Universitat Pompeu Fabra Barcelona

www.upf.edu/mastersdegrees
www.upf.edu/bioinformatics/

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CEI CAMPUS INTERNATIONAL EXCELLENCE

The master's degree programme in Bioinformatics for Health Sciences is designed to provide researchers and other professionals with skills and abilities geared towards the development of new computational strategies and IT systems to be used in biomedical research.

One of the key features of this programme is its large proportion of optional subjects, allowing students to train in a wide range of bioinformatics disciplines. The inclusion of compulsory subjects on the design, management and exploitation of scientific research underlines the programme's clear professional orientation.

Master in Bioinformatics for Health Sciences

Application period
Online from November to June
www.upf.edu/masterdegrees

Duration
2 academic years
(120 ECTS credits)

Calendar
From September to June

Schedule
Six hours of face-to-face tuition a day between 8.30 a.m. and 7.00 p.m.

Course types
Research and professional

Language
English

Places
30

Organized by
Interuniversity programme jointly organized by UPF (coordinator) and the University of Barcelona (UB)

Department of Experimental and Health Sciences
www.upf.edu/cexs/

Location
Mar Campus (UPF) and Faculty of Biology (UB)

Master's programme secretary's office
masters.dcexs@upf.edu

Who is it for?

The programme is aimed at holders of bachelor's degrees in biological and health sciences (biology, medicine, biochemistry, biotechnology, pharmacy, etc.), engineering or basic scientific disciplines (chemistry, physics or mathematics).

Candidates must be interested in the development and application of computational tools to be used in the field of biomedicine.

Internships

The programme's internships take place during the second year, and consist of supervised placements at a laboratory or company where students carry out their final research project for their master's degree. Upon completion of their placement, each student must write a research paper and publicly defend their work.

Internships are generally carried out at public and private laboratories in the Barcelona area, although students may also choose to do them in other regions or countries.

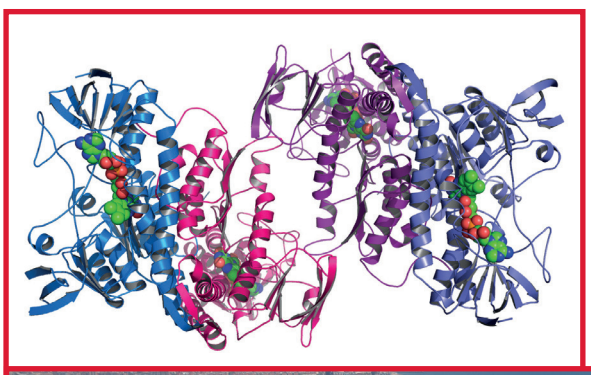
Career prospects

- Bioinformatics specialists in academic research groups or in hospitals or companies from the biotech, pharmaceutical and bioinformatics industries.
- Positions in biotech companies working in the field of biomedicine.
- Contract positions in research companies.
- Drug research and development in public research centres.
- Doctoral studies.

Scholarships and grants

- One grant awarded by the Catalunya-La Pedrera Foundation to one master's degree programme student of Spanish nationality.
- One registration fee grant worth €2,000 each academic course.
- For information on other grants for master's degree programmes, see www.upf.edu/scholarships.

Curriculum



First year

Students taking 60 ECTS credits: 3 compulsory courses (15 credits) and 9 optional courses (45 credits)

Subject 1: Genome Bioinformatics
Principles of Genome Bioinformatics (compulsory)
Genomes and Systems
Advanced Genome Bioinformatics
Information Extraction from "Omics" Technologies (compulsory)

Subject 2: Molecular Structure and Function
Structural Bioinformatics (compulsory)
Molecular Simulations
Computer-assisted Drug Discovery

Subject 3: Biomedical Informatics
Elements of Biocomputing
Applied Genomics: Genome-Phenome Analysis in Human Health
Computational Systems Biology

Subject 4: Elements of Programming
Introduction to Algorithmics
Introduction to PERL
Introduction to PYTHON
Databases and Web Development

Subject 5: Basic Tools in Biocomputing
Introduction to Biomedicine
Biomedical Data Analysis
Elements of Mathematics

Second year

Students taking 60 ECTS credits: the compulsory courses from subjects 6 and 7

Subject 6: Economical and Social Aspects of Research
Science in Action
Design and Management of Research Projects

Subject 7: Research in Bioinformatics
Research in Bioinformatics
Master's Completion Project