**How to Find ENSIIE**

- **From Paris by train**
  RER D to Évry-Courcouronnes
  Exit at “parc Paul Sabatier” and then follow ENSIIE signs

- **By car from Paris**
  Take the A6 motorway and exit at “Évry Centre”

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**Mathematical Skills**

To succeed in this Master’s degree and enjoy its content, you need a strong mathematical background: an aptitude for mathematics is required and has to be evidenced by university-level credits you have earned in Statistics, Mathematical Optimisation, Analysis, Differential Equations and Probability.

**Computing Skills**

It is important for an Applied Mathematics practitioner to be able to use computers fluently to model and analyse new problems. This will involve programming in a high-level language. Applicants should have the following as part of an earlier degree: an undergraduate programming course (in any language e.g. R, MATLAB, C, C++, Fortran, Python), an understanding of flow control, the ability to use methods / functions.

**English Skills**

If your first language is not English or your first degree is not from a British or US University, you will need to provide evidence of your ability at spoken and written English.

**Cost of Studying at ENSIIE**

Approximately €1,500 per student. The French government provides substantial funding for higher education, which is why ENSIIE students enjoy low tuition fees.
MSC IN APPLIED MATHEMATICS
ENGLISH-TAUGHT MASTER’S DEGREE IN APPLIED MATHEMATICS GRANTED BY ENSIIE

PROGRAM INFORMATION

The programme consists of 60 ECTS credits in Semesters 1 and 2. It also includes a full-time internship in the spring. Please bear in mind that course offerings and availability are subject to change as curriculum develops to reflect a modern degree program.

This Applied Mathematics MSc programme is offered on a full-time basis on our campus in Évry. All teaching is carried out in English and classes are scheduled from the beginning of September to the beginning of April.

In this Applied MSc programme, you will:
- acquire fundamental tools that will allow you to follow advanced courses in Applied Mathematics;
- become familiar with a mathematical approach to real-world industrial problems.

ELIGIBILITY

Entry requirements: to be eligible for a place on the Applied Mathematics MSc you must have at least an upper second class degree, or its equivalent, in a numerate discipline such as (but not limited to) mathematics, engineering, computer sciences.

Previous study of applied mathematics, probability and differential equations at university level is required.

Previous programming experience, at university level is required.

You will need to have a solid knowledge of linear algebra, calculus, probability and differential equations.

You will be expected to have taken courses in
- mathematics jobs that are in high demand across all industries. The syllabus combines rigorous mathematics with practical experience: you will learn to develop computational methods and apply them to model, study and solve interdisciplinary problems.

A creative approach to IT concepts and tools (Arduino, 3D printer, salvage, etc.). Investigate the new relationships that develop between engineers and artists, and give your IT skills a creative spin.

Core Taught in English Modules

SEMESTER 1

The first semester is composed of all the following modules. The compulsory courses will build strong applied mathematical and computational foundations.

**DISCRETE TIME STOCHASTIC PROCESSES S3-[PST]**

The objective of this Unit is to study the discrete time stochastic processes, Martingales and Markov chains in particular.

**DATA ANALYSIS S3-[MAD]**

Data analysis is a powerful tool defined as the process of extracting data, analyzing it from many dimensions, exploring large complex data sets, including those in very large databases, producing a summary of the information in a useful form that identifies relationships within the data.

**REGULARISED REGRESSION S3-[MLG]**

The course presents the theoretical and practical elements of methods, conceptual models and tools to streamline the process of decision-making in a company.

**OPERATIONS RESEARCH S3-[MRO]**

The goal of this course is to present the basic concepts in mathematical finance, with a focus on the mathematical approach (discrete case) and the financial market approach.

**FINANCIAL INSTRUMENTS AND MODELS S4- [IMF]**

The goal of this course is to present the basic concepts in financial engineering and explore the various dynamics that develop between engineers and artists.

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**STOCHASTIC CALCULUS S4- [MCS]**

This course introduces fundamental mathematical concepts that are applied in many fields, especially in economics and finance. For instance, stochastic calculus is widely used for portfolio management, pricing and hedging derivatives. This module is essential for students who wish to work in finance and financial engineering.

**ANALYSIS OF PARTIAL DIFFERENTIAL EQUATIONS (PDEs) S4- [ANPDE]**

The first part is a theoretical course for solving Partial Differential Equations with abstract existence theorem (Lax–Milgram). The second course is about the finite element methods for computing numerical solutions to PDEs.

**CREATIVE CODING S4- [CC]**

Discover the artistic creative processes linked to the digital world and explore the various dynamics that develop between engineers and artists. This course entails a creative use of IT tools.

**CONCEPTION OF A DIGITAL PIECE OF ART S4- [ANUI]**

A creative approach to IT concepts and tools (Arduino, 3D printer, salvage, etc.). Investigate the new relationships that develop between engineers and artists, and give your IT skills a creative spin.

SEMINAR IN APPLIED MATHEMATICS

Parisa-saclay University

This one-year Applied MSc programme starts in the autumn semester and is designed to steer your career towards the mathematics jobs that are in high demand across all industries. The syllabus combines rigorous mathematics with practical experience: you will learn to develop computational methods and apply them to model, study and solve interdisciplinary problems.

You can apply to Paris-Saclay University for an M2 program once you have completed these 12-month master’s courses. When all requirements are fulfilled, students can apply to the following master’s degrees:

- **Mathematics and Applications at Paris-Saclay University**
  - Specialty “Financial Engineering” (IIF)
  - Master in Computer Science at Paris-Saclay University
  - Specialty “Operations Research” (MPRO)
  - Specialty “Machine Learning, Information and Content” (AIC)
- **Master of Information and Data Science (TRIED) at Paris-Saclay University**

You will need to have a solid knowledge of linear algebra, calculus, probability and differential equations.

Previous study of applied mathematics, probability and differential equations at university level is required.

You will be expected to have taken courses in mathematics jobs that are in high demand across all industries. The syllabus combines rigorous mathematics with practical experience: you will learn to develop computational methods and apply them to model, study and solve interdisciplinary problems.

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Eligibility

Entry requirements: to be eligible for a place on the Applied Mathematics MSc you must have at least an upper second class degree, or its equivalent, in a numerate discipline such as (but not limited to) mathematics, engineering, computer sciences.

Previous study of applied mathematics, probability and differential equations at university level is required.

Previous programming experience, at university level is required.

You will need to have a solid knowledge of linear algebra, calculus, probability and differential equations.

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