MASTER'S DEGREE IN
STATISTICS
AND OPERATIONS
RESEARCH
(MESIO **UPC-UB**)

FME
School of Mathematics and Statistics

**UNIVERSITAT POLITÈCNICA
DE CATALUNYA
BARCELONATECH**

International Campus of Excellence

MASTER'S DEGREE IN
STATISTICS AND OPERATIONS RESEARCH (MESIO UPC-UB)

The aim of the master's degree in Statistics and Operations Research (MESIO UPC-UB) is to provide students with advanced knowledge of theory and methods in statistics and operations research. Graduates of the master's degree will be able to apply the skills that they have acquired in areas such as healthcare, data science, business, industry, government agencies and services. They are also given research training that prepares them for the doctoral degree.

The MESIO UPC-UB is an interuniversity master's degree that is organised jointly by the Universitat Politècnica de Catalunya (UPC) and the Universitat de Barcelona (UB) and coordinated by the School of Mathematics and Statistics (FME). Students benefit from the combined expertise of UPC and UB teaching staff, expertise which is grounded in internationally recognised research in the fields of biostatistics, bioinformatics, econometrics, operations research, optimisation, data science and industrial statistics.

- **Languages of instruction**: Spanish and English
- **Delivery:** Face to-face
- **Classes**: From mid-September to the end of January (first semester) and February to mid-June (second semester)
- **Course director**: Pedro Delicado

Intensifications

- Business and Social Statistics
- Biostatistics and Bioinformatics
- Operations Research
- Data Science

Curriculum

The curriculum comprises a total of 90 ECTS that are taken over three semesters: 60 ECTS for courses and 30 ECTS for the master's thesis. Students take four compulsory courses (20 ECTS), two of them common to all students and two in the pathway to which the student has been assigned. The eight optional courses can be chosen from topics in business and socials statistics, biostatistics and bioinformatics, optimisation and operations research, and data science. Selected subjects from other master's degrees at the UPC and the UB are offered as optional courses.

Compulsory training (20 ECTS)

Common compulsory training (10 ECTS)

+

Graduates in Statistics and Mathematics	Graduates of other disciplines
Pathway 1 10 ECTS	Pathway 2 10 ECTS

Optional training (40 ECTS)

Fundamentals	Intensifications
Common Training	Business and Social Statistics
Statistics	Biostatistics and Bioinformatics
Operations Research	Operations Research
	Data Science (New)

Master's thesis (30 ECTS)

Requirements

The master's degree is intended for graduates of bachelor's degrees in disciplines with solid backgraound in statistics and/or operations research. Prospective students should ideally be interested in understanding numerical information, solving problems, explaining findings and drawing conclusions. They should have an aptitude for numerical reasoning, be critical thinkers and skilled communicators.

Holders of bachelor's degrees in the following fields may be considered:

- Statistics, Mathematics
- Bioinformatics, Biology, Physics, Biotechnology
- Economics, Actuarial Sciences
- Industrial Engineering and other engineering fields
- Computer Science
- Psychology, Sociology

The academic structure of the master's degree includes levelling courses in the first semester that aim to promote the entry of students from diverse academic backgrounds. Students with a significant background in mathematics and/or statistics are assigned to Pathway 1 and the rest are assigned to Pathway 2.

Admission criteria

The following will be taken into consideration during the admission process: academic record, curriculum vitae, prior courses in statistics and/or operations research, work experience, proficiency in English and Spanish (B2 level recommended) and statement of purpose.

90 ECTS credits

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.

International recognition

The MESIO UPC-UB 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.

The UPC and the UB occupy significant positions in the fields of Mathematics and Statistics in international rankings such as the Shanghai Ranking, in which the UB is among the top 200 universities in the world and the UPC is among the top 400 (being respectively the 1st and among the best 9 universities in Spain).

One of the most important indicators of the international nature of our curriculum is our professors' research and their continuing international collaborations. They have received several awards and distinctions for their teaching and research and they are regularly awarded national and international research funds. Several research groups give support to the master's degree.

Scholarships

In addition to scholarships of a more general nature, the MESIO UPC-UB offers the **Accenture-MESIO UPC-UB scholarships.** These scholarships are offered in collaboration with Accenture and cover enrolment fees and paid internships.

It also offers the **Accenture MESIO UPC-UB Student Award** for the best academic records.

Work placements

Students enrolled in the master's degree can complete their education through a work placement at a company.
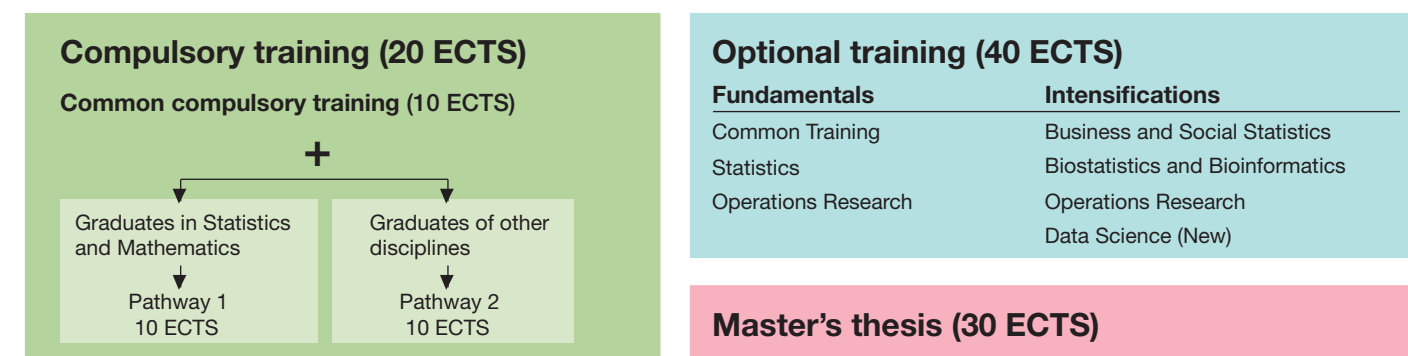
Master's thesis

The master's thesis can be oriented towards research or applications. Students have the option to carry it out at a department, a research group, another university, a company or a national or international institution.

Professional opportunities

Graduates of the master's degree will be experts who may be employed in healthcare, services, industry and business. They will apply the theory and methods of statistics and operations research in fields such as biostatistics, public health, data science, marketing and finance, industrial statistics, optimisation in engineering and industry, applications in transport engineering, insurance, administration and consultancy.

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Access to doctoral studies

Graduates of this master's degree may gain access to the following doctoral degrees: Doctoral degree in Statistics and Operations Research (UPC), doctoral degree in Economics (UB), doctoral degree in Medicine (UB). All of the doctoral degrees above have been distinguished with the Pathway to Excellence award by the Spanish Ministry of Education.

f_{Me} The best information for the best decision

This master's degree has the support of

accenture

More information:
direccio.meio.fme@upc.edu
http://mesioupcub.masters.upc.edu/en

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