Programme Coordinator

Dr Josep Vives
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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/masters universitaris/matematicavan

Academic Calendar

September–June. Class schedule: mornings and evenings, 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 students for master's degree study may apply for admission to the programme. Holders of a non-EHEA undergraduate degree that the Academic Committee considers to be of equivalent academic value may also be admitted to the Master.

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

Fees

The fees for university master's degree courses are established each academic year by the Government of Catalonia.

The University of Barcelona Institute of Mathematics (IMUB), of the Faculty of Mathematics, offer grants.
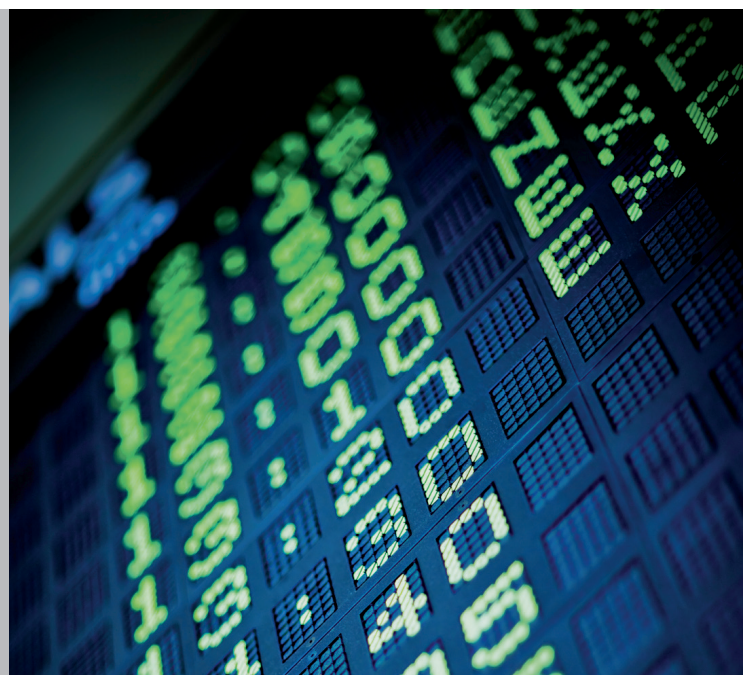
MASTER IN ADVANCED MATHEMATICS

**Faculty of Mathematics
University of Barcelona**

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UB Universitat de Barcelona

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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 its applications.
- To introduce the world of research in preparation for PhD studies.

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

The master's degree prepares students for skilled positions in:
- University Teaching and Research
- Industry
- Banking, Finance and Insurance
- Consultancy, Information and Communication Technologies

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.

The course syllabus includes the following subjects:

Compulsory subjects (15 ECTS)
- Advanced Methodology in Mathematics
- Functional Analysis and Partial Differential Equations
- Geometry and Topology of Manifolds

Optional subjects (6 ECTS each one)
To choose five between:
- 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

It is possible to study up to 12 ECTS in optional subjects of other masters in Mathematics.

Final project (15 ECTS)

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