

# MASTER IN MATHEMATICS AND APPLICATIONS

UNIVERSITÉ PSL

*The fruit of the collaboration between the Ecole normale supérieure, MINES ParisTech, the Observatoire de Paris and Paris-Dauphine university, the Master's degree in "Mathematics and applications" from Université PSL provides advanced training in fundamental and applied mathematics. Its ambition is to train specialists in mathematics in the broad sense, preparing for professions both in the academic sector and in those of the service and industrial sectors where modeling takes a predominant place.*

## MAIN ASSETS

- Unprecedented collaboration between some of the most prestigious schools in France in the field of mathematics.
- Immersion in an advanced international research ecosystem, working closely with major laboratories and scientific innovation.
- A very wide range of fundamental teaching and tracks combining the complementary expertise of various partners; opportunities for varied specializations deeply rooted in the major contemporary issues of mathematics (digital transition, artificial intelligence, modeling and analysis of complex systems, data sciences related to human sciences).
- A framework of international studies, with part of the teaching given in English by researchers from foreign universities.
- A strong link with the industrial and socio-economic world, a real springboard for a professional career, notably thanks to the company partnerships of Paris-Dauphine in the energy, insurance and finance sectors.
- A campus life in the very heart of Paris, benefiting from the opportunities for meeting and inter-establishment circulation offered by Université PSL.

## LEARNING OUTCOMES

The master's degree offers in-depth training in mathematics during the first year, open to both fundamental mathematics and applied mathematics. The second year offers a specialization that builds upon the theoretical knowledge acquired during the first year, leading to tracks in applied or theoretical mathematics.

## CAREER OPPORTUNITIES

According to the specialization track chosen in the 2<sup>nd</sup> year:

- Doctorate in theoretical or applied mathematics
- Professions in the service sector, particularly related to the evaluation of risk and decision-making (actuarial sciences, insurance, finance, statistics and data science).

## CURRICULUM

### Master 1 (60 ECTS)

#### 3 tracks

- M1 Applied Mathematics
- M1 Fundamental Mathematics
- M1 Advanced Mathematics

### Master 2 (60 ECTS)

#### 5 tracks

- M2 Actuarial Sciences
- M2 Statistical and Financial Engineering (ISF)
  - accessible in initial training or apprenticeship
- M2 Mathematics of Insurance, Economics and Finance (MASEF)
- M2 Mathematics, Apprenticeship and Human Sciences (MASH)
- M2 Applied and Theoretic Mathematics (MATH)

Internships, seminars, international mobility projects, research papers and language of instruction specific to each track and to be consulted online.

### LABORATORIES INVOLVED

The training is backed by the mathematics and IT laboratories of the partner establishments: the Ecole normale supérieure (DMA, DI), Paris-Dauphine university (CEREMADE, LAMSADE), MINES ParisTech (CAS, CMM), EHES (CAMS) and the Observatoire de Paris (IMCCE). Which covers a broad spectrum: from pure mathematics to applications of mathematics (industrial problems, social sciences, links with other scientific disciplines).

### LOCATION

The instruction is given in the heart of Paris on the campuses of the PSL schools involved in the Master's program. The students may also spend part of their education abroad, taking advantage of the various international agreements of PSL and the schools involved.

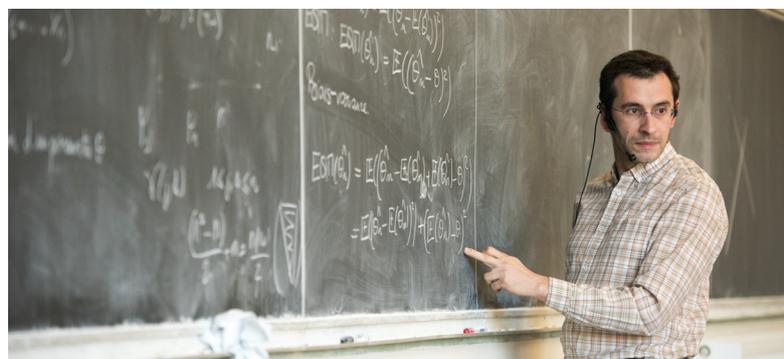
### ADMISSIONS

#### — Prerequisites to apply for M1

Bachelor's in mathematics or 180 ECTS credits in "Science" or equivalent.

#### — Process of selection

Master's degree Year 1: according to an application dossier, to be completed online ([candidatures.mido.dauphine.fr](http://candidatures.mido.dauphine.fr)).



#### To apply

[univ-psl.fr/en/formation/master-s-degree-mathematics-and-applications](http://univ-psl.fr/en/formation/master-s-degree-mathematics-and-applications)

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