

Master's degree programme in Molecular biotechnology and bioinformatics

facoltà di SCIENZE E TECNOLOGIE

Applications and admissions 🕤

Open, subject to entry requirements.

Admission requirements 💡

- The access to the Master's degree in MB&B is open to:
- Graduates in Biotechnology (L-2 class, and former class 1).
- Students with a Bachelor's degree providing at least 60 ects in "core disciplines" as defined for the Biotechnology L-2 class.

Foreign students must possess a Bachelor's degree from an accredited college or University and have a good knowledge of the following areas: biochemistry, molecular biology, genetics and microbiology, sufficient knowledge in the disciplines of mathematics, physics, chemistry, computer science and statistics is also required.

If deemed necessary, a faculty commission may interview the candidates to integrate this documentary assessment and verify if miminum requirements are satisfied.

The B2-level requirement will be ascertained by the University Language Centre (SLAM) upon admission as follows: is required for admission

- Language certificate of B2 or higher level issued no more than three years before the date of admission application, recognized by the University of Milan
- English level achieved during a University of Milan degree programme and certified by the University Language Centre (SLAM) no more than four years before the date of admission application
- Entry test administrated by the University Language Centre (SLAM)

The candidates that do not satisfy the requirement by the deadline will not be admitted to the Master's degree programme and they will not have the opportunity to take further tests.

Objectives 🏁

The Master's Degree Programme aims to provide students with advanced skills in Molecular biotechnology, Computational biology and Bioinformatics. The main goal of the MB&B Master's degree is to educate students with the broad theoretical and practical background required to comprehend, analyze and solve complex contemporary biological/biotechnological problems.

A specific goal of MB&B is to provide deep and up-to-date knowledge in the following subjects: bioinformatics, molecular biology and biotechnology, functional genomics and "omics" technologies, protein expression systems, metabolic engineering and industrial processes, structural biochemistry, molecular enzymology and data analysis.

Additionally, students will have the opportunity to develop skills in a selection of disciplines of interest, including: plant genetics, nanotechnology, biophysics, molecular microbiology, molecular parasitology, structural biology, patenting and technology transfer (the latter, included in the University project for the development of soft skills).

Career prospects 🥊

The Master's Degree Programme provides employment opportunities in the following areas:

- management of production facilities in biotechnological industry, including diagnostics, chemicals, and agro-food industry;
- promotion of scientific development and technological innovation in Research & Development areas, in various industrial settings;
- service management in industrial biotechnology, as well as in Quality Control laboratories;
- research laboratories in both private and public institutions.

Graduates will be capable operating, in their own fields of specialization, at a high level of responsibility, managing the ethical, technical and legal aspects of their work.

The specific business contexts that the MB&B graduates can enter are, among others: the pharmaceutical industry, chemical industry, food industry, industry and services for environmental biotechnology, biotechnology service centers applying information technology, genomics, and proteomics research laboratories of both public and private institutions.

Degree syllabus 🖻

l year

COMPULSORY LEARNING ACTIVITIES	ECTS	
l semester		
Biotechnological products and processes	6	
Functional genomics and bioinformatics	10	
Methods in bioinformatics	6	
Molecular and cellular microbiology	6	
Rational design and structural characterization of bioactive molecules	6	
II semester		
Advanced molecular and cellular biotechnology	10	
Advanced plant cell biotechnology	6	
Protein engineering and molecular enzymology	6	

ll year

OTHER REQUIRED LEARNING ACTIVITIES	ECTS
The student must choose at least two of the following courses: - Advanced bioinformatics for biotechnology - Bioimaging - Biotechnological and molecular strategies in the control of parasites and vector-borne diseases - Macromolecular structural biology - Molecular breeding and plant genetics - Nanotechnology for biomedical applications and biosensors - Patenting and technology transfer - Structural bioinformatics	6+6
In addition, students must acquire 12 additional ects from any course by the University of Milan.	12
Laboratory training	7
Thesis project and final dissertation	30

INFO

Disciplinary classification: Industrial biotechnologies (LM-8 R)

Ouration: 2 years (120 ects)

ditendance: Strongly recommended.

The experimental project leading to the final dissertation is mandatory

Q Location:

- Department of Biosciences via Celoria, 26 Milan
- Teaching Sector via Celoria, 20 Milan
- via Golgi, 19 Milan

• For information:

biotecindamb@unimi.it

• Websites:

mbb.cdl.unimi.it www.unimi.it

