Stochastic calculus

ECTS : 6

Volume horaire : 45

Description du contenu de l'enseignement :

The first part of the course presents stochastic calculus for continuous semi-martingales. The second part of the course is devoted to Brownian stochastic differential equations and their links with partial differential equations. This course is naturally followed by the course "Jump processes".

- Probability basics
- Stochastic processes
- Brownian motion, Continuous semi-martingales, Stochastic integral, Itô's formula for semi-martingales and Girsanov's theorem Stochastic differential equations
- Diffusion processes Feynman-Kac formula and link with the heat equation Probabilistic representation of the Dirichlet problem

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