Université Paris-Saclay

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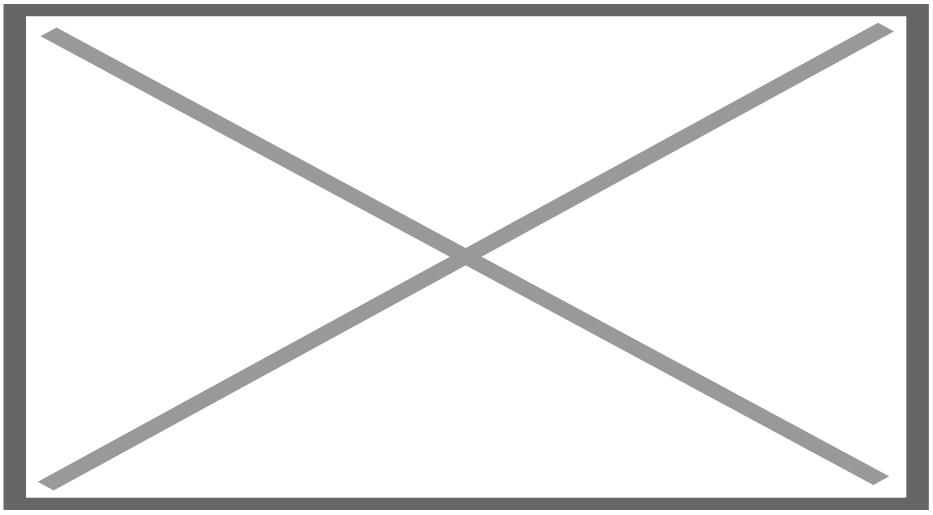
M2 Mathematics of Randomness

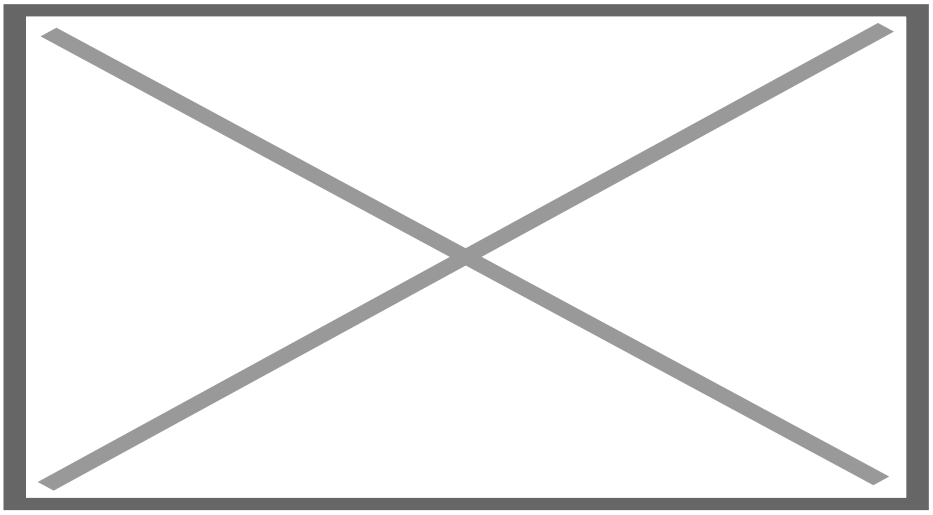
Master's degree
Specialisation Mathematics and applications
Enrolment type
Formation initiale
Formation continue
Language(s) of instruction
English
French

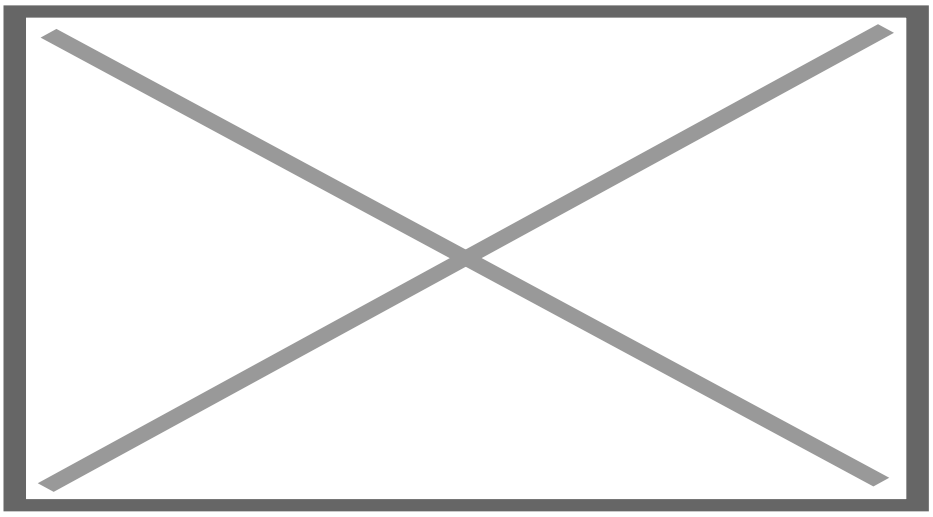
The goal of the training is to learn how to model and study random phenomena, as well as to explore the applications of these mathematical methods in other sciences.

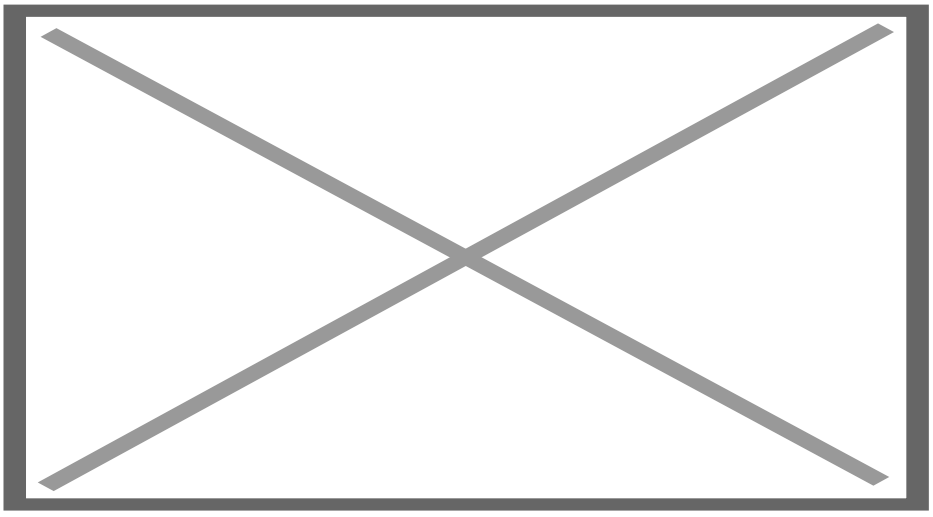
First semester: theoretical courses. Second semester: Research-oriented courses

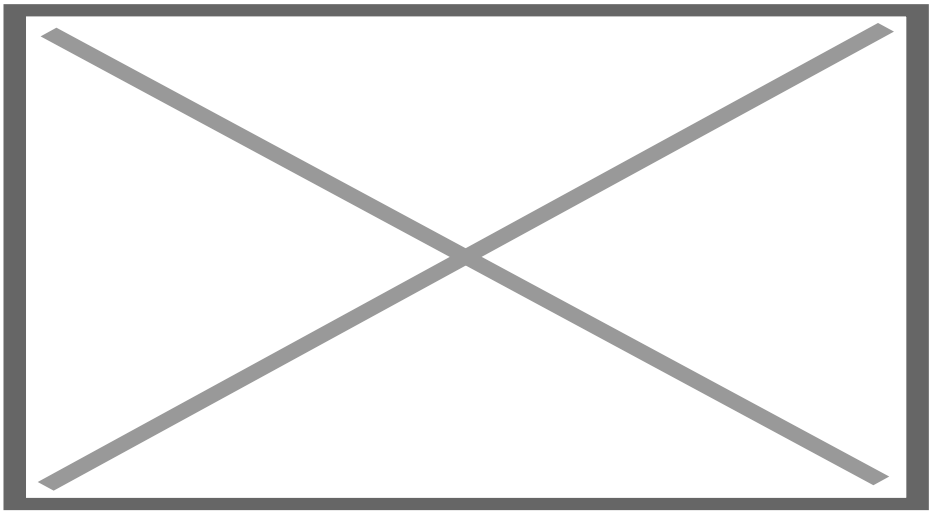
Télécharger la fiche détaillée
Apply Now











Information

- Overview
- Application requirements
- Schedule

Présentation

Skills

Learn how to understand and write research-level mathematics in probability and statistics.

Objectives

We give the theoretical basis of modern probability and/or statistics at an advanced master level.The main objective is to prepare excellent students whose goal is to pursue in a PhD program.Our thematic spectrum is very broad, ranging from the statistical theory of machine learning, high dimensional probability and statistics to stochastic calculus, Markov chains, random graph and ergodic theory. See the web page of the master for more information.

Débouchés

Career prospects

PhD candidate

Further Study Opportunities

PhD

Calendar

Start of programme (indicative date)
01/09/2026
End of programme (indicative date)
02/09/2027
Admission

Capacity

Available Places

40

Target Audience and Entry Requirements

Master 1 (or equivalent) in fundamental mathematics. Applicants who have excelled in their studies at universities, engineering schools, teacher training colleges in France or elsewhere, and who wish to learn the fundamentals of random mathematics (probability and/or statistics and/or machine learning ...). The programme naturally leads to to doctoral thesis preparation.

Période(s) de candidature

Inception Platform

From 30/01/2026 to 15/07/2026

Supporting documents

Compulsory supporting documents

Motivation letter.

All transcripts of the years / semesters validated since the high school diploma at the date of application.

Curriculum Vitae.

Detailed description and hourly volume of courses taken since the beginning of the university program.

Additional supporting documents

VAP file (obligatory for all persons requesting a valuation of the assets to enter the diploma).

Recommendation letters.

Document indicating the list of local M2 choices available here : https://urlz.fr/i3Lo.

Supporting documents :
- Residence permit stating the country of residence of the first country
- Or receipt of request stating the country of first asylum
- Or document from the UNHCR granting refugee status
- Or receipt of refugee status request delivered in France
- Or residence permit stating the refugee status delivered in France
- Or document stating subsidiary protection in France or abroad
- Or document stating temporary protection in France or abroad.

Programme

Subjects	ECTS	Semester	Lecture	directed study	practical class	Lecture/directed study	Lecture/practical class	directed study/practical class	distan learn cour
Internship or Research Project	14	Semester 2							

Charger le détail

Subjects	ECTS	Semester	Lecture	directed study	practical class	Lecture/directed study	Lecture/practical class	directed study/practical class	distanc learni cours
Student Seminar	2.5	Semester 1							

Charger le détail

Subjects	ECTS	Semester	Lecture	directed study	practical class	Lecture/directed study	Lecture/practical class	directed study/practical class	d
Sequential Learning, Optimization, and Games	4	Semester 2	20						

Charger le détail

Subjects	ECTS	Semester	Lecture	directed study	practical class	Lecture/directed study	Lecture/practical class	directed study/practical class	d
Local Times and Excursion Theory	4	Semester 2	16						
Charger le détail									
Topological Data Analysis	4	Semester 2	20						
Charger le détail									
Branching Processes and Structured Population Models	4	Semester 2	20						
Charger le détail									
Solvable Models in Probability Theory	4	Semester 2	20						
Charger le détail									
Random Matrix Theory	4	Semester 2	20						
Charger le détail									
Inference on Large Graphs	4	Semester 2	20						
Charger le détail									
Kernel and Operator-theoretic Methods in Machine Learning	4	Semestre 2	20						
Charger le détail									
Malliavin Calculus	4	Semester 2	20						
Charger le détail									
Analytic Combinatorics	4	Semester 2	20						
Charger le détail									

Subjects	ECTS	Semester	Lecture	directed study	practical class	Lecture/directed study	Lecture/practical class	directed study/practical class	d
Random Permutations and Representation Theory	4	Semester 2	20						
Charger le détail									

Subjects	ECTS	Semester	Lecture	directed study	practical class	Lecture/directed study	Lecture/practical class	directed study/practical class	d
Nonparametric Estimation	2.5	Semester 1	20						
Charger le détail									
Stopping Times and Online Algorithms	5	Semestre 1	20						
Charger le détail									
Percolation	5	Semester 1	20	0					
Charger le détail									
High-dimensional Probability and Statistics	10	Semester 1	30						
Charger le détail									
Mathematics of Deep Learning	7.5	Semestre 1	30						
Charger le détail									
Project in Machine Learning for Prediction	7.5	Semester 1	36						
Charger le détail									
Brownian Motion and Stochastic Calculus	7.5	Semester 1	28	20					
Charger le détail									

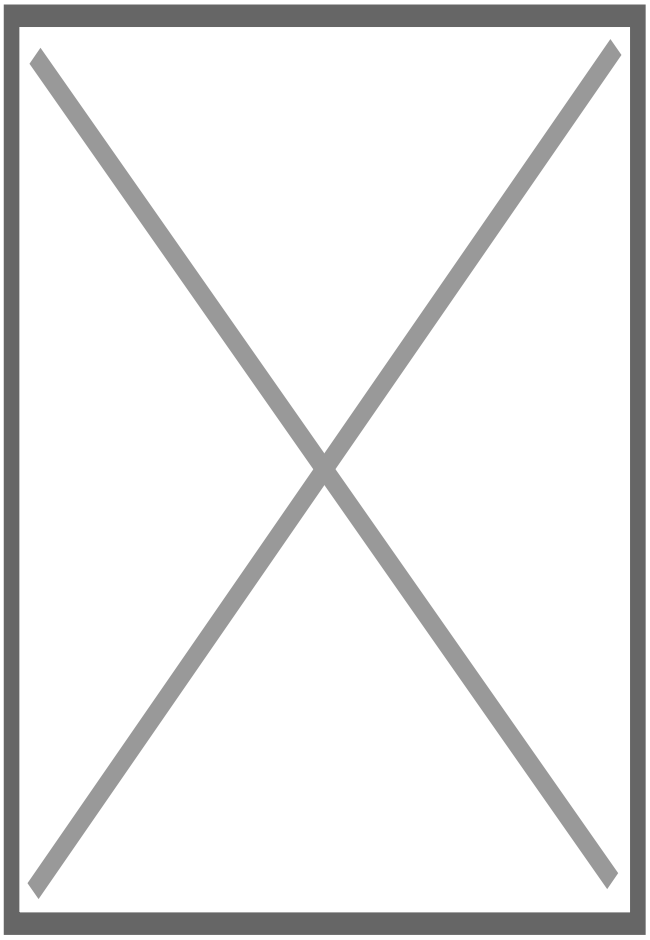
Subjects	ECTS	Semester	Lecture	directed study	practical class	Lecture/directed study	Lecture/practical class	directed study/practical class	d
Sequential Learning	5	Semestre 1	24						
Charger le détail									
Random Graphs	7.5	Semester 1	25	12					
Charger le détail									
Limit Theorems and their Applications	5	Semester 1	20	10					
Charger le détail									
Concentration and Model Selection	5	Semester 1	20						
Charger le détail									
Advanced Topics in Markov Chains	5	Semester 1	20						
Charger le détail									
Statistical Learning and Resampling	5	Semester 1	20						
Charger le détail									
Concentration of Measure	5	Semester 1	20						
Charger le détail									
Generalisation properties of algorithms in ML	5	Semestre 1	20						
Charger le détail									
Convex Analysis and Optimization	5	Semestre 1	20						
Charger le détail									

Teaching Location(s)

BURES SUR YVETTE
ORSAY
GIF SUR YVETTE

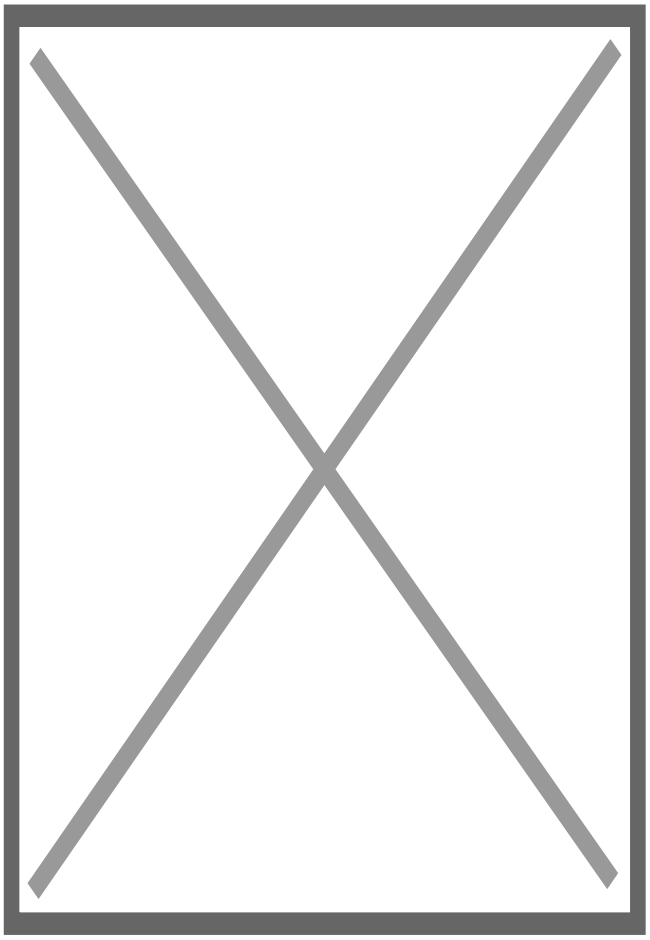
Training campus

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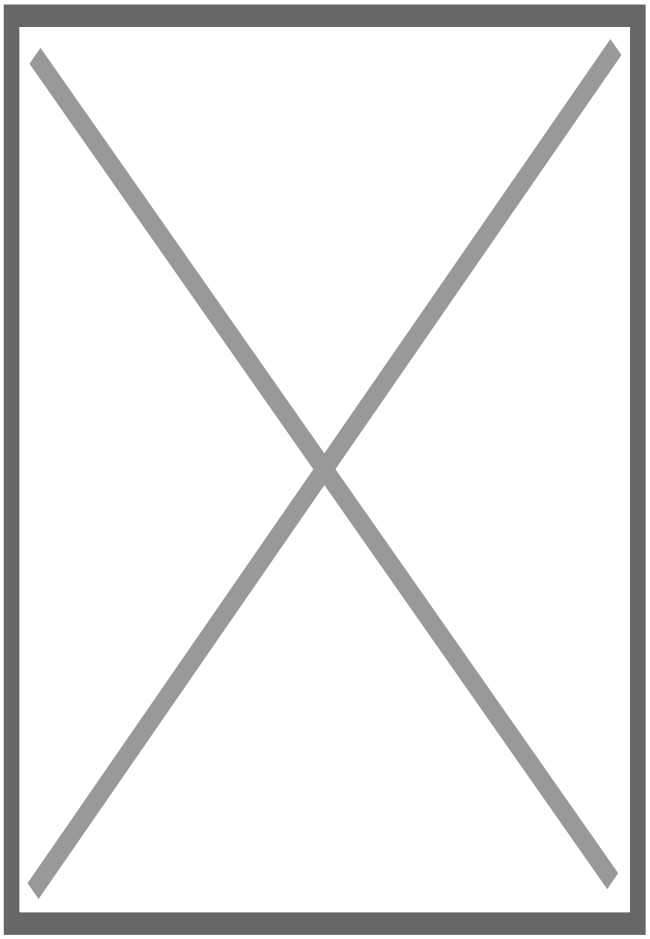
Orsay Bures

Orsay / Bures-sur-Yvette
Bus 4607, 4626
RER B Orsay ville ou Bures-sur-Yvette
Voir
Library
Community center



Saclay Moulon

Saclay / Gif-sur-Yvette / Orsay
Bus 4606 / 4609 / 4611 / 5154
RER B Le guichet
Voir
Student restaurant (CROUS)
Library
Sports facilities
Student residence



Saclay Corbeville

Saclay / Palaiseau
Bus 4606, 4627, 5154, 9105, 9108
RER B Palaiseau, Palaiseau villebon ou Lozère
Voir
Student restaurant (CROUS)
Student residence
Sports facilities

Contact

- **Séverine Simon**

  Secrétariat pédagogique

http://www.universite-paris-saclay.fr/formation/master/mathematiques-et-applications/m2-mathematiques-de-laleatoire