



UNIVERSITÀ  
DEGLI STUDI  
DI MILANO

Master's degree programme in

**Medical  
biotechnology and  
molecular medicine**

facoltà di

**MEDICINA E CHIRURGIA**

# Applications and admissions

With mandatory access test.

## Admission requirements

To be eligible for the entrance test, applicants must possess 180 credits obtained from a Bachelor's degree, including at least 50 credits in the following areas: BIO/09 (Physiology), BIO/10 (Biochemistry), BIO/11 (Molecular biology), BIO/12 (Clinical biochemistry), BIO/13 (Biology), BIO/14 (Pharmacology), BIO/16 (Human anatomy), BIO/18 (Genetics), BIO/19 (General microbiology), MED/01 (Medical statistics), MED/03 (Human genetics) MED/04 (General pathology and immunology), MED/05 (Clinical pathology), MED/06 (Medical oncology), MED/07 (Microbiology), MED/08 (Pathology), MED/09 (Internal medicine), MED/25 (Mental health), MED/26 (Neurology), MED/46 (Laboratory medicine), INF/01 (Informatics), FIS/07 (Medical physics). Italian and European applicants admitted to the program are selected through a ranking list based on the results of an admission test. The admission test consists of a multiple-choice written exam conducted in English and includes 50 questions covering subjects such as biology, biochemistry, physics, pharmacology, immunology, pathology and genetics.

\*For non-EU applicants residing abroad (i.e., applicants requiring a student visa), selection and ranking are based on the evaluation of the candidate's academic and personal background, as well as on the outcome of an interview.

Proficiency in English at a B2 level or higher (according to the Common European Framework of Reference for Languages (CEFR)) is required for admission.

Students waiting to obtain the Bachelor's degree can participate to the test. In case of success, they will be accepted only if they obtain the degree by December 31th, if they possess the prerequisites described above.

## Objectives

The Master Program in Medical biotechnology and Molecular Medicine is committed to train professionals with a strong technical and theoretical background in order to develop scientific methodologies and coordinate research projects in the fields of applied biotechnology and translational medicine. The Master program provides students with a strong educational background on the genetic and molecular bases of diseases and the pathophysiological mechanisms underlying human disease states, in order to develop biotechnology-based diagnostic and therapeutic strategies. This core training is complemented by specialized training in the fields of computer science, biophysics, nanotechnology and pharmacology. The Master Program is organized in common and curricular learning activities, with a focus on neuroscience, oncology, molecular diagnostics, immunobiotechnology, modelling and bioinformatics. The students also learn about economic management of scientific projects, with emphasis on business plan development and cost analysis. The second year of the course is almost entirely dedicated to research activities, finalized to generate data for the preparation of the final exam.

## Career prospects

The objective of the course is to train experts in the fields of Medical biotechnology and molecular medicine able to develop new experimental models for the study of human diseases, to develop new diagnostic approaches, to identify new therapeutic molecules, to devise innovative drug delivery systems.

Employment opportunities: public and private research structures, including Universities, CNR (National Research Council), Istituto Superiore di Sanità (National Institute for health); hospitals; private pharmaceutical, diagnostics and biotechnological companies; companies supporting scientific research (instruments, biotechnological reagents); companies involved in science communication and publishing.

The graduate, therefore, will find employment as:

- medical science liaison (MSL);
- clinical Monitor;
- market access manager;
- medical and scientific communication advisor.

# Degree syllabus

I year

COMPULSORY LEARNING ACTIVITIES COMMON TO ALL CURRICULA	ECTS PARTIAL	ECTS TOTAL
<b>I trimester</b>		
Advanced microscopic techniques and nanotechnology		6
Applied pharmacology to biotechnology		7
Pathogenic basis of diseases - General pathology and immunology - Internal medicine and endocrinology	6 6	12
<b>II trimester</b>		
Genetic and molecular bases of diseases - Biology - Medical genetics	8 6	14
Human biochemistry		9
Molecular biology applied to biotechnology		7
Elective courses		4

II year

COMPULSORY LEARNING ACTIVITIES COMMON TO ALL CURRICULA	ECTS PARTIAL	ECTS TOTAL
Further learning activities (linguistic, informatic, relational)		3
Professionalising training activities		4
Social aspects of biotechnology - History of medicine - Bio-medicine	6 5	11
Elective courses		4
Degree program final exam		21

## Curriculum: Neuroscience

I year

CURRICULUM SPECIFIC ACTIVITIES	ECTS
Molecular diagnostics and therapy	6
Neurobiology	6
Pathogenic bases of neurological and psychiatric disorders	6

## Curriculum: Medical and experimental oncology

1 year

CURRICULUM SPECIFIC ACTIVITIES	ECTS
Cancer epidemiology and pathogenesis	6
Cancer immunology and microenvironment (ONC)	6
Research and development of new diagnostic and therapeutic methodologies	6

## Curriculum: Molecular diagnostics for personalised medicine

1 year

CURRICULUM SPECIFIC ACTIVITIES	ECTS
Advanced techniques in medical biotechnologies	6
Data and laboratory management	6
Molecular diagnostics	6

## Curriculum: Experimental immunology and transplantation

1 year

CURRICULUM SPECIFIC ACTIVITIES	ECTS
Cancer immunology and microenvironment (IMM)	6
Experimental immunology and immunobiotechnology	6
Transplantation and tissue engineering	6

## Curriculum: Advanced computation for human disease modelling

1 year

CURRICULUM SPECIFIC ACTIVITIES	ECTS
In vitro and vivo model system for human diseases modeling	6
Multilevel computational modelling of human diseases	6
Spatial and molecular organization of cells in diseases	6

# INFO

📖 **Disciplinary classification:** Pharmaceutical, veterinary and medical biotechnologies (LM-9 R)

🕒 **Duration:** 2 years (120 ects)

📅 **Attendance:** Compulsory

📅 **Curricula:**

- Neuroscience
- Medical and experimental oncology
- Molecular diagnostics for personalized medicine
- Experimental immunology and transplantation
- Advanced computation for human disease modelling

📍 **Location:**

*Common learning activities*

- Dipartimento di Biotecnologie Mediche e Medicina Traslazionale - via Fratelli Cervi, 93 - Segrate (MI)

📧 **For information:**

lsbiotecmed@unimi.it

🌐 **Websites:**

medicalbiotechnology.cdl.unimi.it/en  
www.unimi.it



UNIVERSITÀ  
DEGLI STUDI  
DI MILANO

Updated in May 2026.

For other information: [www.unimi.it/en](http://www.unimi.it/en) - Education