



Medical and Pharmaceutical Biotechnology



MEDICAL AND PHARMACEUTICAL BIOTECHNOLOGY

Enhancing methodological and problem-solving skills

Developing high-level expertise in identifying, characterising and manufacturing biopharmaceuticals is an essential aspect of this Master programme. Manufacturing biopharmaceuticals also requires extensive knowledge of the applicable legal framework and the quality assurance procedures which play a vital part in an interdisciplinary setting. In order to prepare our students for the upcoming trends, we also offer complementary training in development, application and production methods for quality-assured tissue and organ replacements.

THE KEY TO SUCCESS: THEORY + PRACTICE + RESEARCH



Target group

Austrian and international graduates aiming to acquire in-depth knowledge and the skills and expertise needed for biotechnology product development and manufacturing. Most graduates go on to work in pharmaceutical and biotechnological companies and medical research centres.



Careers

After completing the programme, graduates will be able to assume a wide range of biotechnological positions including research and development in the academic field as well as executive posts in industry worldwide. Some of our alumni have found an employment as quality managers in GLP/GMP or at international and national agencies.



Programme details

The master degree programme Medical and Pharmaceutical Biotechnology is designed to deepen the students' understanding of medical biotechnology and the expertise required for biotech product development and manufacturing. Further, it aims to enhance students' methodological and problem-solving skills in the fields of medical and pharmaceutical biotechnology. Courses also highlight the interdisciplinary links between the natural science, biological, medical and technological aspects of biotechnology, as well as stressing the importance of quality assurance considerations.

HIGHLIGHTS

You will deepen the understanding of medical biotechnology and the expertise required for biotech product development and manufacturing. In the third semester you have the choice between **two electives – Bioprocess Engineering or Advanced Therapeutics Development.**

Bioprocess Engineering

Bioprocess Engineering: Scale Up – Scale Down Techniques, Current Issues in Bioprocess Engineering

Fermentation Technology: Fermentation Technology Laboratory, Fermentation of Complex Host Systems

Process Automation: Process Control and Process Online Monitoring, Equipment Test and Process Validation

Advanced Therapeutics Development

Principles of Drug Discovery: Pathophysiology and Molecular Therapies, Drug Discovery

System Strategies in Molecular Therapies: Stem Cells, Gene Therapy and Regenerative Medicine, Immunology-Based Therapies

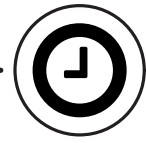
Therapeutics Development: Advanced Therapeutics Development Laboratory; Current Issues in Advanced Therapeutics Development

PROSPECTIVE STUDENT ADVISORY SERVICE

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AT A GLANCE



Format

Full-time

Four semesters

Two years



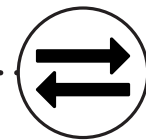
Language of instruction English

This prepares you for a career in a multi-cultural environment.



Academic degree

Master of Science in Engineering (MSc),
120 ECTS



Admission

Undergraduate degree in a relevant natural sciences or engineering discipline (Bachelor degree or equivalent, minimum 180 ECTS). Amongst others these disciplines are accepted: Biotechnology or Biomedical studies, Biochemistry, Molecular Biology or Pharmacology, Biomedical Analytics, Chemical Engineering, Nanotechnology, Bioinformatics, Biology, Chemistry, Physics



€ 363.36/semester

This is your study fee that you pay as an EU/EEA citizen plus a student union fee.

Curriculum Full-time

Semester I	H	ECTS
Health, Disease and Therapeutical Strategies		
Developmental Biology	1	2
Immunology	2	2
The Hallmarks of Cancer	1	2
The Molecular Mechanisms of Aging	1	2
Process Design		
Equipment and Production Design	2	4
Standardisation	1	2
Bioprocess Technology		
Recombinant Protein Production, Laboratory	4	8
Recombinant Protein Production, Theory	2	3
Upstream Processing	2	3
Bioethics		
Bioethics	1	2

Semester II	ECTS	
Analytical Methods in Life Sciences		
Bioanalytics, Laboratory	2	4
Personalized Medicine, Laboratory	2	4
Analytical Methods in Biomedicine	2	2
Integrative Methods in Biotechnology		
Biostatistics and Trend Analysis	1	2
Structural Bioinformatics and Drug Design	2	2
Systems Biology	1	2
Pharmaceutical Project Management		
Clinical Studies and GCP	1	2
Project and Portfolio Management	1	2
Pharmaceutical Quality Management		
GLP and GMP Regulations	1	2
Quality Management Systems	1	2
Risk Assessment	1	2
Biomedical Regulations		
Legislation for Drugs and Medical Devices	2	3
Research Semester Application and Preparation		
Research Semester Preparation	1	1

Semester III	H	ECTS
Business		
Entrepreneurship in Life Sciences	2	3
Therapeutic Effects of Biopharmaceuticals		
Pharmacokinetics and Pharmacodynamics	2	3
Elective 1: Bioprocess Engineering*		
Bioprocess Engineering		
Current Issues in Bioprocess Engineering	1	2
Scale Up – Scale Down Techniques	2	3
Process Automation		
Equipment Test and Process Validation	2	4
Process Control and Process Online Monitoring	2	3
Fermentation Technology		
Fermentation of Complex Host Systems	1	2
Fermentation Technology, Laboratory	7	10
Elective 2: Advanced Therapeutics Development*		
Therapeutics Development		
Current Issues in Advanced Therapeutics Development	1	2
Advanced Therapeutics Development, Laboratory	7	10
Principles of Drug Discovery		
Drug Discovery Systems	2	3
Pathophysiology and Molecular Therapies	2	4
Strategies in Molecular Therapies		
Immunology-Based Therapies	1	2
Stem Cells, Gene Therapy and Regenerative Medicine	2	3

Semester IV	H	ECTS
Master Exam		
Master Exam	0	5
Research Semester		
Master Thesis	0	22
Coaching Seminar	1	3

* You choose one out of two electives.
Subject to possible alterations

Quality Label



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Version: 01/2018