CATÓLICA
FACULTY OF BIOTECHNOLOGY

PORTO

Biotechnology for the Bioeconomy

MSc program

Innovating Life
Transforming Economies



Shaping the future

Since 2020 and for 4 consecutive years, Católica has been ranked as the best Portuguese University by the Times Higher Education World University Rankings

THE World University Rankings

Curriculum | 120 ECTS | 4 semesters

1st SEMESTER

UNIDADES CURRICULARES	CRÉDITOS
The Bioeconomy	5
Integrative Biology: From Omics to Genome Editing	5
Management	5
Artificial Intelligence	5
MasterClasses in Biotechnology	5
Elective course I	5

2nd SEMESTER

Microbial Bioprocesses	5
Plant and Marine Biotechnology	5
Tissue Engineering and Biofabrication	5
Biobased Innovations in Food and Health	5
Elective course II	5
Biomass valorisation for circularity	5

3rd SEMESTER

Project in a Professional Context	25
Intellectual Property and Entrepreneurship	5

4th SEMESTER

Thesis	30



Excellent research and knowledge transfer in the field of biotechnology

Master in Biotechnology for the Bioeconomy

Combining natural sciences, engineering, and economics, the Master´s program in Biotechnology for the Bioeconomy addresses social, health, and environmental challenges, promoting cutting-edge biotechnology-driven solutions that are both sustainable and ethically sound.

The Master's in Biotechnology for the Bioeconomy, unique in Portugal, stands out for placing students at the heart of the creative process, preparing them for innovative and multidisciplinary careers. A career in biotechnology offers the opportunity to contribute to one of today's most pioneering and impactful sectors.

The four-semester program includes compulsory and optional subjects, a project in a professional context and a thesis. Areas such as Integrative Biology, Omics, Gene Editing, Artificial Intelligence and Bioeconomics are explored, with a practical focus on management tools and socio-technical innovation.



Cutting-edge research through the Centre for Biotechnology and Fine Chemistry

How does it work?

The classes will take place at the Universidade Católica Portuguesa in Porto, from Monday to Friday, usually between 2:30 p.m. and 7 p.m. If students do not speak portuguese, the curricular units will be taught in Enlish.

For whom?

The master´s is for holders of a B.Sc. degree, or equivalent, in Biological Sciences, Health Sciences, Chemistry, Bioengineering, or related areas. More broadly, it is for curious students who believe that science will bring solutions to the significant issues affecting humanity, such as climate change, environmental sustainability, and health.

Tuition fees and scholarships

We offer high-quality teaching and research at a reasonable price, as proved by our ranking positions and by our prestigious academic alliances (e.g. SACRU). Contact us for further information. Scholarship support is available for access to and attendance in the master's programme. For more information, contact ee.bolsas@ucp.pt.

Why this master's degree?

Pietro Iannetta
Head of Ecological Food Systems, The James Hutton Institute, Dundee - Scotland



A Master's degree in biotechnology is critically important. Modern biotechnology is an approach based on deep understanding of biological systems, organism interactions, and their interplay with environmental factors. Its ethical application develops products, processes, and technologies across sectors such as medical, agricultural, industrial, environmental, and food. It includes ecological approaches, or 'ecobiotechnology', leveraging natural processes sustainably.

Coordination and Teaching



Marta Vasconcelos has a Degree in Biology from the University of Lisbon, and a PhD in Biotechnology (specialty in Biology) from Universidade Nova de Lisboa, with har practical work having been conducted at he International Rice research Institute (Philippines). She is an Auxiliary Professor at the Escola Superior de Biotecnologia (ESB) and a member of the Board of Directors of ESB, where she coordinates the Master programmes. She is a senior scientist at the Center for Biotechnology and Fine Chemistry (CBQF), where she leads the Environment and Resources Group and the Plant Nutrition and Biotechnology laboratory.

Her research interests focus on plant nutrition, genetics, and promoting more sustainable food systems, including agrobiodiversity and neglected crops (e.g. legumes). She is president of the International Plant Nutrition Council (2022-2025), and Honorary Associate of the James Hutton Institute (2024-2026). She is editor-in-chief of Frontiers in Plant Nutrition and is involved in several European Projects where Biotechnology is one of the essential tools explored in their programs.

ESB in numbers

+500 Master graduates

+70 Laboratories

+150 Collaborations with industry

+40 Partnerships in national and international networks

+20/year Scholarships for master´s students

Collaboration with **450** institutions from 64 countries

Faculty of Biotechnology (ESB)

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