



UNIVERSITA' DEGLI STUDI DI MILANO
PROGRAMME DESCRIPTION - ACADEMIC YEAR 2025/26
MASTER DEGREE
APPLIED BIOLOGY IN NUTRITIONAL SCIENCES (Classe LM-6 R)
Enrolled in the academic year 2025/2026

HEADING

Degree classification - Denomination and code:	LM-6 R
Degree title:	Dottore Magistrale
Length of course:	2 years
Credits required for admission:	180
Total number of credits required to complete programme:	120
Years of course currently available:	1st
Access procedures:	Open, subject to entry requirements
Course code:	FBH

PERSONS/ROLES

Head of Study Programme

Prof.ssa Isabella Dalle Donne

Degree Course Coordinator

Prof. Alessandro Aliverti

Tutors - Faculty

Tutor per l'orientamento: Marta Valenza, Nicola Manfrini, Federica Marini, Alessandro Aliverti, Anita Ferraretto

Tutor per la mobilità internazionale e l'Erasmus: Cristina Bonza

Tutor per i piani di studio: Alessandro Aliverti, Elena Menegola

Tutor per stage e tirocini: Alessandro Aliverti, Elena Menegola, Elisabetta Tanzi

Tutor per laboratori e altre attività: Alessandro Aliverti, Anita Ferraretto

Tutor per tesi di laurea: Alessandro Aliverti, Monica Gomaschi, Andrea Binelli

Tutor per trasferimenti: Alessandro Aliverti

Tutor per ammissioni lauree magistrali: Alessandro Aliverti, Katia Petroni, Annalisa Bucchi

Tutor per riconoscimento crediti: Alessandro Aliverti

Degree Course website

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

Email: bionutri@unimi.it

Admissions and enrolment

<https://www.unimi.it/it/studiare/frequentare-un-corso-di-laurea/iscriversi/iscriversi-un-corso-magistrale>

Disability and SLD academic tutor (appointed by the Academic Board):

Prof.ssa Diletta Dolfini Email: diletta.dolfini@unimi.it

New student information center

<https://informastudenti.unimi.it/>

programme

via Celoria, 26 - piano terra, torre C. <https://informastudenti.unimi.it/>

Programme Coordinator

Prof. Alessandro Aliverti Email: alessandro.aliverti@unimi.it

Student registrar

via Celoria, 18 - Milano Phone 0250325032 <https://www.unimi.it/it/node/360> <https://www.unimi.it/it/node/359/>

CHARACTERISTICS OF DEGREE PROGRAMME

General and specific learning objectives

The Master of Science (M.Sc.) programme in BIOLOGY APPLIED TO THE SCIENCES OF NUTRITION (BIONUTRI, Class LM-6 Biology) is aimed to the training of qualified experts in the application of biology in nutrition-related fields, the interaction between environment and food, the hygiene and quality of food resources, the control procedures and the accreditation and certification of food. On the basis of the development of biological knowledge in the bio-nutritional field, graduates will be able to manage the problems arising from the rapid evolution of the environmental, cultural, regulatory and technological aspects of nutrition. The M.Sc. in BIONUTRI intends to respond to emerging needs for specific skills in the bio-nutritional field that are currently growing. Specific training objectives are the acquisition of a thorough scientific and operational preparation about:

- the basic chemical composition of food, bioavailability of the macro- and micro-nutrients, the energy content and the nutritional quality of foods, modification of food caused by technological and production processes and by environmental contamination;
- biochemistry and physiology of digestion and absorption and the metabolic processes;
- ecology of nutrition; trophic chains, food eco-toxicology and evaluation of the risk; OGM in the alimentary sector;
- alimentary ethology and pathological dysfunctions connected with the alimentation; microbiology, toxicology and hygiene of the foods;
- legislation and norms, national and community, relative to the alimentary politics, to the hygiene and to the control of the foods, to the nutritional overseeing for populations, to the risk of exposure to contaminating agents in the animal and human diets.

Expected learning outcomes

In compliance with the indications of the European Union, the expected learning results reached by M.Sc. graduates in BIONUTRI respect the specific statements defined by the Dublin Descriptors system.

- Knowledge and understanding, defined as: integrated cultural competencies in relation to the specific field of nutritional biology as well as related applicative fields; advanced scientific preparation in nutritional biology, with special reference to structural, biochemical and functional aspects (both at the molecular and cellular level and at the levels of whole organism and food behavior), to ecological aspects (food-environment interactions), to regulatory aspects (implementation of new directives of the European Union in the field of food), and to the ability in the knowledge re-elaboration.
- Advanced applicative and multi-disciplinary competences in the methodological technological, and instrumental aspects of biological analyses, with thorough knowledge of: instrumental methodologies, analytical instruments, acquisition and elaboration of data, mathematical and IT supporting tools, scientific method of investigation, with special reference to the field of nutritional biology.
- Acquisition of autonomy of judgement in relation to: management of projects, personnel and work structures; identification of novel perspectives and strategies of development; evaluation, interpretation and elaboration of scientific literature data; professional deontology, critical and responsible approaches to bioethical topics.
- Acquisition of adequate competencies and skills for the communication and management of information, in relation to the ability of: interacting with other subjects with the fluent usage of an UE language, and knowing of the specific discipline lexicon; elaborating and presenting research project; organizing and leading research groups; presenting the result of the research.

The M.Sc. graduates in BIONUTRI will acquire the ability to master the scientific method of investigation and the capacity to work in autonomy, also fulfilling responsible positions and coordination roles, providing essential contributions in any occupational field (scientific research, food security, public and private laboratories involved in nutrition, to monitoring of food quality and safety, scientific professional publishing and science communication) they could cover.

The present master program also provide an adequate cultural basis in order to continue the formation with a PhD program.

Professional profile and employment opportunities

The M.Sc. graduates in BIONUTRI possess a specific and modern knowledge of the biological applications in alimentary and nutritional field and a deepened cultural preparation on the problems of nutrition in several contexts as the environmental, technological, legislative and of scientific research ones with particular attention to the cellular and molecular aspects.

The broad acquired competence confers a specific preparation for professional activities and projects in fields correlated to the biological disciplines in the sectors of the industry and of the public administration with particular reference to:

- 1) comprehension of the biological phenomena at all levels and diffusion/divulgarion of such knowledge;
- 2) correct application of nutrition and of the relative current rules in the field of the public and private health;
- 3) monitoring of food consumption to assess the nutritional trends of the population, application of methods apt to evaluate food safety and to ensure the health of the consumer;
- 4) nutritional education for the institutional operators and the population;
- 5) dietetic advice for determining optimal diets for communities (company refectories, sporting groups, and so on) or single individuals;
- 6) participation in processes of optimization, conservation and safety of the alimentary resources;
- 7) procedures of control, credit and certification of private and public laboratories or structures in accordance with the European dispositions;
- 8) promotion and development of the scientific and technological innovation, as well as of management and design of the technologies related to the biology of nutrition;
- 9) management and coordination tasks in installations of the national and foreign alimentary industries;
- 10) professional activities and to set up projects in all the fields correlated to the biological disciplines, in the application

sectors of the industry, of the agriculture, of the health and of the public administration.

The M.Sc. graduate in BIONUTRI will be able to carry out:

- 1) research activity in the bio-nutritional field,
- 2) research activity in the alimentary industry and in specific sectors for protection of the public health,
- 3) marketing in the industry of the sector of pertinence,
- 4) managerial career in either public or private laboratories,
- 5) free professional activities in pertinent sectors,
- 6) managerial career in the great alimentary distribution;
- 7) activity of diffusion of nutritional education.

The M.Sc. graduate in BIONUTRI, after passing the exam for the profession, will be able to enroll in the Biologist's Professional Register, section A, with the title of Biologist, to perform the activities recognized by the Italian law.

The educational goals and the whole organization of the master program have been defined in the perspective of professional profiles that take into account feasible emergent occupational fields not only within the regional territory, but also within the national and European ones. The expected competences of the graduate are specifically included among those of the Biologist professional. Large and diverse possibilities of professional employment for master graduates with specific formation and cultural competences are also available outside the nation within the EU territory.

The employment sectors accessible to Master graduates are:

- Biologists and related professionals
- Biochemist
- Researchers and technicians graduated in the area of biological sciences

Initial knowledge required

Admission requires the possession of minimum curricular requirements and adequate personal preparation (Ministerial Decree 270/04).

Requirements and Knowledge Required for Access:

Graduates from any Italian university holding a degree in the L-13 Biological Sciences category may access the Master's degree program, provided they meet the full curricular requirements for entry, have completed a training path consistent with the guidelines of the National College of Biologists of Italian Universities (CBUI), and have appropriate certification.

1. Graduates in the same L-13 category or from the previous Class 12 - Biological Sciences (Ministerial Decree 2/11/1999, n. 509), or from related categories, or those who have obtained an equivalent qualification abroad, recognized as suitable under current regulations, may also be admitted, provided they meet the required curricular qualifications. Specifically, the curricular requirements include an appropriate number of ECTS credits (normally no fewer than 90 ECTS) in groups of scientific-disciplinary sectors recognized in the L-13 Biological Sciences Table. These must be distributed appropriately across both basic and core biological disciplines, as well as non-biological disciplines, following a quantitative logic similar to that specified by the CBUI criteria. In particular, at least 36 ECTS in basic non-biological disciplines are required, including at least one course within the MAT/01-09 group, one within the FIS/06-07 group, one within the CHIM/02-03 group, and one within the CHIM/06 group. It is also essential to have at least 54 ECTS in basic and core biological disciplines, including those from the BIO/06, BIO/09, BIO/10, BIO/11, BIO/18, BIO/19 sectors, as well as from at least one sector in the BIO/01-05 group. Any missing ECTS credits may be earned by passing relevant exams at our university or others before enrollment in the Master's degree program.

2. To obtain information on missing curricular requirements, students are encouraged to send their study curriculum well in advance for evaluation to the Coordinator of the Master's Program or to the email address bionutri@unimi.it, even while attending the Bachelor's degree program, so they can complete the necessary exams in time.

The knowledge required for access to the Master's degree program includes adequate foundational training in the biological field, enabling students to tackle the advanced level of studies. These knowledge requirements will be verified through two procedures, namely:

1. Evaluation of the adequacy of the candidate's prior academic curriculum;
2. Verification of the candidate's individual preparation.

For all categories of candidates, the adequate preparation and personal aptitude will be a determining factor for admission and will be assessed through an individual interview.

Procedure for the evaluation of preparation and personal aptitude of candidates

The adequate preparation and personal aptitude of the students will be a determining factor for admission and will be assessed through a written test and, if necessary, an individual interview. The interview, conducted by a committee of at least three professors appointed by the Degree Course Board (CDD), aims to evaluate the student's preparation and motivation to undertake advanced studies. The interview can only be taken by students who have already graduated.

The overall evaluation will result in a score out of 100, where up to 25/100 will be awarded for the degree grade, up to 10/100 for the academic curriculum (type of degree, any additional courses attended/completed, other diplomas, etc.), and up to 65/100 for the outcome of the written test and interview. The minimum score for admission is 60/100. A negative result in the personal preparation assessment will prevent access to the Master's program for the current academic year.

The written test will be conducted once, in September, for all applicants (both graduates and undergraduates). Following this, candidates who need to attend an interview must do so according to the schedule below. For the academic year

2025/2026, the personal preparation assessment will follow the schedule listed below:

Written test: 9 September 2025, at 9:30 AM, in a classroom that will be communicated to the candidates in advance, for all applicants (graduates and undergraduates) who have submitted their admission application, followed by a possible interview on the first available date in the list below, after the candidate has graduated.

Interview for graduates: 12 September 2025, at 9:30 AM, Meeting Room (Department of Biosciences, Via Celoria 26, 2nd floor, Tower A).

Interview for students graduating in October: 3 November 2025, at 2:30 PM, Meeting Room (Department of Biosciences, Via Celoria 26, 2nd floor, Tower A).

Interview for students graduating in December: 7 January 2026, at 2:30 PM, Meeting Room (Department of Biosciences, Via Celoria 26, 2nd floor, Tower A).

All applicants must appear before the Examination Committees with a valid identity document on the specified date and at the specified location, without further notification.

Foreign Students:

For non-EU students holding a degree obtained abroad and residing abroad, the evaluation of applications, aimed at verifying personal preparation, can only be carried out based on the qualifications held and will be supplemented by an interview conducted online. For admission purposes, a sufficient knowledge of the Italian language is required, which will be assessed by the Admissions Committee during the interview.

Non-EU citizens residing in Italy and EU citizens are treated equally to Italian citizens.

Compulsory attendance

Attendance is strongly recommended for all courses and compulsory for laboratory activities.

Internship criteria

To acquire the basic technical-scientific skills necessary to undertake the thesis project, a prior formative and orientation internship (9 ECTS) is required, to be carried out at the facility hosting the thesis internship.

Degree programme final exams

The acquisition of ECTS credits related to the thesis and final exam (a total of 21 ECTS) is conditional on the student's participation in an intensive internship at a university laboratory or another public or private institution. The thesis must always consist of an original piece of work with biological relevance, aimed at solving a scientific problem, and must demonstrate the ability to correctly apply the experimental method. Compilation theses are not allowed under any circumstances. To this end, attendance for approximately 6-8 months at a scientific laboratory under the supervision of a faculty advisor is mandatory.

The frequency of attendance at the laboratory for thesis preparation will be verified directly by the faculty responsible for the thesis, in the manner they deem most appropriate. The thesis involves a main supervisor and a co-supervisor, and it may be either internal or external. An internal thesis is one conducted within any of the Departments that offer courses for the Master's degree program. An external thesis is one carried out at other departments of the University of Milan or at pre-selected laboratories or institutes outside the university, chosen based on their demonstrated scientific credibility. The thesis may be written in English.

The final exam consists in defending a written paper on internship research in a public session before a faculty board. The degree mark will be on a scale of 110.

More details on the web page: <https://bionutri.cdl.unimi.it/it/studiare/laurearsi>

The programme awards the title of "Dottore Magistrale" (Master's graduate) in Biology, majoring in Applied Biology in Nutritional Sciences.

To be admitted to the final exam, the student must:

- 1) have passed the exams for compulsory and elective courses, and earned the corresponding credits, including 3 credits for English language proficiency;
- 2) have completed their internship, as duly certified.

The Thesis Supervisor

Any faculty member or researcher who is part of the Departmental Teaching Board (CDD) of Biological Sciences or affiliated with the Department of Biosciences may act as the thesis supervisor or internal tutor.

The Thesis Application and Internship

Preferences for thesis topics must be submitted in advance to the Coordinator of the Master's degree program according to the timeline set by the Departmental Teaching Board (CDD). To assist students in choosing, the following initiatives will be provided:

- 1) A web page from the Department of Biosciences listing thesis opportunities proposed by various professors (<http://tesi.bioscienze.unimi.it/>);
- 2) Orientation meetings dedicated to presenting the thesis offerings for the specific academic year, along with the number of available thesis spots for both internal and external theses in each area.

The acceptance (or non-acceptance) of the application will be agreed directly with the student or communicated to the candidate shortly after the deadline for submitting applications. The internship (thesis topic, supervisor, start and end dates) must be formalized at the Teaching Secretariat and coordinated with the Master's program Coordinator.

It will be the responsibility of the Coordinator, or a designated delegate, to advise the student to choose an external thesis

only after verifying that no suitable internal position is available. The same person will direct the student to an official professor of the degree program, who will be the supervisor of the external thesis, ensuring that the internship is conducted in compliance with the rules set by the degree program through periodic progress reports. The supervisor is responsible for critically evaluating the work done by the candidate and determining whether the thesis meets the requirements to be accepted for a Master's degree in Biology. The thesis must indicate, on the first page, the location where the experimental work was carried out.

Campus

Classrooms are located in the University buildings in: Via Celoria, 26 (Biology buildings); Via Celoria, 20 (Teaching Sector); Via Golgi, 19.

The Academic Services Office is located in the Department of Biosciences, Via Celoria, 26 – Milano (Tower C, ground Floor).

Laboratories

The CLM is characterized by an intense laboratory activity that is mainly carried out in the internship activity for the thesis.

Notes

In order to obtain their degree, students must be proficient in English at a B2 level under the Common European Framework of Reference for Languages (CEFR). This proficiency level may be certified as follows:

- By submitting a language certificate attesting B2, or higher level in English and issued no more than three years before the date of submission. 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 during the enrolment procedure, or subsequently to the portal <http://studente.unimi.it/uploadCertificazioniLingue>;

- By taking a placement test offered by the University Language Centre (SLAM) between October and January of the first year. Students who fail the test will be required to take a SLAM course.

The placement test is mandatory for all those who do not hold a valid certificate attesting to B2 or higher level.

Those who have not taken the placement test by the end of January or fail the end-of-course exam six times must obtain the necessary certification privately before graduating.

EXPERIENCE OF STUDY ABROAD AS PART OF THE TRAINING 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

BIONUTRI students are given the opportunity to spend part of their curriculum abroad, at a University within the European Union (EU) in the frame of the Erasmus+ program of the European Commission. BIONUTRI students can attend courses and take exams that can be included in the core curriculum and/or perform the experimental thesis work in several European Universities localized in Netherland, Norway, Ireland, Germany - where courses taught in English are active – France, Spain and Portugal (see <https://dbs.unimi.it/it/rapporti-internazionali/mobilita-internazionale>). The admitted student will present a study plan including all the activities he/she intends to perform abroad, detailing the corresponding CFU: the number of proposed CFU should roughly correspond to those the student would achieve in the same time lapse remaining in his/her university. The study plan proposed by the student within the Erasmus+ program should be coherent with the BIONUTRI Master course and must be evaluated and approved by the Teaching Board. The Teaching Board, if necessary, will require the student to integrate the program of exams taken abroad. At the end of the Erasmus + program, according to the rules established by the Academic Senate, the approved exams will be recorded, possibly with the original denomination, as part of the student's curriculum upon conversion of the European Credit Transfer and Accumulation System (ECTS) into CFU. If the student performs the experimental thesis work abroad, he/she must follow the rules outlined below (see Caratteristiche tirocinio). Erasmus+ program representative for Biological area is Prof.ssa Maria Cristina Bonza (cristina.bonza@unimi.it).

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

1st COURSE YEAR Core/compulsory courses/activities common		
Learning activity	Ects	Sector
	6	MED/49
DATA ANALYSIS AND PREDICTIVE MODELING	6	(2) ING-INF/06, (4) MAI/06
English proficiency B2 (3 ECTS)	3	ND
FOOD AND FERMENTATION CHEMISTRY	6	CHIM/11
HUMAN MICROBIOTA AND HOST-INTERACTIONS	6	BIO/19
NUTRIGENOMICS AND NUTRIGENETICS	6	BIO/18
NUTRITIONAL BIOCHEMISTRY	6	BIO/10
STRUCTURAL AND FUNCTIONAL BASES OF NUTRITION	9	(6) BIO/09, (3) BIO/16
	Total compulsory credits	48
2nd COURSE YEAR (available as of academic year 2026/27) Core/compulsory courses/activities common		
Learning activity	Ects	Sector
APPLICATIONS IN FOOD SCIENCES	12	(3) VET/06, (3) MED/38, (3) MED/49, (3) CHIM/06
	Total compulsory credits	12
Further elective courses		
The student must choose one of the following courses:		
FOOD HYGIENE AND SAFETY	6	MED/42
MOLECULAR AND CELLULAR BASES OF METABOLIC AND NUTRITIONAL DISEASES	6	(3) MED/04, (3) BIO/09
NUTRITION, PHARMACOLOGY AND TOXICOLOGY	6	BIO/14
The student must choose one of the following courses		
ALIMENTATION AND PREVENTION OF NUTRITIONAL DISEASES	6	(1) MED/13, (4) MED/49, (1) BIO/13
REGULATION, STANDARDIZATION AND BUSINESS ORGANIZATION	6	(4) SECS-P/06, (2) IUS/07
The student must acquire 12 ECTS by selecting any of the courses offered by the University of Milan, provided that they are coherent with their educational plan and that the course content does not overlap with those present in mandatory and		

guided-choice courses in the study plan. The student can pick the remaining guided-choice courses that he/she had not inserted in the study plan. 6 of the 12 free choice ECTS can be spent on internship activities of proven quality. These 12 ECTS are associated with the 2nd year of the course.

The student must choose one of the following courses:

FEEDING BEHAVIOUR AND NUTRITIONAL STATUS OF POPULATIONS	6	(3) BIO/05, (3) BIO/07
FOODS RESOURCES	6	(3) BIO/05, (3) BIO/01
NUTRITION AND LIFE CYCLES	6	BIO/06
NUTRITION ECOLOGY AND ECOTOXICOLOGY	6	BIO/07

The student can choose the following additional optional course within the 12 ECTS of free choice in the 2nd year. The course will be activated starting from the Academic Year 2026/2027.

<i>Activated from the academic year 2026/2027</i>	6	(3) BIO/18, (3) BIO/14
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End of course requirements

	9	NA
FINAL EXAM	21	NA
	Total compulsory credits	30