Game theory, applications in economics and finance

ECTS : 6

Volume horaire : 18

Description du contenu de l'enseignement :

A - Basics of game theory:
1. Zero-sum games: value, optimal strategies, minmax theorem.
2. N-players normal form games: dominated strategies, best-replies, Nash equilibria, Nash's existence theorem.
3. Extensive form: backward induction, subgame perfection, Kuhn-Zermelo theorem, behavior strategies and Kuhn's theorem.

B- Applications and advanced topics (at most four of the following topics will be discussed, possibly less):

1. Repeated games, folk theorems, evolution of cooperation.
2. Correlated equilibria
3. Information cascades
4. Agreeing to disagree and no-trade theorems
5. Asymmetric information and market failures
6. Cooperative games : core, Shapley value
7. Evolutionary and learning in games
8. Games with incomplete information, applications to finance.
9. Experimental and behavioral economics

Compétence à acquérir :

The first part deals with game theory basics, the second one with applications in economics and finance or more advanced topics. The time spent on the basics and the choice of topics for the second part will depend on the familiarity of students with game theory, and of their thematic interests. The course is planned in English but may be taught in French if all students prefer so.