UNIVERSITÀ DEGLI STUDI
DELL'INSUBRIA

DIPARTIMENTO DI BIOTECNOLOGIE E
SCIENZE DELLA VITA

# TEACHING REGULATIONS OF THE MASTER'S DEGREE COURSE in BIOTECHNOLOGY FOR THE BIO-BASED AND HEALTH INDUSTRY

a.y. 2026/2027

# Index

### *Art. 1 - General features and organization of the Bachelor's Degree in Biotechnology*

The course of study, belongs to the class of Master's Degrees in Industrial Biotechnology L-8 (DM 16 March 2007, reformed under the DM 19 December 2023) and is activated according to the teaching order of 22/01/2021.
Biotechnologies are called upon to solve many of the current challenges concerning human health, nutrition, quality of life and environment. Industrial biotechnologies represent the most advanced and applied aspect of this field.

The professional figure formed by the Degree Course possesses the know-how for the exploitation of organisms, cells or biomolecules to produce bio-goods (innovative drugs, nutraceuticals, bioplastics, novel renewable energy sources) and bio-services (sustainable industrial processes, innovative agriculture practices, bioremediation and circular economy processes) with the ultimate goal to improve the human and animal welfare and the environment quality.
The biotechnology sector shows a constant growth in terms of turnover and number of highly specialized employees and is characterized by extremely large investments in R&D.
The biotechnologist is a professional figure able to play high responsibility roles in development, management and control of research and production processes in different areas, such as, the pharmaceutical industry, the green chemistry, the agri-food and livestock sector, the environmental sector and the production of renewable energy.

The employment rate of graduates in Biotechnology for the Bio-based and Health Industry is very high, also because Lombardy is the Italian district with the highest concentration of biotechnological companies and thanks to the proximity of the biomedical cluster of the Canton Ticino (Swiss Confederation).

In addition, an international and up-to-date preparation, highly appreciated by the employment market, is reached through several collaborations with italian and foreign research groups, the Erasmus+ and the Double Degree programs (in collaboration with the University of Chemistry and Technology in Prague and with the Zurich University of Applied Sciences, Wadenswil, Swiss Confederation).

Lessons are held in English.

The teaching structure responsible for the course is the DEPARTMENT OF BIOTECHNOLOGY AND LIFE SCIENCES
The Chair of the course is Professor SILVIA SACCHI
https://uninsubria.unifind.cineca.it/get/person/010618

The reference teaching secretariat receives by appointment at the pavilion Lanzavecchia in via Dunant, 3 - Varese, and responds to e-mails received through INFOSTUDENTI.

### *Art. 2 – Lessons timetable*

The course is organized following a semester-based calendar. Exams sessions are organized during the teaching activities suspension periods students may access the exams provided for in their study plan after having followed the course (attendance acquisition).

1st SEMESTER:

- Lessons start date: from 21 September 2026 - lessons end date: 15 January 2027;
- Fall exams session: 16 - 20 November 2026 (except for 1st-year students);
- Winter exams session: 18 January - 19 February 2027.

2nd SEMESTER:

- Lessons start date: 22 February 2027 - lessons end date: 18 June 2027
- Spring exams session: 31 March - 6 April 2027
- Summer exams session: 21 June - 18 September 2027 (except for the month of August)

For the lessons suspension dates and holidays for national, local and other festivities (Christmas break, Easter break, University holidays), students should refer to the University's Academic Calendar approved by the University bodies at the following link:
www.uninsubria.eu/about-us/how-find-us/academic-calendar

***Art. 3 Admission and assessment of educational background***

Candidates need a diploma in the Bachelor's degree classes Biotechnologies L-2 or in Biological Sciences L-13, or an equivalent first-level title obtained in Italy or abroad, according to current regulations. In this case, having obtained at least a total of 60 ECTS in the following academic field represents a curricular prerequisite to access the course: BIOS-04/A (Comparative Anatomy and Cytology), BIOS-06/A (Physiology), BIOS-07/A (Biochemistry), BIOS-08/A (Molecular Biology), BIOS-09/A (Clinical Biochemistry and Clinical Molecular Biology), BIOS-10/A (Applied Biology), BIOS-11/A (Pharmacology), BIOS-12/A (Human Anatomy), BIOS-14/A (Genetics), BIOS-15/A (Microbiology), MEDS-01/A (Medical genetics), MEDS-02/A (General Pathology), MEDS-09/A (Medical Oncology), MEDS-03/A (Microbiology and Clinical Microbiology). Candidates will need to have obtained the first-level title by 31 December 2026 in order to access the degree course.
After the positive assessment of the curricular prerequisites, the candidates will have to take an individual background assessment interview with a specific committee, made up of the lecturers appointed by the Council of the Degree Course, on the topics related to the basic principles of physiology, molecular and cellular biology, microbiology, chemistry and biochemistry. The interviews will take place during the month of September, according to the schedule that will be communicated directly to the candidates by the Didactic Office. A negative assessment in the interview entails the exclusion from the master's degree course for the current year.
The candidates will also have to demonstrate an adequate knowledge of the English language, documented by:

- an internationally recognized certification of at least a B2 level in the Common European Framework of Reference for Languages obtained in the previous three years
- or the attainment of an academic title (first-level degree, Master) for a course taught entirely in English.

Students who do not have the above-mentioned documentation will receive relevant instructions on the master program's web page.

**Non-EU students:**

The access procedure consists of two steps:
All candidates from extra EU countries shall pre-apply by filling in this form:
https://docs.google.com/forms/d/e/1FAIpQLSf303YGh5FcAhFJ8wyNHug2vmdKf8JDCNzWSg_yei9EV_g4fA/viewform?usp=header
from December 1st 2025 to May 31st 2026.
Candidates must upload a certification of the academic qualification obtained within the previous two years, including a list of the exams taken, a certification of proficiency in the English language, a photocopy of the passport, a curriculum vitae, and a letter of motivation.
Potentially suitable candidates based on the submitted documents will be asked to take a Skype interview with a committee appointed by the Degree Program Board, aimed at verifying their preparation in the

areas of pharmacology, immunology, molecular and cellular biology, genetics and biochemistry. In case one/two of the above five topics is not part of the first-level Degree Course, the student will be asked to fill in this gap prior to the admission interview. A negative outcome of the interview will preclude access to the Course for the current year.
Only admissible candidates will have to pre-enroll on the Universitaly portal by the deadline published every year on the International students residing abroad | University of Insubria (uninsubria.it) website. The validation on the part of the University of the pre-enrollment carried out by students on the Universitaly portal will be automatically sent to the relevant diplomatic representatives, who will start the assessment procedures to issue the visa. At the same time, students should pre-register to the Course following the online procedure (Esse3) published on the University's website.

***Art.4 Orientation, enrollment procedure and other administrative aspects***

The Degree Course organizes every year, in the spring/summer period, some course presentation and incoming orientation meetings for future freshmen. Informational material is published online and distributed to interested students. The admission procedures are published every year on the webpages of the Degree Course and of the students services office. Further information (for example on the curriculum, enrollment procedures) may be obtained through the Infostudenti service.

The INFOSTUDENTI service is a web application that offers a communication channel with the administration.
The service may be accessed by clicking on the following link:
www.uninsubria.eu/services/all-services/infostudenti-information-service-students

***Art. 5 - Prerequisites***

Not applicable.

***Art. 6 – European credit transfer and accumulation system (ECTS)***

The courses have different types of assisted teaching: frontal lessons, exercitations and workshops.
Each ECTS corresponds to 8 class hours, 12 workshop hours and 12 exercitations hours, besides students' individual study, research and/or group work time.

***Art. 7 – How to register for the integrated international course (double degree)***

There are two courses of Double Degree with:
Department of Biotechnology of the University of Chemistry and Technology in Prague (Czech Republic), after which the student obtains a Master's Degree in Biotechnology for the Bio-based and Health Industry (class LM-8) and the Master of Sciences in Biotechnology and Food Science of the University of Prague (Czech Republic).
Zurich University of Applied Sciences (ZHAW), School of Life Sciences and Facility Management (LSFM) (Wädenswil, Swiss Confederation) after which the student obtains a Master's Degree in Biotechnology for the Bio-based and Health Industry (class LM-8) and the Master's degree in Life Sciences, Specialization in Pharmaceutical Biotechnology.
The program is open to students selected on the basis of an annual call for applications for students enrolled in the first year, who will be able to carry out the second year at the host institution and earn the two titles.
Information on the Call for Proposals or for further information to participate in the programme can be found at the following link: https://www.uninsubria.eu/double-degree-programs

***Art. 8 – Validation of linguistic and IT certifications***

Not applicable.

***Art. 9 – Validation of professional abilities or exams taken in a previous career***

Pursuant to article no. 4, paragraph 4 of the Ministerial Decree 1649/23, the Council of the Degree Course may validate:

- professional knowledge and skills certified pursuant to current regulations;
- knowledge and skills developed in educational activities at a post-secondary level in whose organization and implementation the university was involved.

The validation application will be assessed by the Council of the Degree Course. The validation may take place if the activity is related to the specific educational objectives of the Degree Course and of the educational activities for which the validation is being requested, also taking into consideration the content and duration in terms of hours of the activity. The maximum number of ECTS that may be validated is 12.

***Art. 10 – Attendance obligations***

Attendance is mandatory for workshop courses only; an attendance of at least 75% of the educational activities provided for is required. Mandatory attendance course will have to be followed in the correct year. Exceptions may be allowed, specifically, in cases of transfers from another course or University.

***Art. 11 – Enrolling in subsequent years***

There are no career blocks to enroll in the second year

***Art. 12 – Transfer procedures from other degrees courses***

In case of transfers from other Universities, or changes from another degree course, the Council of the Degree Course, taking into consideration the specific educational objectives of the course, in compliance with the educational obligations established by the course's own Curriculum, assesses and ensures the validation of the maximum possible number of ECTS already obtained by students. For the purposes of the validation, meetings and tests may be required in order to assess the actual level of previously acquired knowledge. In case of changes from one course to another organized by the same Class LM-8 and characterized by substantial homogeneity in the curricula, the number of automatically validated ECTS for the same academic field may not be lower than 50% of the ECTS that students have already obtained. Old ECTS, that is, those acquired more than 10 years before the validation submission date may not be validated.

The abovementioned validation is carried out as provided for in article no. 3, paragraphs 8 and 9 of the ministerial decree of Class redefinition (16 March 2007). The validation is carried out until the ECTS provided for by the curriculum are reached.

***Art. 13 – Rules for the submission of study plans and individual study plans***

Study Plans that conform to the regulations will be automatically approved, following the procedure provided by the Students Services Office for the submission of study plans. Students can submit an individual study plan, provided that this is coherent with the cultural project and suitable for the educational objectives and specific contents of the Master's Degree Course in Biotechnology for the Bio-based and Health Industry. Individual study plans, which will have to adhere to the minimum ECTS established by the teaching Curriculum is approved by the committee appointed by the Council of the Degree Course.

As explicitly provided for by Ministerial Decree 16.03.07, elective educational activities may be chosen among all the courses activated by the University. The committee will assess the coherence of these elective activities with the student's educational curriculum. Study plans are submitted during the first year and may be modified in the second year during the windows provided for (generally, October-

December). Information on how to submit and fill in the study plan are available on the Students Services Office webpage: www.uninsubria.it/servizi/presentazione-piano-di-studio

***Art. 14 – Curricular traineeship***

The course is completed by an experimental internship and gives rise to the recognition of 30 credits, corresponding to a minimum of 750 hours. The internship period for the preparation of the thesis must be in any case qualitatively and quantitatively adequate to achieve the objectives of an internship for a master's degree in biotechnology. A minimum period of 9 months is considered suitable, considering a weekly frequency of 30-40 hours, carried out in university laboratories, companies or institutions in Italy or abroad. The choice of the host research laboratory and the internship project is subject to the approval of the Study Course Council.

***Art. 15 Graduation procedure***

The final exam consists in the production of a written report in English (thesis) prepared by the student and related to the research activity carried out in defense before a commission of teachers.

**How to obtain double qualifications**

Students enrolled in our University, who hold the second year at UTC in the dual-degree path, carry out the curricular internship and prepare the thesis at the host University and discuss it at the University of Insubria according to a specific modality agreed between the University of Insubria and the host University. A lecturer from the host university will participate in the Degree Commission.

**For further information please refer to the degree course webpage:**
https://www.uninsubria.eu/course-catalogue/course-list/degree-programs/biotechnology-bio-based-and-health-industry

**For students with disabilities and/or specific learning disorders, please visit:**
www.uninsubria.it/studentidisabilidsa (in Italian)

**ANNEXES**

Annex 1 - Study Plan

## II. STUDY PLAN

# MANDATORY TEACHING ACTIVITIES - 2025/2026 COHORT

## BIOTECHNOLOGY FOR THE HEALTH INDUSTRY

**LEC: Frontal lessons; EXE: Classroom exercitations; WRK: Workshop Assessment method: M = exam with mark / Q = qualification / A = attendance**

### MANDATORY COURSES:

| 1st YEAR | | | | | | |
|---|---|---|---|---|---|---|
| **SEM.** | **COURSE Title** | ***Academic Field*** | ***DISCIPLINARY FIELD / Type of Teaching Activity*** | **ECTS** | **HOURS** | **ASSESSMENT METHOD** |
| I | APPLIED GENOMICS | BIOS-14/A (BIO/18) | B | 6 | 40 LEC; 12 WRK | M |
| I | BIOSTATISTICS AND DATA SCIENCE | STAT-01/B (SECS-S/02) BIOS-14/A (BIO/18) | B | 6 | 40 LEC; 12 EXE | M |
| I | PHARMACEUTICAL BIOTECHNOLOGY | CHEM-07/C (CHIM/11) | B | 6 | 40 LEC; 12 WRK | M |
| I | BIOECONOMY AND INNOVATION | ECON-04/A (SECS-P/06) | B | 6 | 48 LEC | M |
| II | PLANTS AS FACTORIES FOR BIOMOLECULES | NN | C | 6 | 40 LEC; 12 WRK | M |
| I | INFORMATION LITERACY | ANGL-01/C (L-LIN/12) | F | 2 | 16 LEC | M |
| I | SCIENTIFIC ENGLISH | BIOS-07/A (BIO/10) | F | 4 | 32 LEC | M |
| II | PROTEIN ENGINEERING | BIOS-02/A (BIO/04) | B | 6 | 48 LEC | M |
| II | DRUG SYNTHESIS AND ANALYSIS | CHEM-07/A (CHIM/08) | B | 6 | 48 LEC | M |
| II | ANIMAL MODELS FOR BIOTECH RESEARCH | BIOS-03/A (BIO/05) | C | 6 | 40 LEC; 12 WRK | M |

## OPTIONAL COURSES

| ONE ELECTIVE COURSE BETWEEN: | | | | | | |
|---|---|---|---|---|---|---|
| **SEM.** | **COURSE Title** | ***Academic Field*** | ***DISCIPLINARY FIELD / Type of Teaching Activity*** | **ECTS** | **HOURS** | **ASSESSMENT METHOD** |
| II | CELL MODELS AND BIOMEDICAL APPLICATIONS | BIOS-12/A (BIO/16) BIOS-04/A (BIO/06) | C | 6 | 36 LEC; 18 WRK | M |
| II | NANOBIOTECHNOLOGY AND BIOMATERIALS | CHEM-03/A (CHIM/03) BIOS-04/A (BIO/06) | C | 6 | 44 LEC; 6 WRK | M |

## MANDATORY COURSES

| 2nd YEAR | | | | | | |
|---|---|---|---|---|---|---|
| **SEM.** | **COURSE Title** | **Academic field** | **DISCIPLINARY FIELD / Type of Teaching Activity** | **ECTS** | **HOURS** | **ASSESSMENT METHOD** |
| I | DESIGN OF BIOPHARMACEUTICALS | BIOS-07/A (BIO/10) | B | 6 | 48 LEC | M |
| I | PROJECT MANAGEMENT & SOFT SKILLS | FINEX_S | F | 2 | 16 LEC | M |
| NN | ELECTIVE COURSES | | D | 12 | | M |
| I-II | CURRICULAR TRAINEESHIP | FINEX_S | E | 30 | 240 | M |
| II | FINAL EXAM | FINEX_S | E | 4 | | M |

## OPTIONAL COURSES

| ONE ELECTIVE COURSE AMONG: | | | | | | |
|---|---|---|---|---|---|---|
| **SEM.** | **COURSE Title** | **Academic field** | **DISCIPLINARY FIELD / Type of Teaching Activity** | **ECTS** | **HOURS** | **ASSESSMENT METHOD*** |
| I | MOLECULAR DIAGNOSTICS | BIOS-08/A (BIO/11) BIOS-14/A (BIO/18) | C | 6 | 48 LEC | M |
| I | APPLIED PATHOPHYSIOLOGY | MEDS-02/A (MED/04) BIOS-06/A | C | 6 | 40 LEC; 12 WRK | M |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | (BIO/09) | | | | |
| I | NUTRACEUTICALS | CHEM-07/C (CHIM/11) BIOS-10/A (BIO/13) | C | 6 | 48 LEC | M |

## CURRICULUM BIO-BASED INDUSTRY

**LEC: Frontal lessons; EXE: Classroom exercitations; WRK: Workshop Assessment method: M = exam with mark / Q = qualification / A = attendance**

### MANDATORY COURSES

| 1st YEAR | | | | | | |
|---|---|---|---|---|---|---|
| **SEM.** | **COURSE Title** | **Academic Field** | **DISCIPLINARY FIELD / Type of Teaching Activity** | **ECTS** | **HOURS** | **ASSESSMENT METHOD** |
| I | APPLIED GENOMICS | BIOS-14/A (BIO/18) | B | 6 | 40 LEC; 12 WRK | M |
| I | BIOSTATISTICS AND DATA SCIENCE | STAT-01/B (SECS-S/02) BIOS-14/A (BIO/18) | B | 6 | 40 LEC; 12 EXE | M |
| I | PHARMACEUTICAL BIOTECHNOLOGY | CHEM-07/C (CHIM/11) | B | 6 | 40 LEC; 12 WRK | M |
| I | BIOECONOMY AND INNOVATION | ECON-04/A (SECS-P/06) | B | 6 | 48 LEC | M |
| II | PLANTS AS FACTORIES FOR BIOMOLECULES | NN | C | 6 | 40 LEC; 12 WRK | M |
| I | INFORMATION LITERACY | ANGL-01/C (L-LIN/12) | F | 2 | 16 LEC | M |
| I | SCIENTIFIC ENGLISH | BIOS-02/A (BIO/04) | F | 4 | 32 LEC | M |
| II | PROTEIN ENGINEERING | BIOS-07/A (BIO/10) | B | 6 | 48 LEC | M |
| II | BIOREFINERIES | CHEM-07/C (CHIM/11) | B | 6 | 48 LEC | M |
| II | GREEN BIOMASSES AND BIOREMEDIATION | BIOS-01/C (BIO/03) | C | 6 | 48 LEC | M |

### OPTIONAL COURSES

| ONE ELECTIVE COURSE BETWEEN: | | | | | | |
|---|---|---|---|---|---|---|
| **SEM.** | **COURSE Title** | **Academic Field** | **DISCIPLINARY FIELD / Type of Teaching Activity** | **ECTS** | **HOURS** | **ASSESSMENT METHOD** |

| | | | | | | |
|---|---|---|---|---|---|---|
| II | INDUSTRIAL BIOCATALYSIS | CHEM-04/A (CHIM/04) | C | 6 | 40 LEC; 12 WRK | M |
| II | TRANSGENIC ANIMALS FOR BIOTECHNOLOGY | AGRI-09/D (AGR/20) | C | 6 | 40 LEC; 12 WRK | M |

## MANDATORY COURSES

| 2nd YEAR | | | | | | |
|---|---|---|---|---|---|---|
| **SEM.** | **COURSE Title** | **Academic field** | **DISCIPLINARY FIELD / Type of Teaching Activity** | **ECTS** | **HOURS** | **ASSESSMENT METHOD** |
| I | PROTEIN ENGINEERING | BIO/10 | B | 6 | 48 LEC | M |
| I | PROJECT MANAGEMENT & SOFT SKILLS | NN | F | 2 | 16 LEC | M |
| NN | ELECTIVE COURSES | | D | 12 | | M |
| I-II | CURRICULAR TRAINEESHIP | FINEX_S | E | 30 | 750 | M |
| II | FINAL EXAM | FINEX_S | E | 4 | | M |
| I | ENZIMOLOGY | BIOS-07/A (BIO/10) | B | 6 | 36 LEC; 18 WRK | M |

## OPTIONAL COURSES

| ONE ELECTIVE COURSE AMONG: | | | | | | |
|---|---|---|---|---|---|---|
| **SEM.** | **COURSE Title** | **Academic field** | **DISCIPLINARY FIELD / Type of Teaching Activity** | **ECTS** | **HOURS** | **ASSESSMENT METHOD** |
| I | MOLECULAR AND APPLIED MICROBIOLOGY | ICHI-01/B (ING-IND/24) | C | 6 | 48 LEC | M |
| I | INDUSTRIAL PROCESSES AND SAFETY | BIOS-15/A (BIO/19) | C | 6 | 48 LEC | M |
| I | RECOMBINANT PROTEINS | BIOS-08/A (BIO/11) | C | 6 | 32 LEC; 24 WRK | M |