Master's degree in Mathematics
Analysis and applications

Master's degree year 1 - semester 1

Functional analysis 1 (6 ECTS)

Probalities and applications (6 ECTS)

Modelling and partial derivative equation (6 ECTS)

Digital tools (3 ECTS)

Option (6 ECTS), choose between:

* Algebra and applications (6 ECTS)

* Differential geometry (6 ECTS)

* Free-choice class (6 ECTS)

English (3 ECTS)

Master's degree year 1 - semester 2

Complex and Fourier analyses (6 ECTS)

Study and research (3 ECTS)

Professional culture (3 ECTS)

Options (18 ECTS), choose between:

* Functional analysis 2 (6 ECTS)

* Partial derivative equation in biology and physics (6 ECTS)

* Process and finance (6 ECTS)

* Wavelet and signal processing (6 ECTS)

* Statistics (6 ECTS)

Master's degree year 2 - semester 1

Analysis tools and partial derivative equation (9 ECTS)

Thin airfoils theory and nonlinear evolution equation analysis (9 ECTS)

Option (12 ECTS), choose between:

* Degenerate parabolic equations and Hamilton–Jacobi equations (6 ECTS)

* Discrete curves and 3D image synthesis (6 ECTS)

* Big data and finance (6 ECTS)

* Risk measures in finance (6 ECTS)

* Great deviations (6 ECTS)

* Convergence to equilibrium of reversible diffusions (6 ECTS)

Master's degree year 2 - semester 2

Internship (18 ECTS)

Option (12 ECTS), choose between:

* Fourier analysis methods for non-homogeneous fluid study (6 ECTS)

* Multifractal analysis and signal and image processing (6 ECTS)

* Non-linear dispersive partial differential equations: introduction (6 ECTS)

* Optimal transport and applications (6 ECTS)

* Elliptic partial differential equations from geometry (0 ECTS)

* Interest rate models (6 ECTS)

* Malliavin calculus (6 ECTS)

* Jump process and application to the energy market (6 ECTS)
* Risk measures in finance (6 ECTS)
* Financial markets microstructure (6 ECTS)
* Counterparty and credit risks (6 ECTS)
* Numerical methods in actuarial finance (6 ECTS)
* Statistical forecasting (6 ECTS)
* Models selection (6 ECTS)
* Simulation and copula (6 ECTS)
* Limit theorems for processes (6 ECTS)