This master's degree has a dual academic and professional orientation. It provides the skills and techniques needed for scientific and mathematical research and the capacity to work in interdisciplinary teams.

The MAMME gives access to the doctoral programme in Applied Mathematics and provides a solid grounding in science and engineering.

More information: http://mamme.masters.upc.edu/mamme.fme@upc.edu

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The master's degree in Advanced Mathematics and Mathematical Engineering (MAMME) has a dual academic and professional orientation. On the academic side, it provides the skills and techniques needed for scientific research in general and, more specifically, for mathematical research. On the professional side, it enables students to enter any interdisciplinary team alongside, engineers, physicists, biologists and economists, for example.

Requirements
The master's degree is intended for students with good abstract reasoning skills, an interest in problem solving, strong work habits and a liking for mathematics. A scientific background in mathematics are required. For this reason, a bachelor's degree in Mathematics, Statistics, Physics or Engineering is recommended, although this list is not exclusive and all applications will be reviewed on an individual basis. Candidates whose mathematical background is insufficient can be accepted provided they take additional courses to reach the required level.

Admission criteria
The following will be taken into consideration during the admission process: academic record, curriculum vitae, statement of purpose and, if necessary, a personal interview and letters of recommendation.

Scholarships
In addition to grants of a more general nature, the MAMME offers the scholarships listed below. Catalunya-La Pedrera Foundation sponsors a scholarship worth 5,000 euros that is offered to students enrolled in the master's degree. AGAUR teaching support scholarships aim to support the academic activities of teaching staff under the Catalan government’s AAD programme. Master Student Excellence IMP Awards recognise the academic excellence of the students with the best academic records during the first and second semesters.

International recognition
- In the 2014 edition of the CWTS Leiden Ranking, the UPC was ranked first in Spain and 23rd in the world for scientific output in the field of Mathematics, Computer Science and Engineering.
- The master's degree was awarded the International Master's Programme distinction by the Government of Catalonia’s Agency for the Management of University and Research Grants (AGAUR) in the 2013 call.

Mobility programmes
The master's degree promotes the mobility of its students through agreements with other universities in Europe, Latin America and the rest of the world, within the framework of international mobility programmes such as Erasmus+ and UPC Europe. Needless to say, students from other universities are welcome.

Professional opportunities
Graduates may find employment in academic research by pursuing a doctoral degree, mathematical modelling in industry, finance, statistics, biomedical, computer vision or other fields.

Access to doctoral studies
The master's degree gives access to the doctoral degree in Applied Mathematics and provides a solid background to any doctoral degree in science or engineering.

What subjects to choose
The curriculum comprises a total of 60 ECTS that are taken over two semesters (one academic year): 45 ECTS for courses and 15 ECTS for the master's thesis. The first semester of the master's degree starts in September and ends in January and the second semester starts in February and ends in June. All courses are taught in the afternoon, from 3 p.m. to 7.30 p.m. Courses are offered in five broad fields:
- Algebra and Geometry
- Discrete Mathematics and Algorithmics
- Modelling in Engineering and Biomedical Sciences
- Differential Equations
- Scientific Computing

Students may choose to take courses from other master's degrees, up to a maximum of 22.5. The courses may be from the master's degree in Advanced Mathematics taught at the Universitat de Barcelona, the master's degree in Modelling for Science and Engineering taught at Universitat Autònoma de Barcelona and the master's degree in Statistics and Operations Research (MESIO) taught at the UPC. Courses from other UPC master's degrees may also be taken subject to the approval of the MAMME course director.

Check mamme.masters.upc.edu for the complete list of courses and detailed timetables.

Course directors: Jaume Franch and Sonia Fernández

60 ECTS

7 research groups recognised by the Catalan government (SGR)

>40% international students

100% graduate employment rate

- The UPC occupies significant positions in international rankings such as the Shanghai Ranking, in which it is ranked among the top 200 universities in the world in the field of Mathematics.
- The master's degree promotes the mobility of its students through agreements with other universities in Europe, Latin America and the rest of the world, within the framework of international mobility programmes such as Erasmus+ and UPC Europe. Needless to say, students from other universities are welcome.
- Graduates may find employment in academic research by pursuing a doctoral degree, mathematical modelling in industry, finance, statistics, biomedical, computer vision or other fields.
- The master's degree gives access to the doctoral degree in Applied Mathematics and provides a solid background to any doctoral degree in science or engineering.