



**UNIVERSITA' DEGLI STUDI DI MILANO**  
**PROGRAMME DESCRIPTION - ACADEMIC YEAR 2020/21**  
**MASTER DEGREE**  
**Applied Biology in Nutritional Sciences (Classe LM-6)**  
**Enrolled from 2014/15 academic year**

### HEADING

<b>Degree classification - Denomination and code:</b>	LM-6 Biology
<b>Degree title:</b>	Dottore Magistrale
<b>Length of course:</b>	2 years
<b>Credits required for admission:</b>	180
<b>Total number of credits required to complete programme:</b>	120
<b>Years of course currently available:</b>	1st , 2nd
<b>Access procedures:</b>	Open, subject to entry requirements
<b>Course code:</b>	F3Y

### PERSONS/ROLES

**Head of Study Programme**

Prof. Mirko Baruscotti

**Degree Course Coordinator**

Prof. Alessandro Aliverti

**Tutors - Faculty**

Tutor per l'orientamento: Katia Petroni, Alessandro Aliverti, Elisabetta Tanzi, 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, Aldo Milzani

Tutor per riconoscimento crediti: Alessandro Aliverti

**Degree Course website**

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

via Celoria, 26 - Milano (2° piano, torre A). A causa dell'emergenza sanitaria è momentaneamente attivo solo lo sportello telematico (via e-mail). Email: [cl.biol@unimi.it](mailto:cl.biol@unimi.it); [bionutri@unimi.it](mailto:bionutri@unimi.it)

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

via Celoria, 26 - Milano (2° piano, torre A). A causa dell'emergenza sanitaria è momentaneamente attivo solo lo sportello telematico ([cl.biol@unimi.it](mailto:cl.biol@unimi.it)). Email: [cl.biol@unimi.it](mailto:cl.biol@unimi.it)

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

Email: [bionutri@unimi.it](mailto:bionutri@unimi.it)

**Representative for disability services and specific learning disabilities (appointed by the Academic Board):**

Dr.ssa Diletta Dolfini Email: [diletta.dolfini@unimi.it](mailto:diletta.dolfini@unimi.it)

### 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 communitary, 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.

### **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; 6) 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.

### **Notes**

To obtain the degree, students are required to demonstrate an English language proficiency at level B2 within the Common European Framework of Reference for Languages (CEFR). This level can be assessed in the following ways:

- by submitting the language certificate achieved no more than three years prior to the submission, at level B2 or higher, recognised by the University (the list of recognised language certificates can be found at <https://www.unimi.it/en/study/language-proficiency/placement-tests-entry-tests-and-english-courses>). The language certificate must be uploaded during the admission process;
- by taking the Placement Test, organised by SLAM exclusively during the first year, from October to January. Students who fail to reach level B2 will have to attend an English course organised by SLAM. The Placement Test is compulsory for all students who do not have a valid language certificate.

Students who do not take the Placement Test within the deadline and students who fail the SLAM end-of-course test within six attempts will have to obtain a language certificate within the year in which the language exam is scheduled.

Level of English assessed through a computer-based test during the bachelor's degrees obtained at the University of Milan: English levels B2 achieved no more than four years previously are deemed valid. The verification is automatic with no need to attach any certificate during the application phase.

## **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 30 different 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 organizations.

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

### **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 Belgium, Netherlands, Norway, UK- where courses taught in English are active – France, Germany, Poland, Spain and Portugal (see <http://eng.dbs.unimi.it/ecm/home/erasmus/outgoing-students/biological-sciences>). 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 Dr. M. C. Bonza ([cristina.bonza@unimi.it](mailto:cristina.bonza@unimi.it)).

### How to participate in Erasmus mobility programs

The students of the University of Milan can participate in mobility programmes, which last 3 to 12 months, through a public selection procedure.

Ad hoc commissions will evaluate:

- 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 generally begins around February each year with the publication of a call for applications specifying the destinations, with the respective programme duration, requirements and online application deadline.

Every year, before the deadline for the call, the University organizes informative meetings to illustrate opportunities and rules for participation to students.

#### Erasmus+ scholarship

The European Union grants the winners of the Erasmus+ programme selection a scholarship to contribute to their mobility costs, which is 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.

Learn more at <https://www.unimi.it/en/international/study-abroad/studying-abroad-erasmus>.

For assistance, please contact:

International Mobility Office

Via Santa Sofia 9 (second floor)

Tel. 02 503 13501-12589-13495-13502

E-mail: [mobility.out@unimi.it](mailto:mobility.out@unimi.it)

Desk opening hours: Monday to Friday 9 am - 12 noon

<b>1st COURSE YEAR Core/compulsory courses/activities common</b>		
<b>Learning activity</b>	<b>Ects</b>	<b>Sector</b>
APPLICATIONS IN FOOD SCIENCES	9	VET/06, MED/38, CHIM/06
BIOLOGY OF NUTRITION	9	(3) ING-INF/06, (6) MED/49, (3) MAT/06
English proficiency B2 (3 ECTS)	3	ND
FOOD AND FERMENTATION CHEMISTRY	6	CHIM/11
NUTRIGENOMICS AND NUTRIMICROBIOMICS	6	BIO/19, BIO/18
NUTRITIONAL BIOCHEMISTRY	6	BIO/10, BIO/04
STRUCTURAL AND FUNCTIONAL BASES OF NUTRITION	9	BIO/09, BIO/16
Total compulsory credits		48
<b>Further elective courses</b>		
FOOD HYGIENE AND SAFETY	6	MED/42
MOLECULAR AND CELLULAR BASES OF METABOLIC AND NUTRITIONAL DISEASES	6	MED/04, BIO/09
NUTRITION, PHARMACOLOGY AND TOXICOLOGY	6	BIO/14
FEEDING BEHAVIOUR AND NUTRITIONAL STATUS OF POPULATIONS	6	BIO/05, BIO/07
NUTRITION AND LIFE CYCLES	6	BIO/06

NUTRITION ECOLOGY AND ECOTOXICOLOGY		6	BIO/07
ALIMENTATION AND PREVENTION OF NUTRITIONAL DISEASES		6	MED/13, MED/49, BIO/13
REGULATION, STANDARDIZATION AND BUSINESS ORGANIZATION		6	SECS-P/06, IUS/07
<b><i>End of course requirements</i></b>			
FINAL EXAM		42	NA
	Total compulsory credits	42	