

#### Programme Coordinator

Dr Josep Vives  
josep.vives@ub.edu

#### Information, Pre-Enrolment and Enrolment

Secretary's Office, Faculty of Mathematics  
Gran Via de les Corts Catalanes, 585  
08007 Barcelona (Spain)

Tel.: (+34) 934 935 863  
E-mail: master.mates@ub.edu  
[www.ub.edu/estudis/mastersuniversitaris/matematicavan](http://www.ub.edu/estudis/mastersuniversitaris/matematicavan)

#### Academic Calendar

September–June. Class schedule: mornings and afternoons, Monday to Thursday

#### Total Study Load

60 ECTS credits

#### Places Offered

25

#### Language

English

#### Admission and Selection Criteria

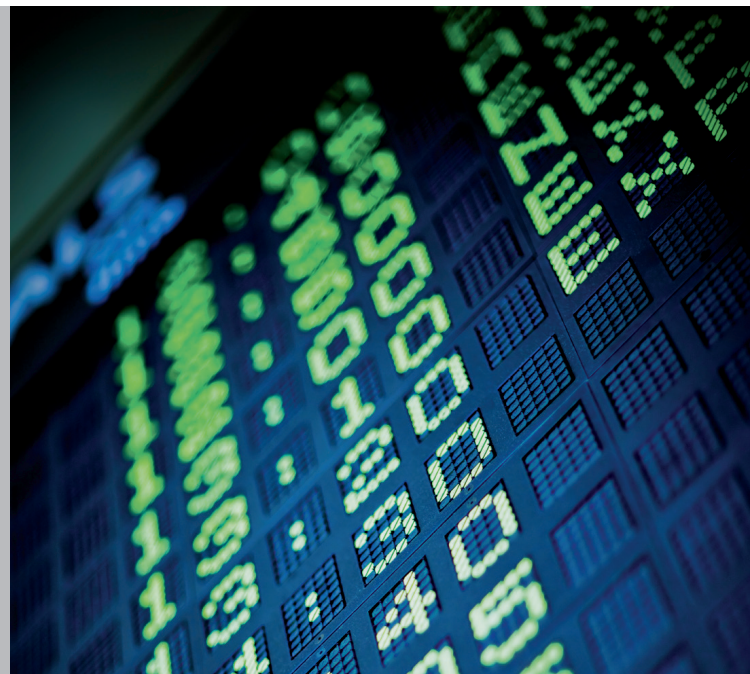
Holders of an official bachelor's degree awarded by a higher education institution within the EHEA framework that qualifies the holder for master's degree study may apply for admission to the programme. Holders of a non-EHEA first degree that the Academic Committee of the University of Barcelona considers to be equivalent may also be admitted to the master's degree course.

The Academic Committee will select the successful applicants on the basis of their academic record and curriculum vitae.

#### Fees

The corresponding fees for master's degree courses are established each academic year by the regional authorities of Catalonia.

Institute of Mathematics of the University of Barcelona (IMUB), within the Faculty of Mathematics offers grants.



## MASTER'S DEGREE IN ADVANCED MATHEMATICS

**Faculty of Mathematics  
University of Barcelona**

Gran Via de les Corts Catalanes, 585  
08007 Barcelona (Spain)

Tel.: (+34) 934 935 863  
E-mail: master.mates@ub.edu

[www.ub.edu/estudis/mastersuniversitaris/matematicavan](http://www.ub.edu/estudis/mastersuniversitaris/matematicavan)



# MASTER'S DEGREE IN ADVANCED MATHEMATICS

**Faculty of Mathematics  
University of Barcelona**





## MAIN AIMS

The main aims of the master's degree in Advanced Mathematics are:

- To provide specialized high-quality education in different areas of mathematics and related applications.
- To introduce students to the world of research in preparation for PhD studies.

More specifically, the master's degree:

- Provides students with the general skills and methodological tools necessary to pursue scientific or professional activities.
- Enhances the students' ability to work in an interdisciplinary environment.
- Provides the knowledge required to express mathematical ideas correctly in oral presentations and written work.
- Introduces students to relevant computer tools.

The master's degree prepares students for skilled positions in:

- University Lecturing and Research
- Industry
- Banking, Finance and Insurance
- Consultancy, Information and Communication Technology



## AREAS INCLUDED

The master's degree is organized by the Faculty of Mathematics of the University of Barcelona.

The programme covers a wide range of topics, applying a cross-sectional approach which benefits greatly from the synergies created by the combination of different areas of study within a single framework.

The subjects included in the master's degree syllabus belong to the following areas of mathematics: algebra, algebraic geometry, topology, analysis, differential geometry and topology, dynamical systems, logic, number theory, and stochastic analysis.



## STRUCTURE OF THE PROGRAMME

To obtain the master's degree in Advanced Mathematics, students must complete 60 ECTS credits.

The course syllabus includes the following subjects:

### Compulsory subjects (15 ECTS credits in total)

- Advanced Methodology in Mathematics
- Functional Analysis and Partial Differential Equations
- Geometry and Topology of Manifolds

### Optional subjects (6 ECTS credits each)

Students choose five from:

- Algebraic Curves
- Applied Harmonic Analysis
- Complex Analysis of One and Several Variables
- Computational Algebra
- Dynamical Systems
- Geometrical Methods in Number Theory
- Local Algebra
- Logic and Algebra
- Quantitative Finance
- Simulation Methods
- Stochastic Calculus

Up to 12 ECTS credits may be completed in optional subjects from other master's degrees in mathematics.

### Master Thesis (15 ECTS credits)

The Master Thesis must be carried out under the supervision of a lecturer from the Faculty of Mathematics. Students may base their final project on an innovation project executed during a company placement.