



UNIVERSITÀ  
DEGLI STUDI  
DI MILANO

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 a solid knowledge of the following topics: genetics, molecular biology, microbiology, cell biology, biochemistry. If deemed necessary, a faculty commission may interview the candidates to integrate this documentary assessment and verify if minimum requirements are satisfied.

Proficiency in English at a B1 level or higher, under the Common European Framework of Reference for Languages (CEFR), is required for admission.

## English language

The B1 level in the English language is a further entry requirement.

Candidates can prove their English proficiency by presenting:

- A language certificate at B1 level or higher recognized by the University of Milan and obtained no more than three years earlier;
- The result of a Placement Test taken at the Language Centre (SLAM) of the University of Milan;
- An English assessment at B1 level or higher obtained in the framework of a University of Milan Bachelor's degree programme through SLAM courses and tests no more than four years earlier;

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 MB&B Master's degree 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 MB&B Master's degree 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

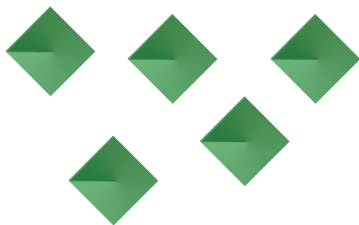
I year

COMPULSORY LEARNING ACTIVITIES	ECTS
<b>I semester</b>	
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
<b>II semester</b>	
Advanced molecular and cellular biotechnology	10
Advanced plant cell biotechnology	6
Protein engineering and molecular enzymology	6
English proficiency (B2 level)	3

## II year

OTHER REQUIRED LEARNING ACTIVITIES	ECTS
<p>The student must choose at least two of the following courses:</p> <ul style="list-style-type: none"> <li>- Advanced bioinformatics for biotechnology</li> <li>- Bioimaging</li> <li>- Biotechnological and molecular strategies in the control of parasites and vector-borne diseases</li> <li>- Macromolecular structural biology</li> <li>- Molecular breeding and plant genetics</li> <li>- Nanotechnology for biomedical applications and biosensors</li> <li>- Patenting and technology transfer</li> <li>- Structural bioinformatics</li> </ul>	6+6
<p>In addition, students must acquire 10 additional ects from any course by the University of Milan. Selected courses must be coherent with the topics of the MB&amp;B degree and contents must not overlap with those of mandatory and guided through courses in the study plan.</p> <p>4 of the 10 ects can be acquired by extending the thesis project, upon request that must be approved by the MB&amp;B Study Plan Committee.</p> <p>Alternatively, students can acquire 3 of the 10 ects by attending a course belonging to the UNIMI transversal skill program.</p>	10
Thesis project and final dissertation	39

# INFO



 **Disciplinary classification:** Industrial biotechnologies (LM-8)

 **Duration:** 2 years (120 ects)

 **Attendance:** Strongly recommended.

The experimental project leading to the final dissertation is mandatory

 **Location:**

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

 **For information:**

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 **Websites:**

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