



UNIVERSITA' DEGLI STUDI DI MILANO
PROGRAMME DESCRIPTION - ACADEMIC YEAR 2025/26
IN
MOLECULAR BIOTECHNOLOGY AND BIOINFORMATICS (Classe
LM-8 R)
Enrolled in the 2025/2026 academic year

HEADING

Degree classification - Denomination and code:	LM-8 R
Degree title:	Dottore Magistrale
Length of course:	2 years
Credits required for admission:	180
Total number of credits required to complete programme:	120
Course years currently available:	1st
Access procedures:	open, subject to entry requirements
Course code:	FBS

PERSONS/ROLES

Head of Study Programme

Prof. Carlo Camilloni

Tutors - Faculty

Prof. Carlo Camilloni and Prof. Matteo Chiara (Academic guidance tutors)

Prof. Veronica Gregis and Prof. David Horner (Erasmus and international mobility tutors)

Prof. Carlo Camilloni and Prof. Thomas Vaccari (Study plan tutor)

Prof. Carlo Camilloni and Prof. Federico Zambelli (Master's degree admission tutor)

Degree Course website

<http://mbb.cdl.unimi.it>

Academic Services Office

Milan - Via Celoria, 26 By appointment <https://informastudenti.unimi.it/>

Boards

Prof. Veronica Gregis, Prof. David Horner (Erasmus); Prof. Carlo Camilloni, Prof. David Horner (Study mobility); Prof. Carlo Camilloni, Prof. Thomas Vaccari (Study Plan); Prof. Carlo Camilloni, Prof. Federico Zambelli (Admission).

Deputy Head of Study Programme

Prof. Federico Zambelli

Disability manager

Prof. Matteo Chiara

Industrial Biotechnology Academic Board

<http://www.unimi.it/en/education/faculties-and-schools/science-and-technology/industrial-biotechnology>

International Students Office - Welcome Desk

Milan - Via S. Sofia, 9/1 <https://www.unimi.it/en/international/coming-abroad/international-students-office-welcome-desk>

Student administrative office

Milan - Via Celoria, 18 Tel. 0250325032 The front offices receive in the days and times indicated on the webpage

<https://www.unimi.it/en/study/student-services/welcome-desk-informastudenti/student-desks-locations-and-opening-hours>

CHARACTERISTICS OF DEGREE PROGRAMME

General and specific learning objectives

The Master's Degree in Molecular Biotechnology and Bioinformatics (MB&B) is designed to prepare graduates with a robust and diverse cultural foundation in the key disciplines of industrial biotechnology. The program fosters the ability to

excel in the inherently interdisciplinary field of modern biotechnology, equipping students to integrate knowledge and skills across various domains effectively. Graduates will be well-positioned to work independently, take on leadership roles in projects and facilities, and contribute to research, development, innovation, management, and quality control in both public and private sectors within the biotechnology industry and services. This program also lays a strong foundation for further academic pursuits, including Ph.D. programs.

The program is delivered in English, providing graduates with a competitive edge in the global job market. It emphasizes critical application of the scientific method to biological systems, offering:

- A comprehensive understanding of the physical, chemical, structural, molecular, and cellular aspects of biological systems.
- Expertise in advanced analytical and bioinformatics methodologies for the analysis and integration of genomics, proteomics, and metabolomics data.
- Skills to design, improve, and implement biotechnological processes, services, and applications with an interdisciplinary approach.

This curriculum integrates core chemical, biological, and technological disciplines relevant to industrial biotechnology.

Related and complementary activities allow students to specialize in areas such as microbial, animal, and plant biotechnology.

In the first year, students will gain a strong theoretical and practical foundation in biotechnology core disciplines. In the first and second years, students can also tailor their learning experience through elective courses as well as develop soft skills and language competencies, aligning with their professional and academic goals.

A significant portion of the second year is dedicated to an experimental thesis leading to a final dissertation. Students will work in cutting-edge research laboratories, either at the university or within national or international public or private facilities. This hands-on experience enables students to apply their knowledge, refine their scientific investigation skills, and master modern analytical and instrumental techniques. The thesis process also enhances their abilities to analyze, process, and present scientific data effectively.

Expected learning outcomes

1. Knowledge and understanding

By the end of the program, students will have developed comprehensive knowledge and understanding in the fields of molecular biotechnology and bioinformatics, grounded in a rigorous application of the experimental scientific method to biological systems. Specifically:

- Students will gain a deep understanding of the physicochemical properties of macromolecules, the relationship between their structure, function, and dynamics, and techniques for characterizing enzymes. This knowledge supports the development of modified proteins and biologically active compounds.
- Students will acquire expertise in omics technologies and bioinformatics, including R programming, to manage, analyze, and interpret data, with applications across biotechnology domains.
- Students will master techniques for characterizing genes, their products, and interactions, applying this knowledge to innovative therapeutic approaches.
- Students will understand and apply biotechnological methods for creating and managing products, processes, and services using enzymes, microorganisms, and plants in industrial settings.

These disciplinary skills form the core of the program and are cultivated through a combination of compulsory and elective courses. Instructional activities include lectures, practical exercises, seminars, journal clubs, student presentations, and interactive discussions.

The program's elective courses deepen and complement the compulsory curriculum, offering interdisciplinary topics that allow students to explore areas of personal interest and align their education with their career goals. The integration of these activities ensures a well-rounded academic and practical foundation.

Students' knowledge and understanding are evaluated through course-specific exams and a final comprehensive assessment of the thesis work, ensuring mastery of the program's objectives.

2. Applying knowledge and understanding

A central objective of the Master of Science in Molecular Biotechnology and Bioinformatics is to equip graduates with the ability to apply their knowledge effectively in diverse scientific and industrial contexts. Upon completion of the program, graduates will be able to:

- Analyze and interpret macromolecular data from X-ray crystallography and electron microscopy, applying simulations and enzymology to enable protein engineering and drug design.
- Employ microscopy, spectroscopy, nanotechnology, and biosensors for innovative diagnostics and molecular interaction studies.
- Utilize bioinformatics tools to manage and interpret next-generation sequencing data in genomics, transcriptomics, and epigenomics, advancing biotechnological applications.
- Apply experimental techniques for genomic and transcriptomic studies, gene regulation, silencing, and engineering to innovate in biomedicine, plant biotechnology, and parasite disease control.
- Optimize microorganisms for industrial metabolite production and biotransformation, integrating intellectual property and economic management.
- Identify molecular markers and implement breeding strategies to enhance plant varieties, incorporating biotechnological and economic insights.

- Engineer plants and algae to produce valuable industrial and environmental compounds, considering intellectual property and economic implications.

These skills are developed through a combination of compulsory and elective coursework, supplemented by practical exercises, seminars, student presentations, and journal clubs. Internships further reinforce practical application and allow students to actively engage in selecting and employing appropriate methodological tools to achieve specific goals.

Elective courses complement the core curriculum, enabling students to deepen their expertise in areas aligned with their personal interests and professional aspirations. This flexibility ensures a tailored and comprehensive educational experience. The acquisition of these skills is evaluated through course-specific performance tests, the internship experience, and the final thesis dissertation, ensuring that graduates are well-prepared to address real-world challenges in biotechnology.

3. Autonomy/judgment (Making judgments)

The development of independent and informed judgment is a fundamental goal of the program, supported through diverse teaching methods and carefully chosen topics. Lectures will emphasize current challenges and research trends across the disciplinary spectrum, incorporating problem-solving activities to foster analytical thinking and decision-making skills.

Students will be encouraged to engage with complementary teaching materials, including scientific publications, alongside standard textbooks. This approach aims to inspire students to move beyond passive learning, critically evaluating concepts and developing their own informed perspectives.

A pivotal phase in cultivating autonomous judgment is the internship and final thesis dissertation. These experiences provide students with the opportunity to apply their knowledge to a research project. During this process, students will:

- Independently assess and critically discuss the progression of a research project.
- Analyze, interpret, and process experimental data.
- Critically evaluate and synthesize findings from scientific literature.

These activities are designed to strengthen students' ability to form reasoned judgments, enabling them to tackle complex problems in biotechnology and bioinformatics with confidence and autonomy.

4. Communication skills

The program emphasizes the development of strong communication skills, providing students with the knowledge and tools necessary for effective scientific communication. This includes proficiency in presenting, discussing, and processing experimental data, as well as the ability to work independently while conveying research findings clearly to diverse audiences. Through activities such as journal clubs, seminars, and student presentations, students will gain practical experience in articulating scientific ideas and results. These skills are further reinforced during laboratory activities and through the preparation for the final examination.

The program's use of English as the medium of instruction enhances graduates' ability to communicate effectively in international contexts. This includes:

- Presenting findings at scientific conferences.
- Preparing periodic reports for companies and research institutions.
- Writing research proposals, including business plans.

The final examination, consisting of the dissertation of the thesis, involves presenting the research project and its results in English to an audience that is knowledgeable but not necessarily specialized in the specific area of the project. This experience helps students refine their ability to review, synthesize, and clearly communicate their work, providing invaluable preparation for professional and academic contexts.

5. Learning skills

The program fosters the development of advanced learning skills, enabling students to acquire and integrate new knowledge effectively. These skills are cultivated through a variety of activities, including lectures, independent study of texts, laboratory exercises, and engagement with scientific literature. Students will gain experience in bibliographic research, database consultation, and the use of online resources to stay updated on advancements in their field.

Learning is assessed through a combination of written and oral exams designed not only to evaluate knowledge acquisition but also to test students' ability to analyze, discuss, and critique scientific articles. Additional assessments may include the production of written reports, where problem-solving abilities and critical thinking are emphasized.

A significant component of learning skills development occurs during experimental work in the laboratory. Here, students are expected to critically process and analyze their results, demonstrating their ability to apply theoretical knowledge to practical challenges.

Professional profile and employment opportunities

The Master's degree in Molecular Biotechnology and Bioinformatics opens up diverse career opportunities in both public and private sectors. Graduates are prepared to work in research laboratories, biotechnology industry production facilities, and quality control laboratories, across various fields such as diagnostics, chemicals, and the agro-food industry. They will also be equipped to promote scientific development and technological innovation in R&D environments within the industrial sector.

Graduates will be able to assume high-level responsibilities, managing the ethical, technical, and legal aspects of their work within their areas of expertise. The MB&B program's comprehensive training across a wide range of biotechnological disciplines also serves as a solid foundation for further academic pursuits, such as Ph.D. programs or other advanced degrees.

MB&B graduates can pursue careers in industries such as pharmaceuticals, chemicals, food production, environmental biotechnology, and biotechnology services. They will also be qualified to work in genomics and proteomics research laboratories, whether in public or private institutions. Relevant professions include biologist, biochemist, biophysicist, and biotechnologist, among others.

Pre-requisites for admission

Students with an Italian university degree:

The MB&B Master's degree is open to graduates of the Laurea Triennale of the L-2 class (Biotechnology) and the previous class 1 (Biotechnology). It is also open to students with a Laurea Triennale with a strong background (at least 60 University Credits (CFU)) in biotechnology-related subjects, including at least 36 CFU in biochemistry, molecular biology, genetics and microbiology; at least 10 CFU in mathematics, physics, computer science and statistics; at least 10 CFU in chemistry.

Students with a degree from a non-Italian institution:

Candidates must hold a bachelor's degree from an accredited university or college at the time of application and have a good knowledge in all 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. A commission, appointed by the Academic Board, is responsible for collegially analyzing the curriculum studiorum of applicants to verify that the minimum requirements for admission are met. If deemed necessary, the commission may integrate this documentary assessment with other forms of assessment, including interviews. The master's degree does not have a programmed number of students, with a maximum of 25 places reserved for non-EU students residing outside Italy.

In addition to the above curricular requirements, English language proficiency equivalent to or higher than level B2 of the Common European Framework of Reference for Languages (CEFR) is required.

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

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

- Language certificate of B2 or higher level issued no more than three years before the date of admission application. You will find the list of language certificates recognized by the University at: <https://www.unimi.it/en/node/39322>. The certificate must be uploaded when submitting the online application;
- 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, including levels based on language certificates submitted by the applicant during their Bachelor's degree at the University of Milan. In this case the process is automatic, the applicant does not have to attach any certificates to the application;
- Entry test administrated by the University Language Centre (SLAM) according to the calendar published on the website: (<https://www.unimi.it/en/node/39267/>)

All those who fail to submit a valid certificate or do not meet the required proficiency level will be instructed during the admission procedure to take the Entry test.

Applicants who do not take or pass the Entry test will be required to obtain a language proficiency certificate recognized by the University (see <https://www.unimi.it/en/node/39322>) and deliver it to the SLAM via the InformaStudenti service by the deadline fixed for the master's programme (<https://www.unimi.it/en/node/39267/>).

Applicants who do not meet the requirement by said deadline will not be admitted to the master's degree programme and may not sit any further tests.

Eligibility assessment

The admissions process involves an evaluation of the applicant's curriculum studiorum by an admissions Committee, which consists of the program coordinator and one or more faculty members. Successful applicants will be notified of their eligibility and may proceed with enrollment in the Master's program.

For detailed information on the application process, please visit: <https://www.unimi.it/en/study/bachelor-and-master-study/degree-programmeenrolment/enrolment-masters-programme/open-admission-master-programmes>

The Admissions Committee may request an interview or other forms of evaluation to further assess the applicant's qualifications. For non-EU applicants who require a visa, the application deadline is April 30, 2025, due to the visa processing time and the limited number of available places, as stipulated by current regulations.

Programme structure

- Teaching organization and delivery mode

The MB&B Master's degree is a 2-year program, with each year divided into two semesters. The program includes various activities such as lectures, practical classes and the experimental project leading to the final thesis.

120 credits (CFU, Crediti Formativi Universitari) are required to obtain the Master's degree. One CFU corresponds to a standard student workload of 25 hours and is calculated as follows

- Lectures, 1 CFU = 8 hours of lectures and 17 hours of individual work.
- Practical classes, 1 CFU = 16 hours of laboratory activities and 9 hours of personal elaboration.
- Experimental projects, 1 CFU = 25 hours of laboratory and/or training activities.

The student will acquire 56 CFU from 8 compulsory courses, all scheduled in the first year, and at least 12 CFU from elective courses (see table below) to be taken either in the first or in the second year. 37 CFU are allocated to the individual

experimental project leading to the final thesis, to be started in the second year, that can be extended by additional 3 CFU. Finally, candidates must acquire a minimum of 12 CFU freely chosen by the student and 3 CFU focused on the development of soft skills including language courses (Italian for foreigners), additional computer skills or other skills useful for job placement, including attending seminars from invited experts and scientist. The free choice and soft skills courses can be chosen either from the list of MB&B electives or from any course offered by the University of Milan, including courses taught in Italian, as long as they are considered compatible with the objectives of the MB&B degree and are not a repetition of courses already offered in the program. Students are invited to consider the activities included in the University project for the development of soft skills: <https://www.unimi.it/en/study/bachelor-and-master-study/following-your-programme-study/soft-skills>. If interested, the soft skills courses must be included in the study plan, they are of compulsory attendance, they have a defined number of places and they can only be selected by the students if they have been subscribed by the Master's degree program to which students belong (<https://mbb.cdl.unimi.it/en/courses>). 3 CFU can be acquired through additional laboratory activity (namely an extension of the thesis period), upon written request, which must be approved by the MB&B Study Plan Committee.

- Additional language skills: Italian

Students who do not hold an Italian high school diploma or university degree can obtain 3 credits in Additional language skills: Italian by demonstrating A2 level in Italian per the Common European Framework of Reference for Languages (CEFR). This level can be assessed in one of the following ways:

- by submitting a certificate of A2 or higher level issued no more than three years prior to the date of submission. You will find the list of language certificates recognized by the University at: <https://www.unimi.it/en/node/349/>). The language certificate must be uploaded through the dedicated platform;
- by an entry-level test administrated by SLAM that can be taken only once and is compulsory for all students who do not have a valid language certificate. Those who fail to reach A2 level will have to attend one or more than one 60-hour Italian course(s) geared to their level. Those who do not take the entry-level test or fail to pass the end-of-course test after six attempts will have to obtain language certification privately in order to earn the 3 credits of Additional language skills: Italian. As an alternative, they can modify their course programme by choosing a different elective.

- Courses:

Compulsory courses:

- Advanced molecular and cellular biotechnology
- Advanced plant cell biotechnology
- Biotechnological products and processes
- Functional genomics and bioinformatics
- Methods in bioinformatics
- Molecular and cellular microbiology
- Protein engineering and molecular enzymology
- Rational design and structural characterization of bioactive molecules

Elective courses (at least 2):

- Advanced bioinformatics for biotechnology
- Bioimaging
- Biotechnological and molecular strategies in the control of parasites and vector-borne pathogens
- Macromolecular structural biology
- Molecular breeding and plant genetics
- Nanotechnology for biomedical applications and biosensors
- Patenting and technology transfer
- Structural bioinformatics

- Conscientious objection policy

In the MB&B Master's degree, the use of animals for teaching purposes is not allowed as stated by the art. 5f of the Legislative Decree 26/2014. Such procedures are allowed during the traineeships for thesis preparation. However, they must be carried out exclusively by authorized staff, since, in this case, the Legislative Decree 26/2014 does not apply. According to Italian law n. 413, October 12 1993, "Norme sull'obiezione di coscienza alla sperimentazione animale", students have the incontestable right to conscientiously object to participation in any experimental activity using animals.

In this case, the Teaching Board will suggest alternative traineeships, which are consistent with the educational goals of the MB&B course, to ensure the correct acquisition of the study credits necessary for degree completion.

-Study plan submission

Students will submit the Study Plan in the first year, indicating the electives they intend to take and how they intend to use the 12 CFUs of free activities and 3 CFUs of soft skills development. For information on the dates and procedures for submitting the official Study plan, see <https://www.unimi.it/en/study/bachelor-and-master-study/following-your-programme-study/plan-study>.

The Study plan must be approved by the Study Plan committee composed of MB&B faculty. After the approval of the study plan, the student can take further exams in addition to his/her academic path. The Study plan may be modified upon request;

however, it is the official record of the degree, and the list of courses must correspond to the exams passed by the student to be admitted to the dissertation.

Students are invited to consider the activities included in the University project for the development of soft skills: <https://www.unimi.it/en/study/bachelor-and-master-study/following-your-programme-study/soft-skills>

The soft skills courses must be included in the study plan, they are of compulsory attendance, they have a defined number of places and they can only be selected by the students if they have been subscribed by the Master's degree program to which students belong (<https://mbb.cdl.unimi.it/en/courses/soft-skills>).

- Schedule of teaching activities

The first semester starts on October 1st, 2025, and ends on January 16th, 2026

The second semester starts on March 2nd, 2026, and ends on June 12th, 2026.

- Class timetable

Lesson timetables are available at the URL: <https://easystaff.divisi.unimi.it/PortaleStudenti/> or by downloading the official student Class timetable app of the University of Milan "Lezioniunimi"

- Exams

Each course is followed by an exam, usually a written or oral exam (or a combination). Credits for a course are awarded only if the corresponding exam is passed. Courses may be taught by more than one instructor: in this case, only one instructor will be responsible for the final registration of the grade.

- Exam sessions and assessment methods

Exam sessions are scheduled during a break at the end of each semester. Each course has a minimum of 6 exam sessions scheduled per academic year. Although there is no limit to the number of exams a student can take per year, some limitations may apply to exams that are not administered within the MB&B Master's program. Course exams must be passed with grades calculated on a 30-point scale to receive course credits, with 18/30 being the minimum passing grade.

Registration for exams is mandatory and must be done through the UNIMIA - exams registration online service (available at <https://mbb.cdl.unimi.it/en/study/exams>) for CFUs to be automatically accredited to the student's personal record.

Campus

Lecture rooms and laboratories are in the "Città Studi" campus, mostly in the University buildings of Via Celoria, 26 (Edifici Biologici); Via Celoria, 20 (Settore Didattico); Via Golgi, 19 (Edificio Golgi). The Department of Biosciences is the reference structure for all teaching activities related to the MB&B course.

Laboratories

The MB&B course is characterized by an intense laboratory activity that is mainly carried out in the internship activity for the thesis.

Libraries

The main campus library is the "Biblioteca di biologia, informatica, chimica e fisica" (Via Celoria 18). See: <http://www.sba.unimi.it/en/libraries/13453.html>

Tutoring

Tutors will provide students with academic advice, including guidance on course and thesis choices. For the academic year 2025/2026, students can contact prof. Carlo Camilloni, prof. David Horner, prof. Matteo Chiara, prof. Federico Zambelli and prof. Thomas Vaccari at their institutional email addresses. Students who need tutoring can also contact the secretariat at the following e-mail address: biotecindamb@unimi.it

Language test / computer literacy test

Among the electives, those who do not hold an Italian high school diploma or degree can obtain 3 credits in Additional language skills: Italian by demonstrating A2 level in Italian per the Common European Framework of Reference for Languages (CEFR). This level can be assessed in one of the following ways:

- by submitting a certificate of A2 or higher level issued no more than three years prior to the date of submission. You will find the list of language certificates recognized by the University at: <https://www.unimi.it/en/node/349/>). The language certificate must be uploaded through the dedicated platform;

- by an entry-level test administrated by SLAM that can be taken only once and is compulsory for all students who do not have a valid language certificate. Those who fail to reach A2 level will have to attend one or more than one 60-hour Italian course(s) geared to their level. Those who do not take the entry-level test or fail to pass the end-of-course test after six attempts will have to obtain language certification privately in order to earn the 3 credits of Additional language skills: Italian. As an alternative, they can modify their course programme by choosing a different elective.

Compulsory attendance

Attendance at lectures is strongly recommended. The experimental project leading to the final dissertation is compulsory for the Master's degree.

Internship criteria

Students will carry out an experimental project leading to the writing of a thesis in English, the discussion of which will constitute the final examination. The experimental project includes the attendance of a research laboratory, either at the

University of Milan or in another research laboratory, with the prior authorization of the Master's coordinator. The experimental project is worth 37 CFU and is therefore an important part of the Master's programme. In addition, 3 CFU can be acquired through additional laboratory activity (namely an extension of the thesis period), upon written request and approval by the MB&B Study Plan Committee. The thesis will describe original research carried out by the student under the supervision of a researcher approved by the MB&B Master's programme, and its subject must be consistent with the objectives and disciplines taught in the Master's programme.

Degree programme final exam

The final examination consists of an oral presentation and discussion of the main results of the thesis project in front of a graduation committee and contributes a maximum of 10 points to the final grade. The final grade is the weighted average of the grades in the lecture courses, calculated on a scale of 110, to which the points from the final dissertation are added.

Each "Laude" in the examination results is worth an additional 0.5 points. The final grade of 110/110 cum Laude may be obtained with the unanimous approval of the graduation committee if the candidate obtains a total of at least 112 points.

Students who have completed a thesis internship abroad or who have obtained a weighted average of at least 28/30 in the exams they have passed within the Erasmus+ programme will be awarded 1 additional point (out of the 10 points available) in the discussion of the final exam as an incentive and recognition. The 120 CFU required for the final examination to obtain the Master's degree will be obtained in accordance with the above rules.

EXPERIENCE OF STUDY ABROAD AS PART OF THE DEGREE PROGRAM

The University of Milan supports international mobility by providing its students with the opportunity to spend study and internship periods abroad. It is a unique chance to enrich your educational path in a new exciting environment.

The agreements entered into by the University with over 300 universities from the 27 EU member countries under the European Erasmus+ programme allow regularly enrolled students to carry out part of their studies at one of the partner universities or to undertake internships at companies, training and research centres and other organisations.

Similar international mobility opportunities are provided outside Europe, through agreements with a number of prestigious institutions.

The University of Milan is a member of the 4EU+ European University Alliance that brings together eight public multidisciplinary universities: University of Milan, Charles University of Prague, Heidelberg University, Paris-Panthéon-Assas University, Sorbonne University of Paris, University of Copenhagen, University of Geneva, and University of Warsaw. The 4EU+ Alliance offers integrated educational pathways and programmes to promote the international mobility of students (physical, blended and virtual).

Study and internships abroad

The MB&B programme supports the international mobility of the University programme: MB&B lecturers (for the academic year 2025/2026, Prof. Veronica Gregis) act as tutors for students interested in the Erasmus+ programme, guiding them in choosing the most appropriate programme for their education. Every year in January, the Erasmus+ programme is presented to the MB&B students at a local event organized by the Erasmus+ coordinator of the Industrial Biotechnology Department (Prof. Veronica Gregis). Under the Erasmus+ programme, the MB&B MSc has agreements with universities in Germany, Spain, France, Norway, Denmark and the Netherlands, all offering courses in English. Calls for participation in the Erasmus+ study programme can be found at the following link: <https://www.unimi.it/en/international/study-abroad/studying-abroad-erasmus>.

The time spent abroad can be used to attend courses and take the relevant exams, thus earning credits towards the Master's degree, and to carry out the experimental project of the dissertation. Students admitted to the mobility programme must submit a study plan detailing the training activities they intend to undertake and the corresponding credits. The number of credits should, as far as possible, correspond to the number of credits that the student should acquire in a similar period at the home university. The proposed activities must be consistent with the objectives and content of the Master's programme.

The MB&B Student Mobility Committee must approve the study plan and/or request changes or additions. The MB&B Student Mobility Committee must approve the study plan and/or request changes or additions. At the end of the mobility programme, according to the guidelines of the University of Milan, the courses attended by the student (with a passed exam) will be recorded in his/her transcript, preferably with the original name and with the ECTS (European Credit Transfer and Accumulation System) and its conversion into CFU (usually 1 ECTS = 1 CFU). Students wishing to complete their dissertation abroad must have an internal supervisor (chosen from among the MB&B faculty) and the study plan must be approved by the MB&B Board.

How to participate in Erasmus mobility programs

The students of the University of Milan can participate in mobility programmes, through a public selection procedure.

Ad hoc commissions will evaluate:

- Academic career
- the candidate's proposed study programme abroad
- his/her foreign language proficiency
- the reasons behind his/her application

Call for applications and informative meetings

The public selection for Erasmus+ mobility for study generally begins around February each year with the publication of a call for applications specifying destinations and requirements. Regarding the Erasmus+ Mobility for Traineeship, the University of Milan usually publishes two calls a year enabling students to choose a destination defined by an inter-institutional agreement or to find a traineeship position on their own.

The University organises informative meetings to illustrate mobility opportunities and rules for participation.

Erasmus+ scholarship

The European Union grants the winners of the Erasmus+ programme selection a scholarship to contribute to their mobility costs, which may be supplemented by the University funding for disadvantaged students.

Language courses

Students who pass the selections for mobility programmes can benefit from intensive foreign language courses offered each year by the University Language Centre (SLAM).

<https://www.unimi.it/en/node/8/>

Learn more at <https://www.unimi.it/en/node/274/>

For assistance, please contact:

International Mobility Office

Via Santa Sofia 9 (second floor)

Tel. 02 503 13501-12589-13495-13502

Contacts: InformaStudenti;

Student Desk booking through InformaStudenti

ADMISSION CRITERIA: 1ST YEAR OPEN, SUBJECT TO ENTRY REQUIREMENTS

Application and enrolment information and procedures

The application must be submitted online according to the general University rules, following the instructions at this URL:
<https://www.unimi.it/en/node/183/>

See also <https://www.unimi.it/en/education/molecular-biotechnology-and-bioinformatics>

Those students who have already graduated before the application deadline (EU candidate by 25 August, 2025, Non-EU candidates applying for VISA by 30 April, 2025) or who will graduate by 31 December 2025 must matriculate by January 15th, 2026.

Links to enrolment information and procedures

<http://www.unimi.it/en/node/92/>

N° of places reserved to non-EU students resident abroad

25

1st COURSE YEAR Core/compulsory courses/activities				
Scheduling	Learning activity	Module/teaching unit	Ects	Sector
1 semester	Biotechnological products and processes		6	(3) CHIM/11, (3) CHIM/06
1 semester	Functional genomics and bioinformatics		10	(4) BIO/11, (6) BIO/18
1 semester	Methods in bioinformatics		6	INF/01
1 semester	Molecular and cellular microbiology		6	(5) BIO/19, (1) BIO/18
1 semester	Rational design and structural characterization of bioactive molecules		6	(3) CHIM/02, (3) CHIM/06
2 semester	Advanced molecular and cellular biotechnology		10	(5) BIO/11, (5) BIO/06
2 semester	Advanced plant cell biotechnology		6	(3) BIO/18, (3) BIO/04
2 semester	Protein engineering and molecular enzymology		6	BIO/10
Total number of compulsory credits/ects			56	
Further elective courses				
The student must choose at least two of the following courses				
1 semester	Bioimaging		6	(4) FIS/07, (2) FIS/03
1 semester	Biotechnological and molecular strategies in the control of parasites and vector-borne pathogens		6	VET/06
1 semester	Nanotechnology for biomedical applications and biosensors		6	(3) CHIM/01, (3) CHIM/06
1 semester	Structural bioinformatics		6	FIS/07

2 semester	Advanced bioinformatics for biotechnology		6	(4) BIO/11, (2) INF/01
2 semester	Macromolecular structural biology		6	BIO/10
2 semester	Molecular breeding and plant genetics		6	(5) AGR/07, (1) BIO/18
2 semester	Patenting and technology transfer		6	(1) IUS/01, (1) AGR/01, (4) IUS/04
<p>The student must acquire 12 CFU freely chosen by the student and 3 CFU focused on the development of soft skills, including language courses (Italian for foreigners), additional computer skills or other skills useful for job placement, including attending seminars from invited experts and scientist. The courses can be chosen either from the list of MB&B electives or from any course offered by the University of Milan, including courses taught in Italian, if they are considered compatible with the objectives of the MB&B degree and are not a repetition of courses already offered in the program. Three credits can be acquired by extending the thesis project, upon presenting a motivated written request that must be approved by the MB&B Study Plan Committee.</p>				
	Additional Language Skills: Italian (3 ECTS) <i>(For foreign students only)</i>		3	ND
	Other training activities		3	ND
End of course requirements				
	Laboratory training		7	ND
	Thesis project and final dissertation		30	ND
			Total number of compulsory credits/ects	37

COURSE PROGRESSION REQUIREMENTS

There are no propaedeutic courses that limit progression from the first to the second year.