

- Faculté des sciences
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### Probability theory (3ST2001)

Filières concernées	Nombre d'heures	Validation	Crédits ECTS
<b>Master en statistique</b>	<b>Cours: 2 ph Exercice: 2 ph</b>	Voir ci-dessous	6

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

#### Période d'enseignement:

- Semestre Automne

#### Equipe enseignante

Lecturer: Prof. Alain Valette  
Teaching assistant: Jérémy Colombo

#### Contenu

1. Counting and combinatorics
2. Axioms of probability
3. Conditional probability and independence
4. Discrete random variables
5. Continuous random variables
6. Jointly distributed random variables
7. Limit theorems

#### Forme de l'évaluation

Oral exam (30 minutes) on the exercises but requiring to be able to apply the theory.

#### Documentation

- Sheldon M. Ross. A First Course in Probability, Ninth Edition, Pearson Education Limited, 2014.
- R. Isaac, The pleasures of probability, Undergrad. Texts in Math., Springer-Verlag, 1995.

#### Pré-requis

High-school mathematics, especially combinatorics and calculus

#### Forme de l'enseignement

Ex cathedra in interaction with the class.

The course takes place during the four seven weeks of the fall semester (4 hours of theory + 4 hours of exercises per week)

#### Objectifs d'apprentissage

Au terme de la formation l'étudiant-e doit être capable de :

- Develop problem-solving techniques
- Formulate the fundamental concepts of probability theory
- Compute probabilities accurately
- Select relevant probability distributions
- Apply proba distributions to real-world questions
- Illustrate the use of the central-limit theorem

URLs	1) <a href="https://moodle.unine.ch/course/view.php?id=6767">https://moodle.unine.ch/course/view.php?id=6767</a>
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