



**UNIVERSITA' DEGLI STUDI DI MILANO**  
**PROGRAMME DESCRIPTION - ACADEMIC YEAR 2022/23**  
**BACHELOR**  
**Food science and technology (Classe L-26)**  
**Enrolled from 2018/19 academic year**

### HEADING

<b>Degree classification - Denomination and code:</b>	L-26 Food industry
<b>Degree title:</b>	Dottore
<b>Length of course:</b>	3 years
<b>Total number of credits required to complete programme:</b>	180
<b>Years of course currently available:</b>	1st , 2nd , 3rd
<b>Access procedures:</b>	Cap on student, student selection based on entrance test
<b>Course code:</b>	G29

### 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.cdl.unimi.it/>

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

via Celoria 2 - Milano Città Studi Phone 0250316511-0250316512 Lunedì, mercoledì e venerdì dalle 10.30 alle 12.30; martedì e giovedì dalle 14 alle 16. <https://informastudenti.unimi.it/saw/ess?AUTH=SAML>

#### Degree programme head

Phone 0250319148 Email: [presidenza-stal@unimi.it](mailto: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 degree course in Food Science and Technology aims to provide knowledge and train professional skills that allow the graduate to operate autonomously and to quickly enter the sector of production and distribution of food and drinks, and the sectors related to them, from the production to consumption. The general objective of the professional functions of the graduate in Food Science and Technology is the constant improvement of food products, look for quality and sustainability, eco-compatibility of industrial activities, developing innovations in each activity.

#### Expected learning outcomes

The tasks of the Food Technologist have long been defined at the level of international organizations (FAO, UN, EU) in

consideration of the growing importance attributed to the control of the quality and safety of food, to a more rational exploitation of natural resources, the protection of the environment and the prevention of adulterations and food poisoning. The training allows the students to acquire: adequate basic knowledge of mathematics, physics, chemistry, biology, nutrition, economics and information technology; knowledge of the investigation methods specific to food science and technology, aimed at understanding the relationships between biological, crop and livestock issues and the quality of processed products; logical and cognitive tools to understand the main operations and transformation processes of the food industry, and of the association between "production process" and "product quality" ; together with awareness of the complementarity of the notions acquired in different disciplinary areas. At the end of the studies, the graduate has a preparation and independent judgment that allow him to acquire the information necessary to implement interventions aimed at improving the quality and efficiency of food production and any other activity related to the food chain, also in terms of sustainable development. The graduate is able to communicate effectively also using, in the specific disciplinary context, the English language.

### **Professional profile and employment opportunities**

The professional profile of the Food Science and Technology graduate are characterized by an integrated knowledge of chemistry, biology and technology. The wide spectrum of basic knowledges and professional skills characterizes an expert who can cover many different functions in the food industry and in each production activities related to the food sector. The graduate in Food Science and Technology performs technical management and control tasks in the production, storage, distribution of food and drinks. The professional activity of the graduate takes place mainly in the food industries, in all the companies that operate for the production, transformation, conservation and distribution of food products, in public and private institutions and stakeholders that carry out analysis, control, certification and investigation activities for the protection and the enhancement of food production. The graduate is an expert able to operate in companies connected with the production of food, which supply materials, systems, adjuvants and ingredients. The most relevant professional outlets are those indicated technical professions in the management of the production processes of goods and services (Food preparation technicians; Food production technicians) and in life sciences (Biochemical laboratory technicians; Food technicians). The graduate is expected to work in the sectors of production, public administration and research institutions. The graduate's responsibilities include:

- a) the management of food production, processing and marketing lines;
- b) the study, design, management, surveillance, 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 distribution and supply operations of raw materials and finished products, food additives, food plants;
- d) analysis of food products, quality control of food raw materials, finished products, additives, technological aids, semi-finished products, packaging and everything else relating to the production, conservation and transformation of products, the definition of standards and specifications for aforementioned products;
- e) market research and related activities in relation to food production;
- f) research and development of processes and products in the food sector

### **Initial knowledge required**

#### Admission requirements

Basic knowledge of mathematics, chemistry and physics is a prerequisite for taking this course of studies.

#### Admission assessment

Admission into this Bachelor's degree programme is capped in order to meet high-quality teaching standards relative to the available resources. There are 180 places available for enrolment in the first year, plus 20 places for non-EU students residing abroad.

Access to the programme is regulated by a compulsory, selective test to ascertain that the candidate meets admission requirements, i.e. knowledge of key science subjects as provided by upper secondary school, and an understanding of elementary logic.

The test required for admission into the degree programme is TOLC-AV, an online test provided by the Consortium of Inter-University Integrated Access Systems (CISIA - <https://www.cisiaonline.it>).

For test topics and details, please review the page <https://www.cisiaonline.it/en/area-tematica-tolc-agraria-veterinaria/struttura-della-prova-e-syllabus/>

You may sit for the TOLC-AV test at the University of Milan or any other member university of CISIA.

The calendar with available venues and dates is posted to the page <https://tolc.cisiaonline.it/calendario.php?l=gb>.

Registration procedures and deadlines are set out in the call for applications posted to the page <https://scienzealimentari.cdl.unimi.it/it/iscriversi>

Only students high enough in the merit ranking will be eligible for enrolment.

#### Admission of transfer or graduate students

Transfer students from a degree programme of the University of Milan, or another university, and graduate students will be waived from the test requirement only if admitted to years subsequent to Year I.

To this end, they will have to submit a specific request for prior assessment of their academic records using the online service as shown in the call for applications.

These candidates must provide a full transcript of records (listing exams, subject areas, credits, grades) and attach the course syllabi. For more details and dates, please refer to the call for applications.

Students admitted to the first year will be required to take the test and register for the call.

#### Additional learning requirements (OFA) and remedial activities

Students who are admitted with a score lower than or equal to 4 in the Mathematics section of the TOLC-AV test will have to fulfil additional learning requirements (OFA). In order to fulfil their OFA, students may either attend the Mathematics remedial course and pass the final test, or pass the Fundamentals of Calculus exam on the study plan. Students who do not pass the Mathematics OFA test (or the Fundamentals of Calculus exam) within the first year of the programme may not take second- or third-year exams. Learn more at <https://scienzealimentari.cdl.unimi.it/it/studiare/le-matricole>.

#### Compulsory attendance

Attendance is mandatory for the Applied Microbiology course. Attendance is however strongly recommended for all training activities.

#### Internship criteria

The final internship can only be started after earning at least 90 credits (CFU), passing all first-year exams and obtaining foreign language proficiency and computer skills certificates.

#### Degree programme final exams

The final exam awards 3 credits (CFU). Upcoming graduates must comply with the following:

- pass all exams included in the academic plan, for a total of 151 credits, and earn 12 credits for elective activities.
- earn 3 credits for foreign language proficiency;
- earn 3 credits for computer skills;
- complete an internship on campus or in another public or private organization, for a total of 8 credits;
- write a report on the internship.

The final exam consists of the presentation and discussion of the final paper before an examining board. Candidates will present their final paper, highlighting the purpose and findings of their work, and skills learned. The paper can be written and discussed in Italian or English.

#### Notes

##### Computer skills

Students who are supposed to earn 3 credits (CFU) for basic computer skills, as provided by their degree programme, have to attend the ?Computer Science Course 3CFU?.

It is a blended course with a compulsory final exam.

The first exam session is scheduled for January, and more will follow according to a calendar to be made available on the course delivery platform.

Students who have already fulfilled an ICT Assessment during their previous studies should submit the related certification to their Academic Board, seeking its acknowledgement: it will be evaluated and they will receive a positive or negative feedback.

The ?Computer Science Course 3CFU? course is managed by the CTU - Teaching and Learning Innovation and Multimedia Technology Centre.

##### For-credit assessment

In order to obtain their degree, students must be proficient in English at a B1 level under the Common European Framework of Reference for Languages (CEFR). This proficiency level may be certified as follows:

- Through a language certificate, earned within three years prior to the date of submission, at a B1 level or higher. For the list of language certificates recognised by the University, please review: <https://www.unimi.it/en/node/297/>). The certificate must be uploaded during the enrolment procedure, or subsequently to the portal <http://studente.unimi.it/uploadCertificazioniLingue>;
- Through a Placement Test, which is delivered by the University Language Centre (SLAM) during year I only, from October to December. Students who fail the test will be required to take a SLAM course.

The Placement Test is mandatory for all students who do not hold a valid certificate.

Those who do not sit the Placement Test by December, or who fail to pass the end-of-course test within six attempts, must obtain a paid certificate by graduation.

### **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: chemistry, biochemistry, food microbiology, food technology processes, human nutrition, quality management and food economics and marketing. The outline of the Erasmus+ study program (learning agreement) is prepared by the student in collaboration with the Italian academic Erasmus+ tutor (Prof. Alyssa Mariel Hidalgo Vidal - [alyssa.hidalgovaldal@unimi.it](mailto:alyssa.hidalgovaldal@unimi.it)). 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 (Prof. Alyssa Mariel Hidalgo Vidal - [alyssa.hidalgovaldal@unimi.it](mailto:alyssa.hidalgovaldal@unimi.it)). Exam grades are converted according to a pre-defined scale. The bachelor 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](mailto:mobility.out@unimi.it)

Student Desk booking through InformaStudenti

<b>1st COURSE YEAR Core/compulsory courses/activities common</b>		
<b>Learning activity</b>	<b>Ects</b>	<b>Sector</b>
Calculus	8	MAT/05
Elements of chemistry and physical chemistry	8	CHIM/02
English assessment B1 (3 ECTS)	3	ND
Fundamentals of physics	6	FIS/07
Fundamentals of plant biology and yield	10	AGR/19, AGR/13
Organic chemistry	8	CHIM/06
Principle of Economics and Statistics	8	AGR/01
Total compulsory credits		51
<b>2nd COURSE YEAR Core/compulsory courses/activities common</b>		

Learning activity	Ects	Sector
Analytical chemistry with elements of chemometrics	7	CHIM/01
Biochemistry	10	BIO/10
Food chemistry and analysis	8	AGR/15
Human nutrition	6	BIO/09
Microbiology and food microbiology	12	AGR/16
Principles of Food Engineering	12	(6) AGR/15, (6) ING-IND/11
Total compulsory credits	55	

### **3rd COURSE YEAR Core/compulsory courses/activities common**

Learning activity	Ects	Sector
Applied microbiology	6	AGR/16
Firm and chain management in the food sector	6	AGR/01
Food ingredients, additives and contaminants	6	AGR/15
Food processing with elements of packaging	12	AGR/15
Food protection	6	AGR/11, AGR/12
Food quality and traceability in the supply chains	6	AGR/15
Sensory analysis of food and data analysis	6	AGR/15
Total compulsory credits	48	

### **COURSE YEAR UNDEFINED Core/compulsory courses/activities common**

Learning activity	Ects	Sector
Computer Science Course	3	INF/01
Stage	8	NA
Total compulsory credits	11	

### **Further elective courses**

Alcoholic beverage technology	4	AGR/15
Animal morphology and physiology (basic course)	4	VET/01
Biomolecular methodologies	4	BIO/10
Chemistry and technology of flavours	4	AGR/15
Dairy chemistry and technology	4	AGR/15
Food enzymology	4	BIO/10
Health, Safety and Ergonomics in the food industry	4	AGR/09
Nutritional evaluation of foods	4	BIO/09
Sanitation in food processing	4	AGR/15
Technology of canned fruits and vegetables	4	AGR/15

### **End of course requirements**

Final exam	3	NA
Total compulsory credits	3	

## **COURSE PROGRESSION REQUIREMENTS**

*The course contains the following obligatory or advised prerequisites*

Learning activity	Prescribed foundation courses	O/S
Food processing with elements of packaging	Principles of Food Engineering	Core/compulsory