

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, saddle points, minmax theorem.
2. N-layers normal form games: equilibria in dominant strategies, Nash equilibria, dominated strategies, Nash's existence theorem.
3. Extensive form: backward induction, subgame perfection, theorem of Kuhn-Zermelo, behavior strategies and Kuhn's theorem.

B- Applications:

1. Repeated games and cooperation, folk theorems.
2. Zero-sum repeated games with incomplete information on one side (Aumann-Maschler's model). Splitting lemma, uniform value.
3. Zero-sum stochastic games: dynamic structure, Shapley operator, theorems of Bewley-Kohlberg and Mertens-Neyman.

**Compétence à acquérir :**

The first part deals with the basics of game theory, the second one with applications in economics and finance. There will only be time to study 2 of the 3 applications (to be decided).

**Document susceptible de mise à jour - 16/02/2026**

**Université Paris Dauphine - PSL** - Place du Maréchal de Lattre de Tassigny - 75775 PARIS Cedex 16