UNIVERSITA' DEGLI STUDI DI MILANO
PROGRAMME DESCRIPTION - ACADEMIC YEAR 2024/25
MASTER DEGREE
Nutritional Sciences (Classe LM-70)
Enrolled from 2008/09 academic year

HEADING

Degree classification - Denomination and code:	LM-70 Food science
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 , 2nd
Access procedures:	Open, subject to entry requirements
Course code:	G60

PERSONS/ROLES

Head of Study Programme

Prof. Francesco Enzo Molinari

Tutors - Faculty

Tutor per i piani di studio:
lettera iniziale cognome studenti A-BE: Prof.ssa Stefania Iametti
lettera iniziale cognome studenti BI-CE: Prof.ssa Manuela Silvia Rollini
lettera iniziale cognome studenti CH-DI: Prof.ssa Cristina Alamprese
lettera iniziale cognome studenti DO-GI: Prof.ssa Luisa Maria Pellegrino
lettera iniziale cognome studenti GL-LU: Prof.ssa Alyssa Mariel Hidalgo Vidal
lettera iniziale cognome studenti MA-MU: Prof.ssa Barbara Brunetti
lettera iniziale cognome studenti NA-PE: Prof.ssa Sara Limbo
lettera iniziale cognome studenti PH-RI: Prof. Alberto Giuseppe Barbiroli
lettera iniziale cognome studenti RO-TA: Prof.ssa Maria Stella Cosio
lettera iniziale cognome studenti TE-Z: Prof.ssa Stefania Arioli

Tutor per la mobilità internazionale e l'Erasmus:
Prof.ssa Alyssa Mariel Hidalgo Vidal

Degree Course website

https://scienzealimentari-lm.cdl.unimi.it/

Course management for the Faculty of Agricultural and Food Sciences (Science and Technology area)

via Celoria 2 - Milano Città Studi Phone 0250316511 Orario di apertura al pubblico: lunedì dalle 10 alle 12 e dalle 14 alle 16
Contatto: https://informastudenti.unimi.it/saw/ess?AUTH=SAML

Degree programme head

Phone 0250319148 Email: presidenza-stal@unimi.it

Student registrar

via Celoria 18 - Milano Città Studi 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's degree course in Nutritional Sciences aims to provide advanced knowledges, and to train professional skills suitable for carrying out coordination and guidance activities relating to the agro-food sector, as well as the ability to guarantee, even with the use of innovative methodologies, quality and food safety. The fundamental objective of the master's degree in Nutritional Sciences is the management of professional functions aimed at the constant improvement of food products look for quality and sustainability, eco-compatibility of industrial activities, developing innovations in each activity.

Expected learning outcomes

Knowledge of the molecular basis of biotechnological transformations. The advanced contents of food chemistry, food microbiology and food safety. The emerging technologies of conservation, transformation, conditioning and methods of modeling and optimization of processes. The aspects of applied nutrition. Research and development in the food sector. The economics of markets and marketing. Quality management. At the end of the studies, the graduate has awareness and autonomy of judgment to plan actions and manage interventions to improve the quality and efficiency of production and any other activities related to the food chain, also respecting a sustainable development. The graduate has acquired personal aptitudes for communication, multidisciplinary team and a critical approach to analyze technical, economic and ethical issues. The graduate is able to use, in written and oral form, the English language. The degree course provides the cognitive tools, the logical elements and the tools of the new information technologies that guarantee the graduate a continuous updating of knowledge in the specific professional sector and in the field of scientific research.

Professional profile and employment opportunities

The master's degree in Nutritional Sciences carries out designing, management, control, coordination and training activities relating to the production, conservation, distribution of food and drinks. The wide spectrum of advanced knowledge characterizes an expert who can cover all the functions in the food industry and in each activity related to the food chain. The graduate will work mainly in the food companies and in all the companies related to the production, transformation, conservation and distribution of food products, in the companies of the large-scale retail trade, in public and private entities that carry out planning, analysis, control, certification, as well as in research and development divisions acting for protection and enhancement of food production, in professional training. The most relevant professional opportunities are, in addition to the Food Technologist, those indicated as specialized professions in life sciences and as technical professions in the management of the production processes of goods and services. For example, the graduate's responsibilities include: a) the management of food storage, processing and marketing lines; b) the study, design, management and testing of food processing processes and related biological products, including the processes of purification of effluents and recovery of by-products; c) the supply of raw materials and food plants and the distribution of finished products, food additives; d) quality management in the production chain of food products, additives, technological aids, ingredients, packaging and everything else relating to the production and transformation of products. These activities can be carried out both in private companies and in public structures; e) the expert and arbitration functions regarding the duties listed in the previous letters; f) market research and related activities in relation to food production; g) research and development of processes and products in the food sector; h) teaching in schools of every order and degree of technical-scientific subjects concerning the food and related fields.

Initial knowledge required

Admission requirements

The Master's degree programme in Nutritional sciences has no access restrictions other than those established by law. Applicants to the study programme must hold a degree in classes L-26, L-25, L-2, L-13, L-27, L-29, L-38, or 20, 1, 12, 21, 24 and 40, under previous regulations, or another qualification obtained abroad, recognized as suitable, or a Bachelor's degree. Curricular requirements are those of graduates of classes L-26 and 20, with a degree in Food science and technology or Food technology. Graduates in degree classes other than class L-26 (ex class 20) may access the Master's degree programme, provided they have earned at least:
25 credits in the AGR/15 academic field
10 credits in the AGR/16 academic field
8 credits in the AGR/01 academic field
8 credits in the BIO/10 academic field
5 credits in the BIO/09 or MED/49 academic field
5 credits in MAT/01 to MAT/09 academic fields
5 credits in FIS/01 to FIS/07 academic fields
In any case, admission to the degree programme is subject to an assessment of knowledge and skills, including those listed below. For this purpose, the contents of the courses taken by the candidate during the first-cycle degree programme at another university may be considered.
- Knowledge of the main chemical reactions that occur during the production, processing and storage of food products;
- Understanding of the main food industry processes and the link between production process and product quality;
- Understanding of the meaning and implications of the main operations and processes of food technology;
- Awareness of interdisciplinary connections in food process management and product quality optimization;
- The ability to use analytical techniques, including non-instrumental ones, for food profiling in terms of typicality, quality and safety;
- Being familiar with the main economic, supply, demand, production and trade theories;
- Knowledge and ability to interpret the main laws and rules in the food sector;
- Understanding of quality concepts and approaches in the food industry, the ability to operate within an ISO 9001 quality system.

Please refer to the paragraph "Informazioni e modalità organizzative per immatricolazione" (how to enrol) of the programme description ("Manifesto degli Studi") for practical information on enrolment applications.

Admission assessment

Those wishing to apply for admission to the degree programme should contact the Chair of the Academic Board by e-mail: presidenza-stal@unimi.it. Missing credits can also have been acquired through single courses offered by the University, since it is not foreseen enrollment with training deficiencies. Information on how to make up for training deficiencies must be requested directly from the President of the teaching board. Curricular requirements are also assessed based on the syllabi of the individual study programme completed by the candidate. This assessment will be conducted by the Head of Study Programme with the involvement of the members of the Academic Board, chosen from time to time depending on the contents of the programme to be assessed. Should any gaps be identified, the head of the study programme will notify the candidate by email. Access to the programme is in any case regulated by a compulsory test consisting of 30 multiple choice questions aimed at ascertaining the initial skills of the students in the scientific disciplines of the degree programme in Food science and technology (class L-26). A special board, appointed by the Academic Board of the study programme, will admit candidates who answered correctly at least 18 out of the 30 questions of the test. The test date will be posted to the page https://scienzealimentari-lm.cdl.unimi.it/it/iscriversi; a notice with further test details, including time, venue and delivery mode, will be posted to the home page of the degree programme website https://scienzealimentari-lm.cdl.unimi.it/it.

Compulsory attendance

Attendance is strongly recommended for all training activities.

Degree programme final exams

Upcoming graduates must pass a final exam by presenting and defending a paper written by the student under the guidance of a supervisor. The latter will appoint another faculty member or an external expert as co-supervisor. The student can start the degree thesis only after having established the title and period of the thesis with a supervisor. The supervisor of the degree thesis can only be a professor of the CdS or of the Faculty of Agricultural and Food Sciences. Any type of activity (for example internships in external companies or laboratories) carried out without the consent of a supervisor will have no value for the final exam. The Master's degree thesis is an essay structured as a scientific publication. The candidate will present and defend their thesis, highlighting the state of the art for that topic, as well as the purpose, approach, findings and conclusions of their work. The thesis can be written and discussed in Italian or English. The final exam awards 40 credits (CFU). Upcoming graduates must comply with the following:

- pass all exams included in the academic plan, for a total of 69 credits, and earn 8 credits for elective activities;
- earn 3 credits for English language proficiency at a B2 level.

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 B1 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 organizations. Similar international mobility opportunities are provided outside Europe, through agreements with a number of prestigious institutions.

Study and internships abroad

The eligibility criteria to study under the Erasmus+ program, the rules for participation and the criteria for students selection are described in a specific call dedicated to the Food Area. Erasmus+ provides mobility opportunities within 40 academic partners, widely distributed in Europe and selected on the basis of their excellence and teaching affinity with the Italian degree. Students can apply to take courses in the following thematic areas: microbial biotechnology, applied nutrition, design and management of food plants, economy and innovation management, logistics and packaging technologies, modeling and process innovation. The outline of the Erasmus+ study program (learning agreement) is prepared by the student in collaboration with the Italian academic Erasmus+ tutor. This document is defined after consulting the teaching board of the Italian degree and receiving the official approval of the activities to be performed in the host institution. In case of research activities, a detailed program describing the activities and the duration of the internship must be planned and formally approved by the host institution supervisor and by a member of the Italian teaching board (Italian supervisor). At the end of study period abroad the Erasmus+ activities (credits and grades) must be certified in a document called transcripts

of records that must be approved by the Italian teaching board. Exam grades are converted according to a pre-defined scale. The MSc degree in Food Science and Technology is part of the international program Erasmus+ Placement which is finalized to fund mobility of students, to carry out research activities aimed at the preparation of their final thesis in highly qualified host institutions (private and public universities and research centers).

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 organizes 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; mobility.out@unimi.it
Student Desk booking through InformaStudenti

1st COURSE YEAR Core/compulsory courses/activities common

Learning activity	Ects	Sector
Applied nutrition	6	BIO/09
Biochemistry of food processes	6	BIO/10
Design and management of food plants	6	AGR/09
Economics of innovation in the food industry	6	AGR/01
English proficiency B2 (3 ECTS)	3	NN
Food packaging and logistics	6	AGR/15
Microbial biotechnology	9	AGR/16
Quality management systems	6	AGR/15
Total compulsory credits	48	

2nd COURSE YEAR Core/compulsory courses/activities common

Learning activity	Ects	Sector
Process modeling, optimization and innovation	6	AGR/15
Total compulsory credits	6	

Elective courses

The student can choose one of the guided elective courses listed in the table below. For the selection of the suggested "training paths", see the paragraph "Course structure”

Advanced dairy technologies	6	AGR/15
Biotechnology of food fermentation	6	AGR/16
Cereal products: traditional and innovative technologies	6	AGR/15
Preservation and transformation of products of animal origin	6	AGR/15

The student can choose one of the guided elective courses listed in the table below. For the selection of the suggested "training paths", see the paragraph "Course structure”

Animal production and quality of meat and aquaculture products	6	AGR/19
Food economics and european legislation	6	AGR/01
Use and recycling of agri-food biomasses	6	AGR/13

The student can choose one of the guided elective courses listed in the table below. For the selection of the suggested

"training paths", see the paragraph "Course structure”		
Advanced dairy microbiology	6	AGR/16
Agri-Food Marketing	6	AGR/01
Bio-based food processes	6	(3) BIO/10, (3) CHIM/11
Biochemistry and microbiology of animal derived foods	6	(3) BIO/10, (3) AGR/16
Raw materials and technologies in chocolate and confectionery industries	6	AGR/15

Further elective courses

The student may choose elective activities corresponding to 8 ECTS. The student may choose elective courses (minimum 4 ECTS- maximum 8 ECTS) or other activities (seminars, conferences, courses, or other activities organized by the University or by another institution) up to a maximum of 4 ECTS. Elective activities can be undertaken always and exclusively after the favorable opinion of the Academic Board. The instructions for choosing these activities can be found in the paragraph "Course structure - presentation of the study plan".
The table below lists the elective activities proposed by the Academic Board of Food Science and Technology.

Advanced techniques of microscopy, microanalysis and image analysis applied to foods *Not activated for 2024/2025 academic year*	4	AGR/15
Food product design and development	4	AGR/15
Food structure: concepts and methods	4	AGR/15
International agrifood markets and policy	7	AGR/01
Microbial food cultures	4	AGR/16
Molecular bases of taste	4	CHIM/06
Molecular traceability of foods	4	BIO/10
Nanotechnology in the food industry	4	AGR/15
Probiotic science and applications	4	AGR/16
Quality and functionality of dairy products	4	AGR/15
Technology and use of oils and fats in the food industry *Not activated for 2024/2025 academic year*	4	AGR/15

End of course requirements

Final exam		40	NN
	Total compulsory credits	40	