



M1 AM

Master of Applied Mathematics

International master's program fully taught in English.

This program is offered jointly by Université Grenoble Alpes (UGA) Faculty of Science, IM²AG and Grenoble INP Ensimag, UGA / France



Currently, applied mathematics is an area that provides many job opportunities, in industry and in the academic world.

There is a great demand for mathematical engineers on topics such as scientific computation, big data analysis, imaging and computer graphics, with applications in many fields such as physics, medicine, biology, engineering, finance, environmental sciences (see also the possible job titles for people with backgrounds in applied maths).

A large and distinguished graduate Faculty participates in the program, bringing their expertise in a wide range of areas of mathematics including applied analysis, numerical analysis and scientific computing, probability theory and statistics, computational graphics, image analysis and processing, and applied geometry.

<https://applied-math-master.imag.fr/>

Objectives

Our graduates are trained to become experts and leaders in scientific and technological projects where mathematical modeling and computing issues are central, in industry or research.

The academic program is a first year Master program (60 ECTS). It is composed of a common core which provides theoretical and practical grounds in probability and statistics, PDE and modelling, images and geometry as well as computer sciences, optimization and cryptology.

M1 AM can be pursued by one of the following Master 2 in Grenoble:

- › **Master of Science in Industrial and Applied Mathematics:** Modeling, Scientific Computing and Image analysis (MSCI), Data Science (DS)
- › **Master in Cybersecurity**
- › **Master in Operations Research, Combinatorics and Optimization**

Academic program

SEMESTER 1

SEPTEMBER > JANUARY

Mandatory courses

(for a total of 21 ECTS)

- › Geometric modeling
- › Object-oriented & software design
- › Signal and Image processing
- › Partial differential equations and numerical methods

Elective courses (6 ECTS)

- › Applied Probability and Statistics
- › Graduate School (selective)
- › Turbulence track courses

Language (3 ECTS)

SEMESTER 2

FEBRUARY > MAY

The second semester is composed of a **12 week** (February through May) **academic program**, followed by a participation in at least **8 weeks internship in a research group**. The academic program combines advanced work on fundamental topics as well as an introduction to more specialized subjects. It also includes a research project (3 ECTS). The program is composed of:

Mandatory courses

(for a total of 12 ECTS)

- › Computer science for big data and HPC
- › Modeling project
- › Numerical optimization

Elective courses (12 ECTS)

- › 3D graphics
- › Statistical analysis and document mining
- › Computer algebra and cryptology
- › Introduction to operations research
- › Variational methods applied to modelling
- › Turbulences

Internship (3 ECTS)



ADMISSIONS

To be admitted to the program, candidates must have previously completed their undergraduate studies and been awarded a **Bachelor degree in Mathematics or Applied Mathematics, or equivalent, with a background in both mathematics and numerical programming**. The candidate should be interested in pursuing a high level mathematical education and motivated by the applications of mathematics. The minimum requirement is to have earned at least the equivalent of **180 ECTS credits**.

Students from related backgrounds (physics, computer science, engineering, ...) may also apply provided they possess outstanding mathematical qualifications and are highly motivated by applications.



REQUIREMENT

English language competence B2
(see English test scores accepted on our admission webpage)

A2 level recommended in French

APPLICATION DEADLINE

End of April



Contacts

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<https://ensimag.grenoble-inp.fr/fr/formation/masters>

