

- 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. Paul Jolissaint  
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. Several examples will illustrate the concepts.  
The course takes place during the first 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=9709">https://moodle.unine.ch/course/view.php?id=9709</a>
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