Master 2 Applied mathematics, statistics

Degree level: Master
Training time: 1 year
Language: French
Status: Student
Campus: Lyon-Ecully Campus

Objectives

The **master 2 Applied Mathematics, Statistics** trains for research and high-level **mathematical engineering**. Students acquire skills both in the field of **numerical modeling** and in the field of **stochastic and statistical modeling**.

The master's program offers 4 majors:

- Mathematics, biology and medicine
- Mathematics, environment and climate
- Mathematics, Image and Data
- Mathematics, statistical learning and machine learning

Program

Common Core

- Deterministic Modeling (required)
- Stochastic Modeling and Statistical Learning (required)
- Applied Mathematics, statistics (optional)
- Optimization and Parsimonious Representation (required)
- Language

The second semester (January to March) is made up of a major to choose from among 4 and an end-of-study internship (April to September) in the form of an introduction to research careers, to be carried out in a laboratory or company.

Mathematics, Biology and Medicine Major

- Epidemiology
- Evolutionary biology
- Cell dynamics and complex systems
- Modeling in spatial ecology

Major: Mathematics, Environment and Climate

- Modeling for climate change risk assessment
- Fluid mechanics equations and their numerical approximation
- Modeling in spatial ecology
- Graphs and ecological networks

Mathematics, images and data major

- Geometric approaches for images and shapes
- Variational methods for inverse problems in medical imaging
- Parcimony and high dimensionality
- Neural networks

Mathematics, statistical learning and machine learning major

- Neural networks
- Parcimony and high dimensionality
- Graphs and ecological networks
- Optimal transport for learning

Students must complete a 5-6 month internship in a laboratory or company.

Diploma and certification

This course delivers a national master's degree - controlled by the State.

DIPLÔME
NATIONAL DE
MASTER
CONTRÔLÉ
PAR L'ÉTAT

Career opportunities

- Mathematician modeler
- R&D engineer
- Researcher

Focus

A co-accredited master's degree

The Maths in Action course of the Applied Mathematics, Statistics master's degree is co-accredited with the University of Lyon 1, the Saint-Etienne Ecole des Mines, the Université de Saint-Etienne and the ENS de Lyon.

Some courses may be held on the campuses of these establishments.

Admission requirements and application

Pre-requisites

This course is **accessible only to Centrale Lyon engineering students** as part of a double degree. For external candidates: consult the [University Lyon 1 website](#).

Administrative contact

Education department - French-speaking Masters

Information and registration

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Educational contact

Seppecher Laurent

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Useful link

- [Discover the training syllabus](#)