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

Probability and stochastic processes (3ST2001)

Filières concernées	Nombre d'heures	Validation	Crédits ECTS
Master en statistique	**Cours: 2 ph** **TP: 2 ph**	**controle continu: 1**	6

ph=période hebdomadaire, pg=période globale, j=jour, dj=demi-jour, h=heure, min=minute

Période d'enseignement:

- Semestre Automne

Equipe enseignante:

Professeur : Michel Benaim
Institut de Mathématiques
Assistant : Carl Erik Gauthier

Objectifs:

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

Contenu:

1. Probability space - Random events - sigma fields- Probability - Conditioning and Independ-ence.
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 applica-tions.
6. Random iteractive models - Elementary Markov chains theory - Branching processes

Forme de l'évaluation:

CA graded :Continuous assesment with 2-hour written test during the last week of the semester.
Reexamination next sessions (June or August-September, same year): 2 hours written test organized directly with the professor (not in Pidex).

Pré-requis:

Calculus

Forme de l'enseignement:

- 6 ECTS credits
- Compulsory course for master in statistics
- Autumn Semester