UNIVERSITA' DEGLI STUDI DI MILANO
PROGRAMME DESCRIPTION - ACADEMIC YEAR 2022/23
BACHELOR
Biological Sciences (Classe L-13)
Enrolled from 2019/2020 academic year

HEADING	
Degree classification - Denomination and code:	L-13 Biology
Degree title:	Dottore
Length of course:	3 years
Total number of credits required to complete programme:	180
Years of course currently available:	1st , 2nd , 3rd
Access procedures:	Cap on student, student selection based on entrance test
Course code:	F62

PERSONS/ROLES

Head of Study Programme

Prof.ssa Isabella Dalle Donne

Tutors - Faculty

Tutor per l'orientamento: M. Valenza, F. Marini
Tutor per la mobilità internazionale e programmi Erasmus: C. Bonza
Tutor per i piani di studio: I. Dalle Donne, A. Milzani, F. Lazzaro
Tutor per stage e tirocini: I. Dalle Donne
Tutor per laboratori e altre attività: S. Masiero
Tutor per trasferimenti: I. Dalle Donne
Tutor per ammissioni lauree magistrali: Coordinatori delle lauree magistrali (Prof. Alessandro Aliverti BIONUTRI, Prof. Claudio Bandi BIOEVO, Prof.ssa Graziella Cappelletti BARB, Prof. Luca Gianfranceschi PS, Prof. Paolo Pesaresi MBC)
Tutor per riconoscimento crediti: I. Dalle Donne

Degree Course website

http://scienzebiologiche.cdl.unimi.it

Degree Programme Coordinator

Prof.ssa Isabella Dalle Donne Email: isabella.dalledonne@unimi.it

New student information center

Via Celoria, 26 (2° piano, torre A). Phone 0250314870 Solo su appuntamento.

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

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

Student registrar

Via Celoria, 18 Phone 0250325032 https://www.unimi.it/it/node/360 https://www.unimi.it/it/node/359/ E-mail (collegarsi previa registrazione): https://informastudenti.unimi.it/

Study programme head and course management

Via Celoria, 26 (2° piano, torre A). Phone 0250314870 Solo su appuntamento. Email: cl.biol@unimi.it

CHARACTERISTICS OF DEGREE PROGRAMME

General and specific learning objectives

The bachelor programme in Biological Sciences (Class L-13 Biological Sciences) is designed to provide students with a sound basic knowledge of the main areas of Biological Sciences and a good mastery of methodologies and technologies related to the corresponding fields of scientific research, providing adequate preparation for assimilation of scientific and technological progresses and to know and properly treat living organisms.

Expected learning outcomes

Graduates in Biological Sciences will acquire operational and applicative skills and abilities in the biological field and will

be able to carry out technical-operational tasks and professional support activities.
In particular, graduates in Biological Sciences will acquire:
° an adequate basic knowledge of the different sectors of the biological sciences;
° multidisciplinary methodological and technological knowledge for biological investigation;
° operational and applicative skills and abilities in the biological field, with particular reference to broad-spectrum biological and instrumental technical analysis procedures, aimed at both research activities and monitoring and control;
° ability to effectively use, in written and oral form, the English language in the specific area of competence and for the exchange of general information;
° adequate skills and tools for communication and information management;
° ability to work in groups, to operate with defined degrees of autonomy and to fit into the workplace;
° basic cognitive tools for the continuous updating of one's knowledge.

Professional profile and employment opportunities

Graduates of Biological Sciences will be able to work in teams with different degrees of autonomy and to readily enter the working world, both in European and non-European countries. They will possess adequate knowledge to perform professional activities and apply techniques, like: productive and technological laboratory activities (pharmaceutical, industrial, florovivaistic, veterinary, agroalimentary, public and private research centers); activities where is required to classify, manage and use living organisms and their parts, and to manage the relationship between development and quality of the environment; activities in professional multidisciplinary centers involved in assessment of environmenal impact, in development of projects for the conservation and restoration of the environment and the biodiversity; activities in the communication field, scientific information and promotion, scientific life science publishing.
The degree in Biological Sciences affords admission to the Biologists Professional Register (Section B, Junior Biologists), by passing the exam for the profession, to perform the activities recognized by the Italian law.

Initial knowledge required

Qualifications and knowledge required for admission
Applicants to the Bachelor's degree programme in Biological Sciences must hold a high-school diploma or an equivalent international qualification pursuant to Ministerial Decree no. 270 of 22 October 2004.
The knowledge and skills required to sit the entrance test are detailed at https://www.cisiaonline.it/en/area-tematica-tolc-biologia/struttura-della-prova-e-syllabus/

Admission assessment
For academic year 2022/2023, admission to the degree programme in Biological Sciences is capped in order to meet high-quality teaching standards relative to available resources. Therefore, applicants will be required to sit a TOLC (Test On Line CISIA) admission test. There are 250 places available for the first year of the programme. You may sit for the TOLC test at the University of Milan or any other member university of CISIA (Consortium of Inter-University Integrated Access Systems). You can register for the TOLC test on the CISIA website (www.cisiaonline.it). The test providing access to the degree programme in Biological Sciences is TOLC-B, consisting of the following sections: Basic mathematics (20 questions - 50 minutes), Biology (10 questions - 20 minutes), Physics (10 questions - 20 minutes), Chemistry (10 questions - 20 minutes). Each question has 5 answer options, of which only one is correct. Score: +1 for a correct answer, -0.25 for a wrong answer, 0 for a no answer. The TOLC test includes an additional English section, consisting of 30 questions to be answered in 15 minutes. This section does not count toward the overall test score.
Ranking criteria for the purpose of admission to the programme will be based on the outcome of the test. If you take the TOLC-B test and apply for admission to the degree programme in Biological Sciences, you will be included in a merit ranking based on the test score. For more details on calls, deadlines and rankings, visit https://www.unimi.it/en/study/bachelor-and-master-study/degree-programme-enrolment/enrolment-first-degree-programme

Additional learning requirements (OFA) and remedial activities
Additional learning requirements (OFA) and remedial activities First-year students who have not achieved at least 10 points in the Mathematics module will have to fulfil additional learning requirements (OFA) by attending remedial activities organized by the University and passing the final test.
Students who fail the remedial test will be deemed to have met their OFA upon passing the "General Mathematics and Computer Laboratory" exam. However, students may sit the exam only if they have attended the OFA remedial course and taken the final test. The "General Mathematics and Computer Laboratory" exam is a prerequisite for all second-year exams.
Learn more at https://scienzebiologiche.cdl.unimi.it/it/studiare/le-matricole

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.
Applicants must submit a transcript of records, including subject areas (SSD), academic credits (CFU) and grades, as well as detailed course syllabi. The application for academic records assessment must be submitted online within the deadline stated in the call for applications. The outcome will be notified via e-mail. Students admitted to the first year will be required to take the test and register for the call. Please refer to the call for applications for details: https://www.unimi.it/en/study/bachelor-and-master-study/degree-programme-enrolment/enrolment-first-degree-programme

Compulsory attendance

Attendance is strongly recommended for all courses and compulsory for laboratories.

Internship criteria

Students can undertake internships on campus in university laboratories (internal internships), and earn a total of 6 CFU. Internship opportunities are available in the first and second semester of Year III. Admission requirements and application deadlines can be found on the internship page of the Ariel website (http://ariel.unimi.it).

Degree programme final exams

Upcoming graduates must:

- have earned 177 CFU, including 3 CFU for English language proficiency;
- have written a final paper. By writing and defending the final paper, the student may earn an additional 3 credits.

The final exam consists of discussing the final paper on the internship before an examining board. The latter's assessment will count towards the degree mark (on a scale of 110).

The programme awards the title of "Laureato di I livello (Dottore) in Scienze Biologiche" (Bachelor's graduate in Biological Sciences).

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 A, II Floor).

Laboratories

The CdS is characterized by an intense laboratory activity. The laboratory courses, in particular, must normally be attended in the year of competence, with the exception of transfer students (from other courses of study or from other locations). During the practical lessons the necessary safety rules and correct behavior in the laboratory are provided.

Notes

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/it/studiare/competenze-linguistiche/placement-test-test-di-ingresso-e-corsi-di-inglese). 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

Students of Scienze Biologiche 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. Students can attend courses and take exams that can be included in the core curriculum and/or perform laboratory stage (6 CFU of the free choice CFU) in several European Universities localized in Belgium, Netherland, Norway, UK, 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 Scienze Biologiche 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.

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
CALCULUS AND COMPUTER LABORATORY	9	(6) MAT/09, (6) MAT/01, (6) MAT/02, (6) MAT/03, (3) INF/01, (6) MAT/04, (6) MAT/05, (6) MAT/06, (6) MAT/07, (6) MAT/08
CYTOLOGY AND HISTOLOGY	9	BIO/06
English assessment B1 (3 ECTS)	3	ND
GENERAL CHEMISTRY WITH ELEMENTS OF PHYSICAL CHEMISTRY	6	CHIM/03, CHIM/02
ORGANIC CHEMISTRY AND CHEMISTRY LABORATORY	9	(3) CHIM/03, (9) CHIM/06
PHYSICS, PHYSICS LAB, LAB OF MATHEMATICAL AND STATISTICAL METHODOLOGIES	12	(3) SECS-S/02, (6) FIS/07, (3) FIS/06, (3) MAT/06
PLANT BIOLOGY AND SYSTEMATICS	9	BIO/02, BIO/01
Total compulsory credits	57	

2nd COURSE YEAR Core/compulsory courses/activities common

Learning activity	Ects	Sector
ANIMAL BIOLOGY AND SYSTEMATICS	9	BIO/05
BIOCHEMISTRY	9	BIO/10
BIOLOGICAL EVOLUTION AND HISTORY OF BIOLOGY	6	M-STO/05
COMPARATIVE ANATOMY	6	BIO/06
PLANT PHYSIOLOGY	9	BIO/04
Total compulsory credits	39	

Elective courses

MOLECULAR BIOLOGY AND BIOINFORMATICS	12	BIO/11
MOLECULAR BIOLOGY AND BIOINFORMATICS	12	BIO/11
GENETICS	9	BIO/18
GENETICS	9	BIO/18

3rd COURSE YEAR Core/compulsory courses/activities common			
Learning activity		**Ects**	**Sector**
DEVELOPMENTAL BIOLOGY		6	BIO/06, BIO/01
ECOLOGY		9	BIO/07
ELEMENTS OF HUMAN ANATOMY, PHARMACOLOGY AND IMMUNOLOGY		9	MED/04, BIO/16, BIO/14
FINAL EXAM		3	ND
GENERAL MICROBIOLOGY		9	BIO/19
INTERNSHIP IN UNIVERSITY LABS		6	NA
	Total compulsory credits	42	
Elective courses			
CLINICAL BIOCHEMISTRY		6	BIO/12
METHODS IN APPLIED ECOLOGY		6	BIO/07
METHODS IN APPLIED PLANT BIOLOGY		6	BIO/01
METHODS IN BIOCHEMISTRY		6	BIO/10
METHODS IN CYTOCHEMISTRY		6	BIO/16
METHODS IN CYTOGENETICS AND HUMAN GENETICS		6	BIO/18
METHODS IN EXPERIMENTAL EMBRYOLOGY		6	BIO/06
METHODS IN MOLECULARBIOLOGY		6	BIO/11
METHODS IN PHARMACOLOGY AND TOXICOLOGY		6	BIO/14
METHODS IN PLANT GENETICS AND BIOTECHNOLOGY		6	BIO/18
GENERAL PHYSIOLOGY AND ANIMAL PHYSIOLOGY		9	BIO/09
GENERAL PHYSIOLOGY AND ANIMAL PHYSIOLOGY		9	BIO/09

COURSE PROGRESSION REQUIREMENTS

The course contains the following obligatory or advised prerequisites

Learning activity	**Prescribed foundation courses**	**O/S**
BIOCHEMISTRY	ORGANIC CHEMISTRY AND CHEMISTRY LABORATORY	Core/compulsory
ORGANIC CHEMISTRY AND CHEMISTRY LABORATORY	GENERAL CHEMISTRY WITH ELEMENTS OF PHYSICAL CHEMISTRY	Core/compulsory