

MASTER COURSE

"BIOTECHNOLOGY FOR HUMAN AND ANIMAL HEALTH"

A.Y. 2025-2026

GENERAL INFORMATION

Class of degree	LM-9 Biotecnologie mediche, veterinarie e farmaceutiche
Released title	Master degree
Duration	2 years
Total ECTS	120
Access	Free
Language	English
Address	Department of Veterinary Medicine, via Vienna 2, Sassari, 07100 Italy

ORGANIZATION

Degree Program Coordinator: Prof. Daniela Bebbere – email: dbebbere@uniss.it and bhah@uniss.it

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Website: www.veterinaria.uniss.it

E-learning website: www.evet.uniss.it

COURSE OBJECTIVES

The Master's Degree Program in **"Biotechnology for Human and Animal Health"** is an international course, delivered entirely in English, designed to train professionals with advanced, multidisciplinary skills in both basic and applied biomedical research. The program places particular emphasis on diagnostic, therapeutic, and preventive strategies based on cutting-edge biotechnological approaches.

Students acquire specialized expertise in both human and veterinary health, preparing them to apply biotechnology in key sectors such as gene therapy, reproductive technologies, biosensor development, animal production, food processing, and advanced diagnostic systems.

COURSE FEATURES

The program spans two years (4 semesters, 12 exams, and 120 ECTS credits). The first phase, covering the first year and the first semester of the second year, includes classroom lectures, laboratory exercises, and seminars. The second phase, in the second semester of the second year, is dedicated to an internship and the preparation of either an experimental or theoretical thesis. The internship provides in-depth practical training and can be carried out in the department's laboratories or at external institutions, both in Italy and abroad. The academic pathway is further enriched by elective courses selected by the student.

ADMISSION REQUIREMENTS

Admission is open to graduates holding one of the following Italian degree classes:

- L-2 (Biotechnology) and former class 1
- L-13 (Biological Sciences) and former class 12
- SNT/3 (Bachelor's degree qualifying for the profession of Biomedical Laboratory Technician).

Graduates from other degree classes may be admitted, subject to verification of the knowledge required to successfully follow the program.

International applicants are welcome and will be admitted following an evaluation of their academic records, to ensure equivalence and alignment with the program's entry requirements.

A **B2 level of English proficiency** is also required, demonstrated by an internationally recognized certificate, equivalent university coursework, or assessed during the personal preparation evaluation.

All candidates must undergo an assessment of their academic preparation, which will consist of either a multiple-choice test or an individual interview.

JOB PERSPECTIVES

Graduates of the Master's Degree Program in "Biotechnology for Human and Animal Health" are highly qualified professionals, capable of managing specialized biotechnology laboratories and coordinating development and monitoring programs for the application of biotechnologies in both human and animal fields. The main career opportunities include areas such as diagnostics, bioengineering, advanced therapies, reproductive biotechnologies, industrial production, and patent design within the healthcare sector.

Graduates may also pursue Doctoral Programs focused on biotechnological research, Specialization Schools in the biomedical area, and second-level university Master's programs.

Additionally, upon passing the state examination, graduates are eligible to register with the Italian National Order of Biologists in Section A (Senior Biologist).

STUDY OPPORTUNITIES ABROAD

The University of Sassari actively promotes international mobility, offering students the opportunity to spend study or traineeship periods abroad. It's a valuable chance to enhance their academic experience in a dynamic and stimulating international setting.

Through agreements with numerous foreign universities under the European Erasmus+ program, regularly enrolled students can complete part of their studies at one of the partner institutions across Europe.

More information is available at <https://en.uniss.it/internationalisation/international-programmes>

Master Course "Biotechnology for Human and Animal Health"					
1 st Year					
1 st semester (2025-26)					
CAT.	SSD	Course	ECTs	Hours	
				Theory	Lab
		C.I. Foundations of Animal Tissue Structure, Function, and Disease			
B	VET/01	- Morphology and Structure of Animal Tissues	2	8	12
B	VET/02	- Animal Physiology	2	8	12
B	VET/03	- Principles of Animal Pathology	2	8	12
B	MED/04	Immunology and Oncology: molecular pathogenesis and therapeutics	5	40	0
B	BIO/13	Biotechnological approaches in regenerative medicine: from animals to humans	5	32	12
		C.I. Advanced Clinical Biochemistry and Molecular Biology Techniques			
B	BIO/11	Advanced techniques in molecular biology	5	32	12
B	BIO/12	Clinical Biochemistry and Omics Sciences	4	32	0
2 nd semester (2025-26)					
	SSD	Course	ECTs	Hours	
				Theory	Lab
		C.I. Prevention and control of infectious and parasitic diseases			
B	VET/05	- New approaches to infectious disease prevention and control	5	24	24
B	VET/06	- Medical and veterinary parasitology	5	24	24
B	MED/07	- New diagnostic methodologies for infectious diseases and immuno-informatics concepts	5	40	0
		C.I. Biotechnologies for innovation and sustainability of animal production			
C	AGR/19	- Next-generation technologies and bioinformatic analyses of datasets in livestock science	4	24	12
C	AGR/17	- Advanced biotechnologies for livestock genetic improvement	2	16	0
		C.I. Molecular medicine			
B	BIO/10	- Molecular models of oncological pathologies	5	16	36
B	BIO/13	- Cell pluripotentiality and tissue regeneration	5	24	24

2 nd Year					
1 st semester (2026-27)					
	SSD	Course	ECTs	Hours	
				Theory	Lab
		C.I. Biotechnology Research and Management: From Experimental Models to Intellectual Property			
B	VET/07	Experimental animal models and methods	5	32	12
C	IUS/04	Strategic Management and Intellectual Property in Biotechnology	2	16	0
		C.I. Reproductive biotechnologies			
B	VET/10	- Assisted reproductive technologies and germplasm preservation in veterinary and human medicine	6	32	24
B	VET/10	- Molecular Embriology and Gene Editing	5	24	24
B	VET/04	Biotechnology in the control of products of animal origin	5	24	24
		Nanomaterials and Biosensors for biomedical applications			
C	ING-IND/22	- Nanomaterials for biomedical applications	4	16	24
B	BIO14	- Biosensors in biomedicine	4	16	24
2 nd Semester (2026-27)					
	SSD	Course	ECTs		
		Optional courses	8		
		Traineeship	15		
		Final Exam	10		
		- Research activities and studies	(6)		
		- Writing of the thesis	(2)		
		- Final dissertation	(2)		
		Total ECTs	120		
				Hours	
		Optional courses offered in a.y. 2025-26	ECTs	Theory	Lab
		In vitro multicellular models and bioprinting	3	16	12
		Bioinformatic Tools for the Analysis of Genomics Datasets	3	24	
		Origins, Evolutionary Dynamics, and Effects of ERV Expression in Humans	2	8	12
		Gestione e controllo della sicurezza alimentare nella produzione degli alimenti di origine animale.	3	16	12
	ECT	University learning credits			
	C.I.	Integrated Course divided in two or more separate modules			