

Stochastic Control

**ECTS** : 6

**Volume horaire** : 24

**Description du contenu de l'enseignement :**

Relationship between conditional expectations and parabolic linear PDEs.

Formulation of standard stochastic control problems: dynamic programming principle.

Hamilton-Jacobi-Bellman equation

Verification approach

Viscosity solutions (definitions, existence, comparison)

Application to portfolio management, optimal shutdown and switching problems

Teacher : Bruno BOUCHARD

**Compétence à acquérir :**

PDEs and stochastic control problems naturally arise in risk control, option pricing, calibration, portfolio management, optimal book liquidation, etc. The aim of this course is to study the associated techniques, in particular to present the notion of viscosity solutions for PDEs.

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