

EUROPEAN MASTER IN BIOTECHNOLOGY OF ENVIRONMENT AND HEALTH

The Master's programme has been designed to provide students a sound knowledge of the scientific and technical principles underlying the basis of biotechnology, with a focus in biological and chemical hazards affecting the environment or health. Early risk detection, prevention, and assessment are at the core of the Master, as well as modern biotechnological techniques applied to environmental and health preservation. The Master also includes instruction in biotechnology management and marketing, patent law, applicable regulations, and biotechnology ethics.

Tuition and working language will be mostly English. The full program is a two year master, intended for students interested in attaining a Ph.D. as well as those who would like a career as professionals with biotechnology expertise.

FIRST YEAR	
COMPULSORY ACTIVITIES (40C)	
<p>Basic core subjects</p> <p><i>Aimed at giving a deep understanding of the biotechnological tools used in molecular and cellular biology with an emphasis on health and environmental applications.</i></p>	<p>General subjects</p> <p><i>Specific courses aimed at developing communication skills, to provide general knowledge of basic safety procedures in the laboratory, and to introduce students to issues in ethics in biotechnology.</i></p>
<ul style="list-style-type: none"> • Genomic and nucleic acid biotechnology (4C) • Bacterial biotechnology (4C) • Biotechnology of filamentous fungi and yeasts (4C) • Animal cell biotechnology (4C) • Plant biotechnology (4C) 	<ul style="list-style-type: none"> • Professional skills in biotechnology (5C) Written and Oral Communication Skills Social and Ethical issues of Biotechnology • Laboratory safety (3C)
Practicum I (Experimental or professional training) (12C)	
OPTIONAL SUBJECTS (20C) (minimum of 4C from each Module)	
<p>Environmental Module</p> <p><i>Addresses the study of the main chemical and microbiological contaminants present in the environment as well as the exploitation of microorganisms to protect or restore natural environments from the chemical damage caused by human activities.</i></p>	<p>Health Module</p> <p><i>Mostly devoted to the study of the main chemical and biological environmental hazards that may directly affect health, with special emphasis on early detection.</i></p>
<ul style="list-style-type: none"> • Environmental microbiology (4C) • Biogeochemistry (4C) • Biotechnology in waste management (4C) • Aquatic biotechnology and ecotoxicology (4C) • Analysis and identification of chemical contaminants (4C) 	<ul style="list-style-type: none"> • Toxicokinetics and toxicodynamics (4C) • Epidemiological surveillance (4C) • Biotechnology of food and water safety (4C) • Special foods and nutraceuticals (4C) • Virus biotechnology (4C)

SECOND YEAR		
COMPULSORY ACTIVITIES (44C)		
<i>Focused on the principles of biotechnology business creation and management as well as on advanced studies related to environment and health issues.</i>		
<ul style="list-style-type: none"> • Biotechnology entrepreneurship fundamentals (3C) • Selection and evaluation of projects in Biotechnology (3C) • Novel approaches for drug design, diagnostics and biopharmaceuticals (4C) • Ecological footprint of biotechnological production (4C) 		
Practicum II (Experimental or professional training) (6C) Master's Project (24C)		
OPTIONAL SUBJECTS (16C) (minimum of one subject from each module)		
Biotechnology management module <i>Focused on the legal and social issues of Biotechnology, and the principles of business creation and management.</i>	New trends in health biotechnology Module <i>Overview of modern techniques, applications or techniques on the frontier with other fields leading to new approaches to health biotechnology.</i>	Advanced environmental biotechnology module <i>Focused on advanced aspects of environmental biotechnology, with special emphasis on damage evaluation and prevention.</i>
<ul style="list-style-type: none"> • Biotechnology company management (4C) -Marketing strategy and planning -Organization and management • Legal issues and intellectual property (4C) -Environmental and health legislation -Industrial and intellectual property 	<ul style="list-style-type: none"> • Bionanotechnology (4C) • Biosensors for the detection of contaminants (4C) • Physical environmental factors and disease (4C) 	<ul style="list-style-type: none"> • Conservation of biological resources (4C) • Bioremediation (4C) • Environmental forensics (4C)

Note: Numbers in parentheses indicate the number of ECTS credits for each subject