uic barcelona 25 YEARS

DRIVING
VALUES
FORWARD.

B

Bioengineering

Universitat Internacional
de Catalunya
**Faculty of Medicine
and Health Sciences**

uic.es/bioengineering

About UIC Barcelona

Since 1997, UIC Barcelona has been teaching students based on a philosophy of academic rigour, enriching university life and fulfilling life experiences. Our academic institution is home to more than 9,000 students. We offer sixteen bachelor's degrees, around thirty international double degrees and a wide range of master's and postgraduate degrees and continuing education courses.

We offer personalised support, a comprehensive approach to each student, strong links to the professional world and innovative teaching and research methods. We hold people at the centre of our mission, in both the personal and professional sense, so that each member of our community can reach their full potential.

We strive to promote knowledge, research and knowledge transfer.

We are connected to society and companies through fifteen chairs, five company-sponsored classrooms, five research institutions and three university clinics.

At our institution, we are driven by rigour and a critical spirit; we strive to grow and better ourselves to have a positive impact on society. The search for excellence is rooted in our DNA, and effort and drive for self-improvement are our catalysts for change. This ambition can be found in the people and activities at UIC Barcelona.

University life

Experience the best university experience at UIC Barcelona.
Studying at UIC Barcelona involves all-round personal growth.
Sports, charity and culture are university values that we encourage.

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. Throughout the academic year, we organise charitable activities in cooperation with multiple institutions and advise regarding volunteer work. 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, debate, painting and music groups, which foster **the cultural side of UIC Barcelona and help you acquire more skills and values.**

Gospel choir concert. Christmas party

Official women's rugby team. Catalonia University Championships

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 offer over 30 international double degrees.

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

Professional Strategies

UIC Barcelona is connected to the needs of society and companies. For that reason, it complements your academic education **with a comprehensive career guidance service** for both students and graduates.

Guidance and Coaching

All UIC Barcelona students have their own personal advisor. They can help you with things such as time management, stress management and study methods. After completing your bachelor's degree, you will receive support from a coach, who can help you successfully navigate the period between finishing your degree and starting your career. **By the time you finish your degree, we want you to have a high level of soft skills.**

Chaplaincy

The chapel is a place for **reflection, dialogue and gravity,** and it holds activities that are open to the university community as a whole.

Alumni and Careers

Alumni are students who have completed a diploma, undergraduate degree, bachelor's degree, postgraduate degree, clinical residency, master's degree or doctorate at UIC Barcelona.

Being a university student is a way of living and seeing life. **Being a UIC Barcelona alumnus means carrying those values with you wherever you go.** The UIC Barcelona alumni community has more than 25,000 members. Be part of our community.

BACHELOR'S DEGREE IN:

Bioengineering

CONTACT INFORMATION:

uic.es/contact-detail

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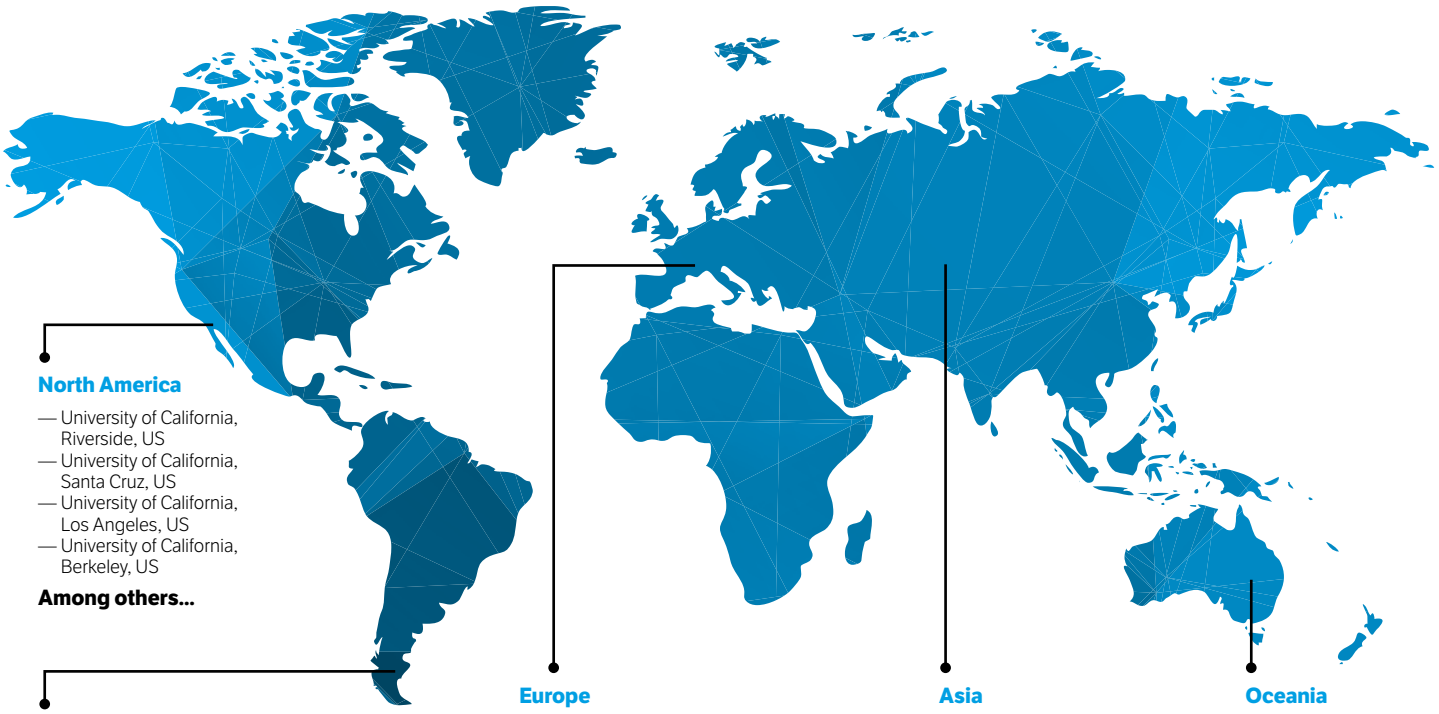
Exchange Universities



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...

South America

— Austral University, Argentina

Among others...

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

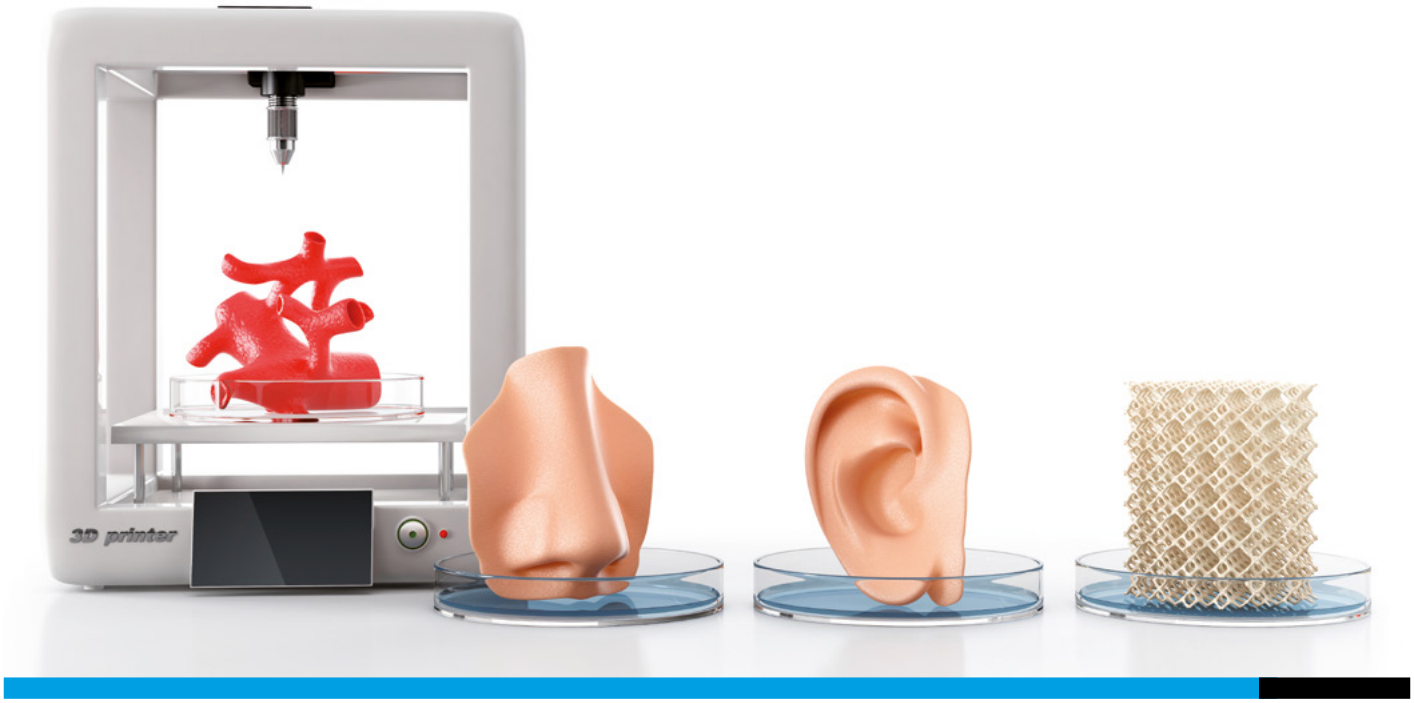
— National Taipei University of Technology, China
— Pukyong National University Daeyeon Campus, South Korea
— Chung-Ang University Seoul, South Korea
— Dongguk University Seoul, South Korea
— University of Kyoto, Japan

Among others...

Oceania

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

Among others...



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.

Reasons to study this degree

1. Unique degree in Spain. Although countries such as the United States, Germany, Finland or Belgium have consolidated the Bioengineering degree studies, and there are several master's degree programmes in Spain, UIC Barcelona is the only Spanish university that has a bachelor's degree in Bioengineering.

2. Unique curriculum approach. Focused on materials, that goes in two directions: the interaction of material with cells and their ability to regenerate tissues, and the application of these materials in replacing limbs and creating biomedical devices.

3. High employability. You will be able to work in a variety of different areas such as medical technology, pharmaceutical industry, cosmetic industry, dental sector, food industry and even technology industry.

4. Faculty with a solid background in research. The Bioengineering faculty has been trained at international institutions such as MIT or Harvard and is a leader in innovation and research, has developed patents, been awarded national and international projects (Spanish Ministry, European projects) and renowned research grants (Ramón y Cajal, Juan de la Cierva and Beatriu de Pinós).

5. Personalised and flexible research projects. The Faculty advises you and helps you to find the means so that you can carry out your project in terms of both internships and your final degree project (TFG).

6. International mobility. Possibility to develop research projects at research centres around the world. You also will be able to specialise at UCLA (California) with the Certificate Program.

Prospective students

If you have a desire to help society in the field of health sciences, this programme is 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

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.

— To 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 manging 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

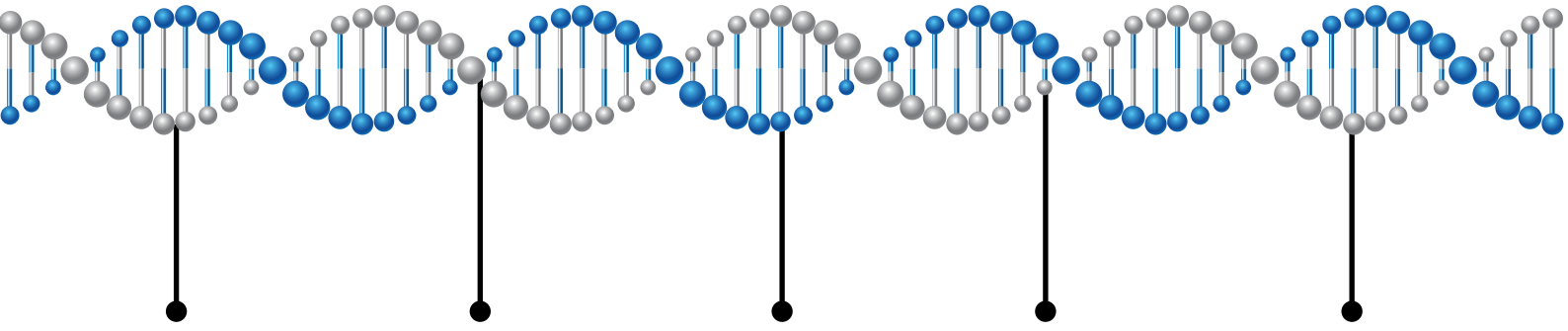

Molecular Biology


Orthopaedic Prosthesis


Biomedical Engineering


Tissue Engineering

SKILLS



8 semesters – 240 ECTS – 40 places – From September to June

Sant Cugat Campus – Spanish, English and Catalan (2 first courses in Spanish and 2 last courses in English)

STUDY PROGRAMME

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 3
3	Informatics
3	Graphical Design Techniques
6	The Basics and Electronic Systems
6	Biomedical Instrumentation
6	Advanced Materials and Material Selection
6	Applied Pathology
30	**Subtotal**

ECTS	SEMESTER 4
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
3	English
3	Technology and Society
30	**Subtotal**

60 TOTAL

3

ECTS	SEMESTER 5
6	Laboratory Biology Materials and Biomaterials
6	Tissue Engineering
6	**Elective (Biomaterial Characterisation Techniques)**
6	**Elective (Micro and Nanotechnology)**
6	**Elective (Pharmacology)**
6	**Elective (Modelling and Simulation Techniques)**
6	**Elective (Neuroscience Applied to Orthoprosthesis)**
6	**Elective (Computing, Robotics and Bionics I)**
30	**Subtotal**
	Mandatory 12 + Electives 18

ECTS	SEMESTER 6
6	Biomedical Systems Prototyping Laboratory
6	Cell Therapy
6	Tissue Engineering Lab
6	**Elective (Protein and Genetic Engineering)**
4	**Elective (Microbiology)**
2	**Elective (Microbiology Laboratory Materials)**
6	**Elective (Drug Delivery & Discovery)**
6	**Elective (Fundamentals of Physiopathology)**
6	**Elective (Computing, Robotics and Bionics II)**
30	**Subtotal**
	Mandatory 18 + Electives 12

60 TOTAL

4

ECTS	SEMESTER 7
3	Business and Society
3	Business Psychology
6	Ethics
3	Science and Technology Policies
6	Cross-Disciplinary Bioengineering
3	**Elective (Design, Diagnosis and Image)**
3	**Elective (Startup Design)**
6	**Elective (Immunology)**
6	**Elective (Treatment Methods in the Area of Orthoprosthetics)**
30	**Subtotal**
	Mandatory 21 + Electives 9

ECTS	SEMESTER 8
3	Introduction to Bioengineering Research
10	Training in Companies
17	Final Degree Project
30	**Subtotal**

60 TOTAL

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.

Berta

"The fact that it is such an interdisciplinary degree means I learn tons new things every day, which make me more and more curious about the world around me.
And I'm sure that it will all be useful to be able, one day, to help other people from a fresh, innovative perspective. I'd like to think that in the future I will be able to say I'm a bioengineer. Because I'd like to link medicine with engineering, and I like the fact it sounds complicated, and I like it being a challenge, because that makes me even more determined to devote myself every day to what I love doing."

Berta Madurell Galera
Bioengineering Student

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TO ACCESS UIC BARCELONA:

1. **Fill out the application form at uic.es/application.**
2. **Enter your student portal to upload the required documentation depending on your access route.**
3. **Pay the entrance examination fees.**
4. **Take the entrance examinations.**

For more information about grants and financial aid visit:

uic.es/grants

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