. Orders of Stochastic Dominance
- b. First Price Auctions
- c. Dutch Auctions
- d. Second Price Auctions
- e. English Auctions
- f. Revenue Equivalence
- g. Common Values
- h. Share Auctions

**5. Global Games**

- a. Global games vs Bayesian Games
- b. Currency Attacks
- c. Coordination Likelihood

**6. Mechanism Design**

- a. Definition of Mechanism
- b. Revelation Principle
- c. Optimal Mechanisms
- d. Vickrey-Clarke Groves Mechanisms
- e. Budget Balance

**7. Dynamic Games of Incomplete Information**

- a. Signalling Games
- b. Perfect Bayesian Equilibrium
- c. Reputation
- d. Pooling, Separating and Semi-Separating Equilibria
- e. Spence's Education Model
- f. Equilibrium Refinements

**8. Moral Hazard**

- a. Linear Contracts
- b. General Contracts
- c. Dynamic Moral Hazard

**Keywords**

Game Theory  
Contract Theory

**Learning Prerequisites****Required courses**

Bachelor-level Calculus and Probability Theory

**Recommended courses**

Intermediate-level Microeconomics

**Learning Outcomes**

By the end of the course, the student must be able to:

- Define alternative notions of Equilibria
- Derive game equilibria and select among them
- Design games and incentive schemes to induce desired targets

**Assessment methods**

- The course is accompanied by 8 problem sets. They are excellent preparation for the exam, but do not count as part of the final grade.
- The final grade for the course is:

$$\text{Grade} = 100\% * \text{Final Exam}$$

**Resources****Bibliography**

Fudenberg, Drew and Jean Tirole, 1991, Game Theory, 7th Edition, MIT Press ISBN-13: 978-0262061414  
Bolton, Patrick and Mathias Dewatripont, 2004, Contract Theory, MIT Press, ISBN-13: 978-0262025768

**Ressources en bibliothèque**

- [Game Theory / Fudenberg](#)
- [Contract Theory / Bolton](#)