

- Faculté des sciences économiques
- www.unine.ch/seco

Probability and Stochastic Processes

Characteristics

- 6 ECTS credits
- Compulsory course for master in statistics
- Autumn Semester
- Course : 2 hours / Exercises : 2 hours
- Evaluation : written exam 2 hours
- Prerequisite : Calculus

Teaching Team

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Objectives

The student is able to master the basic tools from probability theory and stochastic processes that are useful in numerous applications.

Contents

- 1 – Probability space – Random events - sigma fields- Probability – Conditioning and Independence.
- 2 – Countable state space – Random variables – Law of Random variables- Usual laws (Binomial, Poisson, Geometrical)
- 3 Real random variables and random vectors – Laws and densities - Usual laws (exponential, Gaussian).
- 4 Convergence of random sequences – Law of large numbers - Monte-Carlo Methods
- 5 - Gaussian vectors - Convergence in distribution - Limit central Theorem – Statistical applications.
- 6 – Random iterative models – Elementary Markov chains theory - Branching processes –

Exercices