

BIOENGINEERING



BACHELOR'S DEGREE IN Bioengineering

**For more information about
grants and financial aid visit:**

uic.es/grants

EXCHANGE UNIVERSITIES



North America

- University of California, Riverside, US
- University of California, Santa Cruz, US
- University of California, Los Angeles, US
- University of California, Berkeley, US

Among others...

**CONSULT ALL
OUR INTERNATIONAL
AGREEMENTS**



South America

- Austral University, Argentina

Europe

- Brno University of Technology, Czech Republic
- Istanbul Bilgi University, Turkey
- Marmara Üniversitesi, Turkey
- Reykjavik University, Iceland
- Scuola Universitaria Professionale della Svizzera Italiana, Switzerland
- Universidade da Beira Interior, Portugal
- Université Nice Sophia Antipolis, France
- University of Stuttgart, Germany
- Sapienza University of Rome, Italy
- Silesian University of Technology, Poland
- University of Porto, Portugal
- Istanbul Medeniyet University, Turkey

Among others...

Asia

- National Taipei University of Technology, China
- Pukyong National University Daeyeon Campus, South Korea
- Chung-Ang University Seoul, South Korea
- Dongguk University Seoul, South Korea
- University of Kyoto, Japan

Among others...

Oceania

- The University of Western Australia, Australia
- University of Sydney, Australia
- University of Newcastle, Australia
- University of Queensland, Australia

Among others...



“The interdisciplinary nature of this degree meant I was constantly learning new things, which fueled my curiosity about the world around me. I’m confident that everything I learned will enable me, one day, to help others from a fresh, innovative perspective.

I’d like to think that in the future I will proudly call myself a bioengineer. I wanted to bridge the gap between medicine and engineering, and I loved the fact that it sounded complex and challenging. That challenge made me even more determined to devote myself every day to what I loved doing.”

BERTA MADURELL GALERA

Graduated in
Bioengineering
by UIC Barcelona

Innovation,
Portfolio and
Strategy Developer
in Novozymes

An innovative bachelor's degree that combines science and technology to improve clinical care.

The Bachelor's Degree in Bioengineering applies the principles of engineering to biological systems and strives to improve patients' quality of life through devices and materials that can substitute or regenerate damaged body parts.

You will use your knowledge of basic sciences, such as physics, chemistry and biology to design materials capable of stimulating biological processes in our organism and combine them with concepts of engineering to develop materials that can substitute or regenerate tissue.

PROSPECTIVE STUDENTS

If you have a desire to help society by applying new technologies in the fields of health sciences, these are the studies for you.

- Innovative and restless mind
- Passionate about technology
- Exact medical sciences
- Interested in research
- Good communication skills
- Good spatial and scientific reasoning
- Responsible and observant
- Teamwork oriented

JOB OPPORTUNITIES

- In the healthcare field, forming part of medical teams
- Head of R&D&I departments and manufacturing
- Design of new devices and creation/production of new materials
- Quality assurance department
- Medical device testing
- Design and production of custom-made devices
- Insurance company consultancy
- Research

REASONS TO STUDY THIS DEGREE

1. High employability.

You will be able to work in diverse sectors such as medical technology, the pharmaceutical industry, the cosmetics industry, the dental sector, the food industry, or even in tech companies.

2. International mobility.

Opportunity to undertake research projects in renowned centers worldwide. Additionally, you can complement your studies with a one-year stay at UCLA Extension (California) pursuing a postgraduate degree in Project Management or at UC Riverside pursuing a postgraduate degree in Bioengineering Management. Completing these postgraduate programs gives you the chance to apply for a one-year work visa in the USA.

3. Personalized and flexible research projects.

The Faculty guides and assists you in finding the necessary resources to carry out your project, whether for internships or your final degree project, in research centers or universities around the world.

4. Unique curricular approach.

Focused on materials, the program explores two main aspects: the interaction of materials with cells and their ability to regenerate tissues, and the application of these materials to replace limbs and create biomedical devices or dental implants.

5. Faculty with a strong research background.

The Bioengineering faculty has training in internationally renowned institutions such as MIT or Harvard and stands out for its research activity. Faculty members publish in high-impact scientific journals and lead national and international projects, including European initiatives and prestigious fellowships such as Ramón y Cajal, Juan de la Cierva, and Beatriu de Pinós. Additionally, they are part of the Ranking of the World Scientists: World's Top 2% Scientists by Stanford University and have experience in patent development and technological innovation.

6. Degree integrated into the [Bioengineering Institute of Technology](#).

The degree is taught at the prestigious Bioengineering Institute of Technology, where our active researchers lead the teaching. This unique combination provides an academic environment of excellence and professional training, preparing students to innovate in a constantly evolving sector.





OBJECTIVES AND COMPETENCES

The Bachelor's Degree in Bioengineering is a highly sought-after programme with great professional opportunities due to shifting demographics and increased life expectancy, which could result in the need for a prosthesis involving mechanical systems tissue regeneration.

This can be achieved thanks to a great leap in technological progress (new materials, robotics, sensors, 3D printing, etc.) and an increase in medical research. The objective of the Bachelor's Degree in Bioengineering is to find technological solutions to health issues that improve patients' quality of life.

- As a bioengineer, you will learn how to use the latest technology to design and manufacture devices and biomaterials that will offer patients a better quality of life.
- You will develop professional skills in a multidisciplinary environment and learn how to solve a diverse range of medical issues.
- You will master the conceptual, manual and technical tools necessary to design devices.
- You will learn how to work in multidisciplinary teams.
- You will learn to create and manage an R&D&I department, starting with the necessary administrative and healthcare documentation to managing products, buying material and human resources.
- Bioengineering is essential for the development of:
 - Hips, knees and other artificial joints
 - Medical devices
 - Advanced cell therapy
 - Micro and nanotechnology
 - Tissue regeneration materials

KNOWLEDGES



Regenerative Medicine



Chemistry and Molecular Engineering



Applied Bioengineering



Biomechanics and Robotics



IT and Computing



Materials Engineering



Molecular Biology



Orthopaedic Prosthesis

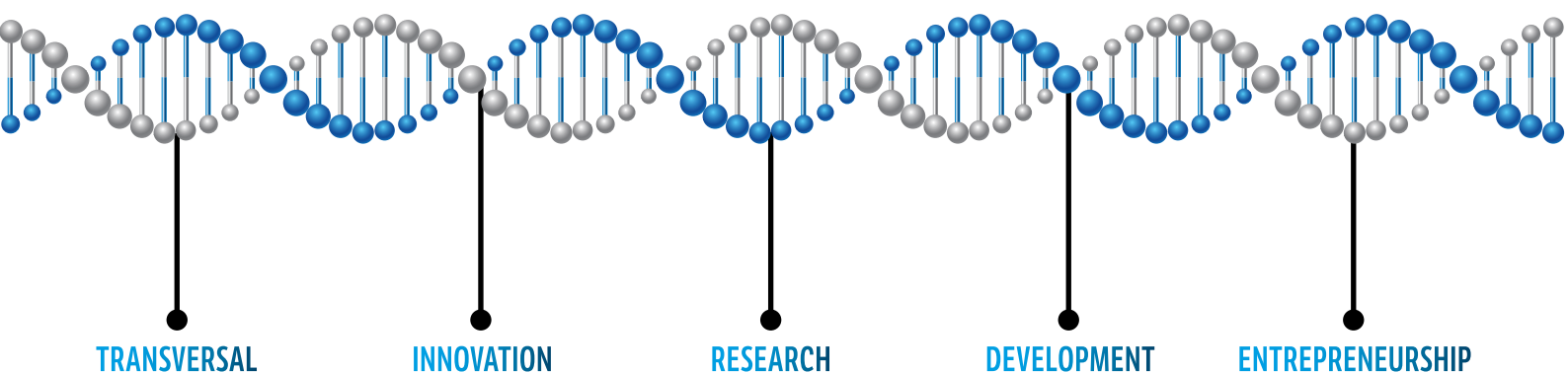


Biomedical Engineering



Tissue Engineering

SKILLS



STUDY PROGRAMME*

8 SEMESTERS

240 ECTS

40 PLACES

FROM SEPTEMBER TO JUNE

SANT CUGAT CAMPUS

ENTIRELY IN ENGLISH

1

ECTS	SEMESTER 1
6	Algebra
6	Anatomy and Physiology
6	Materials
6	Mechanics
6	Chemistry/Biochemistry
30	Subtotal

ECTS	SEMESTER 2
6	Anthropology
6	Cell and Molecular Biology
6	Biomaterials and Biocompatibility
6	Basic Biomechanics
6	Calculus
30	Subtotal

60 TOTAL

2

ECTS	SEMESTER 1
3	Informatics
3	Graphical Design Techniques
6	The Basics and Electronic Systems
6	Biomedical Instrumentation
6	Material Selection
6	Applied Pathology
30	Subtotal

ECTS	SEMESTER 2
6	Biostatistics
3	Cell and Molecular Biology II
3	Laboratory Techniques and Methodologies
6	Techniques for the Configuration of Materials
6	Signals and Systems Theory
6	Ethics
30	Subtotal

60 TOTAL

3

ECTS	SEMESTER 1
6	Laboratory Biology Materials and Biomaterials
6	Tissue Engineering
3	Business Psychology
15	Electives:
	- Biomaterials Characterization Techniques
	- Micro and Nanotechnology
	- Pharmacology
	- Modeling and Simulation Techniques
	- Neurosciences Applied to Orthoprosthetics
	- Computing, Robotics and Bionics I
30	Subtotal
	Mandatory 15 + Electives 15

ECTS	SEMESTER 2
6	Lab. de Prototipo de Sistemas Biomédicos
6	Terapia Celular
6	Lab. de Ingeniería de Tejidos
12	Electives:
	- Protein Engineering and Genetics
	- Microbiology
	- Microbiology Lab
	- Drug Discovery and Delivery
	- Foundations of Pathophysiology
	- Computation, Robotics, and Bionics II
30	Subtotal
	Mandatory 18 + Electives 12

60 TOTAL

4

ECTS	SEMESTER 1
3	Business, Entrepreneurship and Society
3	Science and Technology Policies
6	Transversal Bioengineering
6	Electives Cultural Foundations I / II
12	Electives:
	- Design, Diagnosis and Imaging
	- Start-Up Project
	- Immunology
	- Therapeutic Methods in the Field of Orthoprosthetics
	- Advanced Laboratory in Tissue Engineering
30	Subtotal
	Mandatory 12 + Electives 18

ECTS	SEMESTER 2
3	Introduction to Bioengineering Research
10	External Academic Internships
17	Final Degree Project
30	Subtotal

60 TOTAL



*The curriculum will undergo some changes that will not affect the general content of the degree. You can consult the update at: uic.es/folleto-grad or on the degree's website.



DO YOU KNOW THE DIFFERENCE BETWEEN BIOENGINEERING AND BIOMEDICAL ENGINEERING?

Watch
the video
for more
information



BIOENGINEERING

- Bioengineering involves designing implantable medical and materials devices that can restore function to damaged tissue or organs.
- Bioengineers build devices that are inserted into the body or fitted on the outside of the body, and which are normally permanent.
- Bioengineering focuses on the knowledge of materials and their properties.

BIOMEDICAL ENGINEERING

- Biomedical engineering involves designing and optimising treatment and diagnosis devices like the ones we find in hospitals.
- Biomedical engineers build devices that are usually used on the outside of the body and, if inserted into the body, are never permanent.
- Biomedical engineering is largely based on applied electronics, image analysis and robotics.





**+1,000 h.
LAB
TRAINING**

**(TISSUE
ENGINEERING,
MATERIALS
DEVELOPMENT,
ROBOTICS, BIONICS)**

ABOUT UIC BARCELONA

**Since 1997,
we have been committed
to impacting society.**

Our mission is to train people who contribute to humanising the transformation of society through professional excellence, the pursuit of impact, integrity and social commitment.

We offer 16 bachelor's degrees, 45 international double degrees and more than 70 master's and postgraduate courses to a community of around 9,000 students.

We have eight faculties located on two campuses, in Barcelona and Sant Cugat del Vallès.

We believe in lifelong learning, offering a personalised service, a comprehensive approach focused on each

student, continuous professional connection and innovation in teaching and research methods.

We have a strong international character, and our campuses are home to people from over a hundred different nationalities.

We are connected to society and businesses through fifteen chairs and five business classrooms, five research institutes and three university clinics.

**WE ARE
A HUMANISTIC,
SUSTAINABLE,
INNOVATIVE AND
GLOBAL UNIVERSITY,
AND WE ARE
WELL-POSITIONED
IN THE MAIN
NATIONAL AND
INTERNATIONAL
RANKINGS.**

RANKINGS

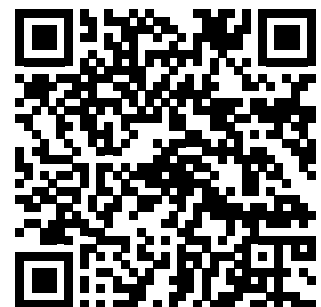
The main rankings in which the Universitat Internacional de Catalunya has been classified.

 **World University Rankings 2025**
#801-1,000



#374

 **RANKING
CYD**
#13



**FIND OUT HERE
ABOUT ALL
OUR RANKINGS**

UNIVERSITARY LIFE

Experience the best
university experience
at UIC Barcelona.

Studying at UIC Barcelona
involves all-round
personal growth.

We promote solidarity,
culture and sporting values.



STUDENT SERVICES

At Student Services, we facilitate students' integration into the university system.

We will provide you with information about extracurricular activities, grants, your university student card, etc.

If you need accommodation during your time at the university, the Student Service team will guide you on student residences, accommodation and other services, depending on your needs. We are part of the Barcelona Centre Universitari (BCU), the official welcome and guidance service for the students and university teachers and researchers who come to Barcelona. On the BCU's website you will find information about all kinds of accommodation in Barcelona and the surrounding area.

At Student Services, we will try to answer your questions and encourage you to take part in as many activities as possible.

At UIC Barcelona we promote and organise sports activities and competitions, and we provide discounts and special offers to help you access sports facilities to keep you in shape and live healthier lives. We also have the **Sport Talent programme**, so that top-level athletes can combine professional sport with their university studies.

You can take an active part in **#UICSocialDay** a day on which the whole University comes together to help those most in need. You can also form part of theatre, painting and music groups, which foster **the cultural side of UIC Barcelona and help you acquire more skills and values.**

AN INTERNATIONAL EXPERIENCE

UIC Barcelona's international commitment is evident in the very name of our University, and encompasses every single one of our activities. We are open to the world, which is clear from our wide range of international agreements and mobility programmes for students, teaching staff and researchers.

We have around forty international double degrees.

At UIC Barcelona, English is the vehicular language on some degree programmes, and you will have the chance to partake in many activities with the international community.

MENTORING AND COACHING

Boost Your Talent is the personal development and mentoring programme of UIC Barcelona, designed to accompany you in your growth during your studies.

The goal is to help you better understand your skills, identify your strengths and areas of improvement, and be able to certify them once you have finished the degree.

With this programme, you will have the support of a personal mentor who will accompany you on your journey to maximise your talent and harness your full potential.

Furthermore, if at the end of your studies you decide to continue with a master's or postgraduate degree at the University, you can benefit from a coaching process to help you define your next steps.

CHAPLAINCY

The chaplaincy offers a space for **reflection, dialogue and transcendence** where activities open to the entire university community are held.

LINGUISTIC SERVICES

At UIC Barcelona you have the opportunity to study several languages, both face-to-face and online, and you can accredit your level of Catalan with official certificates, as well as take part in welcome and language promotion activities.

ALUMNI AND CAREERS

Once you have completed a diploma, degree, postgraduate, clinical residency, master's degree or doctorate at UIC Barcelona, you will become part of **Alumni, an international community of over 28,000 people.**

At UIC Barcelona, we believe that being a university student is a way of life and a way of seeing the world, and **at Alumni, these values continue to be part of your life.** Our aim is to promote training and professional guidance and maintain the link with the community through reunion activities.

The Careers Service offers you a **comprehensive advice service for job placement** aimed at students and alums.



Get in touch with your advisor



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