@font-face{ font-family:'Glyphicons Halflings'; src:url("/content/assets/fonts/bootstrap/glyphicons-halflings-regular.eot"); src: url("/content/assets/fonts/bootstrap/glyphicons-halflings-regular.eot?#iefix") format("embedded-opentype"), url("/content/assets/fonts/bootstrap/glyphicons-halflings-regular.woff2") format("woff2"), url("/content/assets/fonts/bootstrap/glyphicons-halflings-regular.woff") format("woff"), url("/content/assets/fonts/bootstrap/glyphicons-halflings-regular.ttf") format("truetype"), url("/content/assets/fonts/bootstrap/glyphicons-halflings-regular.svg#glyphicons_halflingsregular") format("svg") }

UNIVERSITAT POLITÈCNICA DE CATALUNYA BARCELONATECH

Bachelor's degree in Mathematics

SCHOOL OF MATHEMATICS AND STATISTICS (FME)

The **bachelor's degree in Mathematics** is a rigorous course that will provide you with comprehensive training in the core disciplines of mathematics and their applications. If your goal is to do research, you will be well equipped to join leading groups conducting research in mathematics, engineering and technology, natural and health sciences, or the social sciences. You will be able to pursue a career in business or industry, or in banking and finance, consulting, health or services – all sectors in which mathematicians are increasingly valued for their training and ability to learn. If you are interested in teaching, after completing a master's level teacher-training course, you will be able to teach mathematics at secondary schools.

GENERAL DETAILS

Duration
4 academic years

Study load
240 ECTS credits (including the bachelor's thesis). One credit is equivalent to a study load of 25-30 hours.

Delivery
Face-to-face

Admission mark 2025-2026 academic year
12,644

Timetables
Mornings

Language of instruction

Check the language of instruction for each subject (and timetable) in the course sheet in the curriculum.

Information on language use in the classroom and students' language rights.

Fees and grants
Approximate fees per academic year: €1,061 (€1,800 for non-EU residents). Consult the public fees system based on income (grants and payment options).

Location
School of Mathematics and Statistics (FME)

Official degree
Recorded in the Ministry of Education's degree register

ADMISSION

Places
75

Pre-enrolment code
31040

Places via a change of degree

6

Admission mark 2025-2026 academic year

12,644. Admission mark

Weighting. University entrance examinations (PAU)

Weighting. University entrance examinations (PAU)

Registration and enrolment

What are the requirements to enrol in a bachelor's degree course?

CFGS credit transfer

Consult the university studies search engine of the Universities Channel of the Generalitat de Catalunya

Legalisation of foreign documents

All documents issued in non-EU countries must be legalised and bear the corresponding apostille.

CURRICULUM

Subjects	ECTS credits	Type
FIRST SEMESTER		
Computer Science	7.5	Compulsory
Fundamentals of Mathematics	7.5	Compulsory
Linear Algebra	7.5	Compulsory
Single Variable Calculus	7.5	Compulsory
SECOND SEMESTER		
Affine and Euclidean Geometry	7.5	Compulsory
Differential Calculus	7.5	Compulsory
Discrete Mathematics	7.5	Compulsory
Numerical Linear Algebra	7.5	Compulsory
THIRD SEMESTER		
Algorithmics	7.5	Compulsory
Integral Calculus	7.5	Compulsory
Mathematical Programming	7.5	Compulsory
Multilinear Algebra and Geometry	7.5	Compulsory
FOURTH SEMESTER		
Complex Variable Functions	7.5	Compulsory
Physics	7.5	Compulsory
Real Analysis	7.5	Compulsory
Topology	7.5	Compulsory
FIFTH SEMESTER		
Algebraic Structures	7.5	Compulsory
Numerical Calculus	7.5	Compulsory
Ordinary Differential Equations	7.5	Compulsory
Probability Theory	7.5	Compulsory
SIXTH SEMESTER		

Subjects	ECTS credits	Type
Differential Geometry	7.5	Compulsory
Mathematical Models in Physics	7.5	Compulsory
Partial Differential Equations	7.5	Compulsory
Statistics	7.5	Compulsory
SEVENTH SEMESTER		
Mathematical Models in Technology	9	Compulsory
Abstract Algebra	3	Optional
Algorithmics and Compelxity	6	Optional
Bayesian Methods	6	Optional
Combinatorics and Graph Theory	6	Optional
Cryptology	6	Optional
Data Engineering and Blockchain	3	Optional
Data Science Applied to Finance	3	Optional
Differentiable Manifolds	6	Optional
Dynamical Systems	6	Optional
Experimental Design	6	Optional
Files and Databases	6	Optional
Galois Theory	6	Optional
Generalised Linear Models	6	Optional
Industrial Statistics	6	Optional
Linear Models	6	Optional
Mathematics Applied to Music	3	Optional
Mathematics for Education and Dissemination	6	Optional
Mathematics of Digital Technologies	3	Optional
Numerical Methods for Differential Equations	6	Optional
Statistical Methods for Data Mining	6	Optional
Statistical Methods for Finance and Insurance	6	Optional
Time Series Analysis	6	Optional
EIGHTH SEMESTER		
Algebraic Geometry	6	Optional
Algebraic Topology	6	Optional
Computational Modelling	6	Optional
Control Theory	6	Optional
Demography	6	Optional
Econometrics	6	Optional
Engineering Optimisation	6	Optional
Financial Mathematics	6	Optional
Financial Optimisation	6	Optional

Subjects	ECTS credits	Type
Functional Analysis	6	Optional
History of Mathematics	6	Optional
Multivariate Analysis	6	Optional
Music and Mathematics	3	Optional
Non-Parametric and Resampling Methods	6	Optional
Nonlinear Time Series Analysis	6	Optional
Quantum Computing	6	Optional
Queueing Theory and Simulation	6	Optional
Statistics for Biosciences	6	Optional
Survival Analysis	6	Optional
Bachelor's Thesis	15	Project

PROFESSIONAL OPPORTUNITIES

Professional opportunities

- Strategic consulting, technology consulting, management of projects and educational programmes.
- Business, industry and services: data analysis, programming and software engineering, market research, planning and management, cryptography and security.
- Research in mathematics: teaching and research at universities and research centres.
- Research in other sciences and in engineering and technology: research centres and laboratories in the public and private sector: computing, communications, robotics, mechanics, biology and medicine.
- Banking, finance, insurance: risk analysis and control, portfolio and fund management, investment management, design and evaluation of financial products, cryptography and security.
- Teaching positions with public and private secondary schools, publishers, and companies in the education sector.

DOUBLE-DEGREE AGREEMENTS

With Escola Superior de Música de Catalunya (ESMUC)

- Bachelor's degree in Mathematics + Higher Music degree

Within the framework of the courses offered by the Interdisciplinary Higher Education Centre (CFIS)

You can also take an interdisciplinary double degree coordinated by the CFIS at two UPC schools.
Further information on the CFIS website

QUALITY ACCREDITATION

Check the degree’s main quality indicators in the University Studies in Catalonia portal of the Catalan University Quality Assurance Agency. Find information on topics such as degree evaluation results, student satisfaction and graduate employment data.
Further information

ORGANISATION: ACADEMIC CALENDAR AND REGULATIONS

Academic calendar

General academic calendar for bachelor’s, master’s and doctoral degrees courses

Academic regulations

Academic regulations for bachelor’s degree courses at the UPC

Language certification and credit recognition

Queries about language courses and certification