



UNIVERSITÀ
DEGLI STUDI
DI MILANO

Master's degree programme in
Biomedical omics

facoltà di

MEDICINA E CHIRURGIA

Applications and admissions

Open, subject to entry requirements.

Admission requirements

Access to the Master Program in Biomedical Omics is open to:

- Graduates in classes L-2 (Biotechnology), L-13 (Biological sciences), L-27 (Chemistry), L-29 (Pharmaceutical sciences and technologies), or equivalent foreign qualification for a total of 180 ects;
- Graduates in classes other than those listed above provided they have at least 40 ects in the following scientific disciplinary sectors: BIO/06, BIO/08, BIO/09, BIO/10, BIO/11, BIO/12, BIO/13, BIO/14, BIO/15, BIO/16, BIO/17, BIO/18, BIO/19, CHIM/01, CHIM/02, CHIM/03, CHIM/06, CHIM/07, CHIM/08, CHIM/09, MED/01, MED/02, MED/03, MED/04, MED/05, MED/07, MED/08, MED/43, MED/44, MED/46, MED/50, SECS - S/01, SECS - S/02.

Knowledge of English language is required at B2 level.

Knowledge Assessment

Students meeting the above minimum requirements are invited to an interview for admission (in English) with the Commission for Admittance to the Master, composed by teaching members appointed by the Teaching Board.

Foreign Students

Students must have a Bachelor's degree in one of the disciplines described above (Biotechnology, Biology, Chemistry, Pharmaceutical sciences). The number of hours/credits of the specific courses must be clearly identifiable in the academic curriculum. If this is not possible, documents certifying the student's career will be examined by the Faculty to assess if their background complies with the admission requirements.

Objectives

The advent of technologies that allow the global analysis of biological phenomena ("omics") has revolutionized the study of human diseases and opened new perspectives in the field of research, diagnosis and therapy, tracing the path for Precision or Personalized Medicine. The central element of Precision Medicine is in fact the quantitative description of biological or clinical phenotypes by high-definition omics (genomics, epigenomics, proteomics, metabolomics, microbiomics, digital imaging, radiomics and radiogenomics). The Master Program in Biomedical Omics aims at providing students with a broad understanding of omics disciplines applied to medicine and first-hand practical experience with different omics techniques. Key competences of graduates include the ability to design experiments, manage the work flow, analyze and interpret omics data, and create applications for future developments in omics approaches.

Career prospects

Graduates in Biomedical Omics will be able to pursue careers as Technologists in Biomedical Omics.

Tasks: Coordination and execution of omics techniques in routine diagnostics or clinical research within hospital laboratories.

Employment opportunities: diagnostic laboratories in hospitals and clinical research laboratories.

Graduates will also have the possibility to work in basic research laboratories, in biotechnological development institutes, or to continue their academic training by enrolling in doctoral programs or second-level masters programs, both in Italy and abroad.

Degree syllabus

I year

| COMPULSORY LEARNING ACTIVITIES | ECTS PARTIAL | ECTS TOTAL |
|---|--------------|------------|
| I semester | | |
| Genomics an Epigenomics - Genomics - Epigenomics | 6 6 | 12 |
| High-throughput screenings | | 6 |
| Proteomics | | 6 |
| Radiomics | | 6 |
| II semester | | |
| Computational approaches for omics data | | 12 |
| Legislation, management and technology transfer - Legislation and technology transfer - Laboratory Management | 6 6 | 12 |
| Annual | | |
| Practical laboratory activities | | 6 |

II year

(to be made available as of academic year 2026/2027)

| COMPULSORY LEARNING ACTIVITIES | ECTS |
|--------------------------------|------|
| I semester | |
| Clinical Omics | 6 |
| Ethics and decision-making | 6 |
| Experimental design | 6 |
| Omics in diagnostics | 6 |

Other activities

- 11 ects for free choice courses
- Final dissertation (25 ects)

INFO

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

🕒 **Duration:** 2 years (120 ects)

📅 **Attendance:** compulsory

📍 **Locations:**

Lectures will be held in the educational center of the University of Milano, Via Noto.

Laboratory activities will be held in the research and clinical laboratories of institutions represented in the Department of Oncology and Hemato-oncology of the University of Milan.

📧 **For information:**
biomedicalomics@unimi.it

🌐 **Websites:**
bo.cdl.unimi.it
www.unimi.it



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