Master Mathematics Applied to Financial Engineering

The Master Mathematics Applied to Financial Engineering offers training in financial engineering to students holding a bachelor's degree in mathematics or applied mathematics.

Introduction

The Master Mathematics Applied to Financial Engineering allows to master the scientific foundations of mathematical tools in finance, and it also offers solid knowledge in financial engineering in order to be fully operational in business. This master is built in collaboration with the second and third years of the engineering training in Mathematical Modeling for Finance and Actuarial Science at CY Tech.

Admission

Prerequisite

Prerequisites training

The first year is open to candidates holding a bachelor's degree (in mathematics or in applied mathematics), or any equivalent degree. Obtaining a mention in this degree is fully appreciated.

The second year is open to candidates holding a first year of a master's degree (in mathematics or in applied mathematics), or any equivalent degree.

Application

Conditions of applications

Application to the first year of the master

The first year of the Master Mathematics Applied to Financial Engineering will supervise 20 students during the 2025-2026 academic year. The application has to be made via the platform Études en France. The application forms consist of:

- the diploma and mark transcripts from the bachelor's degree (in mathematics or applied mathematics),

Places

The lectures are mainly given in the Saint-Martin campus.

Internship(s)

Yes, Compulsory

Rhythm

- With blocked release periods
  - Apprenticeship

Conditions

- Attending

Information

phanie.joucla@cyu.fr

- the diplomas and mark transcripts for the last three years,
- a motivation letter, which describes in particular the professional project.

Deadline for the application: December 15th, 2024.

Application to the second year of the master

The second year of the Master Mathematics Applied to Financial Engineering will supervise 15 students during the 2025-2026 academic year. The application has to be made via the platform Études en France. The application forms consist of:

- the diploma and mark transcripts from the first year of the master's degree (in mathematics or applied mathematics),
- the diplomas and mark transcripts for the last four years,
- a motivation letter, which describes in particular the professional project.

Deadline for the application: December 15th, 2024.

Conditions of specific applications

You **left higher education** for more than two years, you are an employee, job seeker, self-employed,...: submit your application to resume studies here.

People with disabilities who wish to follow the master Mathematics Applied to Financial Engineering are invited to contact us directly, in order to study together the possibilities of following the training.

Program

Master 1 Program

- Block 1
  - Partial Differential Equations (4 ECTS)
  - Advanced Optimization (4 ECTS)
  - Probability (4 ECTS)
  - Stochastic Processes 1 (4 ECTS)
  - Python Programming (3 ECTS)
  - Stochastic Simulation (3 ECTS)
  - Project (8 ECTS)
- Block 2
  - Contingent Claims Valuation 1 (3 ECTS)
  - Portfolio Management 1 (2 ECTS)
  - Introduction to Insurance (1 ECTS)
  - Advanced Numerical Methods for Partial Differential Equations (3 ECTS)
  - Stochastic Processes 2 (3 ECTS)
    C++ Programming (2 ECTS)
  - Visual Basic (1 ECTS)
- Block 3 Research
  - Advanced Functional Analysis (4 ECTS)
  - Applied Harmonic Analysis (4 ECTS)
  - Dynamical Systems (4 ECTS)
- Block 3 Work Experience
  - Work Experience (12 ECTS)

Master 2 Program

- Semester 1
  - Fintechs, InsurTechs and RegTechs (3 ECTS)
  - Financial Markets and Bloomberg (3 ECTS)
  - Model Calibration and Simulation (4 ECTS)
  - Practical Fixed Income (3 ECTS)
  - Stochastic Calculus (4 ECTS)

Theory of Contingent Claims (4 ECTS)

Modeling (4 ECTS)

Interest Rates, Exchange and Information Markets (4 ECTS)

Semester 2

Time Series Methods (4 ECTS)

Machine Learning with Python (4 ECTS)

Portfolio Management (4 ECTS)

High Risks, Extreme Values (3 ECTS)

Final Year Project (6 ECTS)

Work Experience (10 ECTS)