BACHELOR’S DEGREE IN MATHEMATICS + BACHELOR’S DEGREE IN MUSIC (Double degree)

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BACHELOR’S DEGREE IN MATHEMATICS + BACHELOR’S DEGREE IN MUSIC (Double degree)
The double degree comprising the bachelor's degree in Mathematics, taught at the School of Mathematics and Statistics (FME) of the Universitat Politècnica de Catalunya – BarcelonaTech (UPC), and the bachelor's degree in Music, taught at the Escola Superior de Música de Catalunya (ESMUC), is the only degree in Catalonia that combines the two disciplines. It springs from the need for a double degree that responds to the current job market. The degree in Music has been issued a favourable report by AQU Catalunya and is equivalent to the bachelor's degree at ESMUC, and is considered one of the best music schools in Catalonia.

**Curriculum**

1st year
- Affine and Euclidean Geometry: 7.5 credits
- Differential Calculus: 7.5 credits
- Fundamentals of Mathematics: 7.5 credits
- Linear Algebra: 7.5 credits
- Single Variable Calculus: 7.5 credits
- Choir: 2 credits
- General Auditory Perception: 3 credits
- Music and Culture I and II: 3 credits
- Musical Analysis Methods: 4 credits
- Principal Instrument I: 14 credits
- Secondary Instrument I: 2 credits

2nd year
- Discrete Mathematics: 7.5 credits
- Informatics: 7.5 credits
- Multilinear Algebra and Geometry: 7.5 credits
- Numerical Linear Algebra: 7.5 credits
- Rael Analysis: 7.5 credits
- Chamber Music III and IV: 4 credits
- Communication and Body Training I and II: 4 credits
- Fundamentals of Composition: 3 credits
- Improvisation and Accompaniment for Pianists I and II: 4 credits
- Music and Culture III: 3 credits
- Musical Analysis I: 3 credits
- Principal Instrument II: 14 credits
- Professional Development: 3 credits
- Secondary Instrument II and III: 4 credits

3rd year
- Complex Variable Functions: 7.5 credits
- Integral Calculus: 7.5 credits
- Mathematical Programming: 7.5 credits
- Physics: 7.5 credits
- Topology: 7.5 credits
- Aesthetics: 4 credits
- Analysis Workshop I: 2 credits
- Chamber Music V and VI: 4 credits
- Improvisation and Accompaniment for Pianists III: 3 credits
- Lie II: 2 credits
- Principal Instrument III and IV: 28 credits
- Secondary Instrument IV and V: 4 credits
- Specific Auditory Perception: 2 credits

4th year
- Algorithms: 7.5 credits
- Mathematical Models of Physics: 7.5 credits
- Ordinary Differential Equations: 7.5 credits
- Partial Differential Equations: 7.5 credits
- Probability Theory: 7.5 credits
- Statistics: 7.5 credits
- Chamber Music VII: 2 credits
- History of 19th Century Music: 4 credits
- Improvement and Accompaniment for Pianists V: 4 credits
- Interpretation Seminar: 2 credits
- Principal Instrument V and VI: 28 credits
- Secondary Instrument V and VI: 2 credits

5th year
- Algebraic Structures: 7.5 credits
- Differential Geometry: 7.5 credits
- Mathematical Models of Technology: 9 credits
- Numerical Calculus: 7.5 credits
- Analysis Workshop II: 2 credits
- Contemporary Music Repertoire and Techniques: 2 credits
- Fundamentals of Performance Practice: 3 credits
- Principal Instrument VII and VIII: 28 credits
- Specific Instrument Repertoire: 3 credits
- Bachelor's Thesis: Mathematics: 16 credits
- Bachelor's Thesis: Music: 8 credits

**Aimed at**

The double degree is designed for highly capable students who are interested in developing a career in mathematics and music. Up to now, students with this combined interest were obliged to take two separate degrees, with a study load of 480 ECTS credits. They can now graduate with a double degree by passing the 420 ECTS credits of this adapted curriculum.

**Professional opportunities**

The double degree provides the skills needed to occupy jobs related to the two disciplines. In addition to professions linked to qualifications of excellence in music, as a graduate in Mathematics you may pursue a career in research and university teaching, banking and finance, insurance and services, secondary education, industry, consulting and administration, ICT companies, biomedical companies, etc.

**Entrance requirements**

To gain admission to this degree, you must have at least the minimum entrance mark for the bachelor's degree in Mathematics at the FME and pass a specific mathematics exam and an entrance exam at the ESMUC. On the basis of their marks in these exams, candidates will be chosen for the selection process. Five places are available every academic year.

**Organisation**

The double degree is taken over 10 semesters (five academic years) and begins in September. The curricular pathway is personalised and timetables are adapted. Subjects on the bachelor's degree in Mathematics are taught at the FME (Carrer Pau Gargallo, 14) and subjects on the degree in Music at the ESMUC (Carrer Padilla, 155, L'Auditori building), both in Barcelona. Students must enrol at both schools and credits will automatically be recognised.

**ESMUC**

The ESMUC is the only public higher education institution that awards the degree in Music. It also offers master's degrees and postgraduate and lifelong training courses. It began to offer courses in 2001, and it currently has more than 750 students of 25 nationalities. The ESMUC follows a comprehensive educational model and aims to become an international benchmark for its excellence in education, as well as a sociological mirror of the country that promotes the educational and cultural ecosystem in the matter of music.

**FME**

The FME, founded in 1982, is a benchmark school that puts students at the centre of its teaching activity and provides one-on-one attention. The bachelor's degree in Mathematics has acquired a reputation for excellence, quality and the level of academic achievement it demands of students. It is chosen by students with the best academic records and has one of the highest minimum entrance marks in Catalonia.
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