

**BACHELOR**

# MEDICAL AND PHARMACEUTICAL BIOTECHNOLOGY

Would you like to play a part in dramatically improving the quality of life of millions of patients around the world? The Medical and Pharmaceutical Biotechnology bachelor programme will give you the opportunity to do just that.

# SPECIAL FEATURES

## Improving quality of life

Medical and pharmaceutical theory combined with extensive lab work: as a graduate, you have a solid foundation on which to build when embarking on a career in biotechnology. You will play a part in tackling problems, giving you the chance to improve quality of life for people all over the world.

## International focus

Opting for a programme with English as the language of instruction makes a significant contribution to developing an international mindset. The international environment at IMC Krems, with teaching staff and students from partner universities all over the world, strengthens your intercultural abilities. Moreover, you can complete your internship abroad.

## Outstanding career prospects

Because of the practical experiences in leading international and national life science institutions and companies, our graduates have very good career opportunities. 40% are working in biomedical research fields and 60% in the industrial area. More than 150 graduates are in PhD programmes or finished their PhD theses in international research or industrial institutions such as Harvard, Washington, Cambridge, Oxford, London, Dublin, Stockholm, Groningen or with German and Austrian universities. Our alumni lead R&D teams, manage biotech processes, are responsible for quality control or regulatory affairs, scientific marketing or do research in actual life science fields and publish results in leading journals such as "Science", "Blood", "Cancer" or the "Journal of Biomolecular Screening".

## AT A GLANCE



### Full-time

Courses take place from Monday to Friday between 8.00 a.m. and around 8.00 p.m. (in exceptional cases on Saturdays).



### English

The language of instruction is English. This prepares you for a career in a multicultural environment.



### Six semesters

The degree programme lasts three years, with a total workload of 180 ECTS. Graduates receive the academic degree of Bachelor of Science in Engineering (BSc).



### 22-week internship

You can quickly put into practice the expertise you have picked up during your courses. The internship is an obligatory part of the programme.



### Study fee

EU/EEA citizens pay a study fee of EUR 363.36 per semester, plus the student union fee.

# CURRICULUM FULL-TIME

Semester I	Std.	ECTS
Introduction to Laboratory		
Introduction to Laboratory Techniques	1	1
Basics of Physics		
Applied Physics - Theory	2	3
Applied Physics - Laboratory	3	4
Basics of Chemistry		
Analytical Chemistry Laboratory	2	3
Chemical Calculations	1	2
General and Inorganic Chemistry	3	4
Fundamentals in Mathematics		
APPLIED MATHEMATICS		
Applied Mathematics - Theory	2	3
Applied Mathematics - Exercise	1	1
Introduction to Data Science I	1	1
Human Medicine I		
Anatomy and Physiology	2	2
Human Genetics	1	2
Microbiology		
Applied Microbiology	1	2
Microbiological Working Techniques Laboratory	2	2

Semester II	Std.	ECTS
Organic Chemistry		
Organic Chemistry - Theory	2	3
Organic Chemistry - Laboratory	2	3
Biostatistics and Data Analysis in Biotechnology		
Biostatistics	2	4
Introduction Data Science II	1	2
Biophysics		
Applied Biophysics	2	3
Biophysics Laboratory	2	3
Human Medicine II		
Human Diseases	1	1
Immunology and Medical Microbiology	2	2
Microbiology and Pharmaceutical Production Environment		
Microbiological Monitoring Laboratory	2	2
Introduction to Contamination Control and Clean Room Training	1	1
Molecular Biology of the Cell		
Cell Biology	2	3
Molecular Biology and Genetic Engineering - Theory	2	3

Semester III	Std.	ECTS
Laboratory Skills for Biotechnology		
Instrumental Analytics - Theory	1	2
Instrumental Analytics - Laboratory	2	3
Genetic Engineering Laboratory	2	3
Theoretical and Practical Biochemistry		
Biochemistry - Theory	3	4
Biochemistry - Laboratory	2	3
Applied Bioinformatics		
Bioinformatics	2	3
Medical Biology		
Cell Physiology and Medical Molecular Biology	2	3
Cell Culture Techniques	1	1
Cell Culture Laboratory I	2	3
Fundamentals of Engineering		
Bioprocess Technology Theory I	1	1
Measurement and Control Systems I	1	1
Quality Management and GLP		
Introduction to Quality Management	1	1
GLP/GMP - Theory	1	1
Practical Training in Industry		
Practical Training Application and Preparation	1	1

Semester IV	Std.	ECTS
Cell and Tissue Engineering		
Cell Culture Laboratory II	3	5
Scientific Skills	2	3
Pharmaceutical Production Processes		
PROTEIN PURIFICATION AND BIOPROCESS TECHNOLOGY		
Biochemical Analytics, Protein Purification	2	3
Equipment and Production Design	2	3
Bioprocess Technology Theory II	2	4
Fermentation and Bioseparation Laboratory, Data Analysis	4	6
Applied Quality Management		
GLP/GMP - Seminar	2	3
Genetic Engineering Laboratory under GLP	2	3

Semester V	Std.	ECTS
Practical Training in Industry		
Practical Training Semester	0	25
Scientific Methods and Tools		
BACHELOR PAPER AND BACHELOR EXAM		
Bachelor Seminar I	1	5

Semester VI	Std.	ECTS
Pharmaceutical Sciences		
Pharmacology	2	4
Current Issues in Molecular Medicine	2	3
Project Management		
Project Management in Life Sciences	2	3
Elective Module 1: Production of Therapeutic Proteins		
JOURNAL CLUB FOR CURRENT ISSUES		
Journal Club for Current Issues	1	2
Validation and Biomaterials		
Introduction to Validation	1	2
Material Science and Biomaterials	1	2
Recombinant Protein Technologies		
Measurement and Control Systems II	1	2
Pharmaceutical Protein Production Systems	1	2
Elective Module 2: Drug Development Management		
JOURNAL CLUB FOR CURRENT ISSUES		
Journal Club for Current Issues	1	2
Management and Marketing		
Principles of Management and Marketing	2	3
Biomedical Regulations		
Clinical Studies and GCP	1	3
Drug Regulatory Affairs	1	2
Scientific Methods and Tools		
BACHELOR PAPER AND BACHELOR EXAM		
Bachelor Seminar II and Bachelor Paper	1	8
Bachelor Exam	0	2

Students choose one elective module out of two in semester six.  
Subject to possible alterations (Version 10/2020)

A portrait of Klavdija Bastl, a young woman with long blonde hair, smiling. She is wearing a white top and a dark blue jacket. The portrait is framed by a white circular border. To the left of the portrait, there is a red curved graphic element.

I'VE  
ALWAYS  
BEEN A  
SCIENCE  
FREAK.

KLAVDIJA

## A VERY PERSONAL STORY

**Klavdija Bastl**, from Slovenia specialised in chemistry and physics for her high school leaving certificate. She began her volleyball career at the age of 7, then continued semi-professionally for a few years and now she is a coach for Campus Sport. However, she still insists her greatest passion is science.

### I fell in love with the place

When I got home from school, I used to do chemistry exercises for fun. Sounds weird, but it's true. I always fancied studying abroad and all I wanted was to find a university, where I could best develop my talents. Naturally, I thought studying chemistry would be the way to go. However, I wanted to attend a more innovative study programme. Thus, I decided to turn to the internet for help and there it was, the perfect match, Medical and Pharmaceutical Biotechnology. I came to Krems for the open day and fell in love with the place. There was a wow factor about the campus, and the lecturers were so down to earth – it was incredible. I was swept off my feet by the laboratory visit, where they presented the cancer research they do here. This is what I am passionate about and what I want to dedicate my life to. So, the programme was perfect for me. I didn't expect that there would be so many lectures in the lab. I've learned how to isolate DNA – something I would never have imagined that I'd be doing a couple of years ago. I have already got the approval to do my internship at Dana-Farber Cancer Institute (Harvard Medical School). I cannot believe what has happened during the past months!

### Great opportunities for my future

Without the IMC Krems, I would not be where I am today. That is why I recently went back to my old high school to talk to the pupils about the programme. I wanted them to have the same opportunity that the IMC has given me. I believe, that in order to really be successful at what you do, you first need to understand and master the basics. I am really convinced that the basic study programme in the field of medical and pharmaceutical biotechnology gives us the knowledge and experience we need to prosper.

### Tip

When I look back, I know that there was no need to feel nervous at the start of the programme. You're really well looked after here – there's plenty of supervision and support. It's like I've found a new family here. Just take advantage of all the opportunities, don't be afraid. Go for it!

More stories: [www.fh-krems.ac.at](http://www.fh-krems.ac.at)



Terrific landscape and safe environment



#proudtobestudent



Ultra-modern Campus Krems

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