



**UNIVERSITA' DEGLI STUDI DI MILANO**  
**PROGRAMME DESCRIPTION - ACADEMIC YEAR 2020/21**  
**BACHELOR**  
**Biological Sciences (Classe L-13)**  
**Enrolled from 2019/2020 academic year**

### **HEADING**

<b>Degree classification - Denomination and code:</b>	L-13 Biology
<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
<b>Access procedures:</b>	Cap on student, student selection based on entrance test
<b>Course code:</b>	F62

### **PERSONS/ROLES**

#### **Head of Study Programme**

Prof. Mirko Baruscotti

#### **Tutors - Faculty**

Tutor per l'orientamento: K. Petroni, S. Minucci

Tutor per la mobilità internazionale e programmi Erasmus: C. Bonza

Tutor per i piani di studio: M. Baruscotti, A. Milzani, F. Lazzaro

Tutor per stage e tirocini: M. Baruscotti

Tutor per laboratori e altre attività: P. Pesaresi

Tutor per trasferimenti: M. Baruscotti

Tutor per ammissioni lauree magistrali: Coordinatori delle lauree magistrali (Prof. Aliverti Alessandro BIONUTRI, Prof.

Bandi Claudio BIOEVO, Prof.ssa Cappelletti Graziella BARB, Prof. Gianfranceschi Luca PS, Prof.ssa Guerrini Luisa MBC)

Tutor per riconoscimento crediti: M. Baruscotti

#### **Degree Course website**

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

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

via Celoria, 26 (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)

via Celoria, 26 (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)).

<http://www.unimi.it/it/studiare/immatricolarsi-e-iscrivarsi>

#### **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 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.

#### **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 in private and public research centers, in pharmaceutical, agroalimentary, biotechnological, florovivaistic companies, in health and environmental service centers, where they will be able:

- to classify, manage and use living organisms;
- to manage the relationship between development and quality of the environment;
- to assess environmental impact;

- to develop projects for the conservation and restoration of the environment and the biodiversity.

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.

## Notes

To obtain the degree, students are required to demonstrate an English language proficiency at level B1 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 B1 or higher, recognised by the University (the list of recognised language certificates can be found at: <https://www.unimi.it/en/node/297/>). 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 December. Students who fail to reach level B1 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.

## 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

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

<b>1st COURSE YEAR Core/compulsory courses/activities common</b>		
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
<b>2nd COURSE YEAR Core/compulsory courses/activities common</b>		
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
<b>Elective courses</b>		
MOLECULAR BIOLOGY AND BIOINFORMATICS	12	BIO/11
MOLECULAR BIOLOGY AND BIOINFORMATICS	12	BIO/11
GENETICS	9	BIO/18
GENETICS	9	BIO/18
<b>3rd COURSE YEAR (available as of academic year 2021/22) Core/compulsory courses/activities common</b>		
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
<b>Elective courses</b>		
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