Medical and Pharmaceutical Biotechnology

Hochschule Fresenius, Campus Idstein
Master of Science

Profile

From molecular structures and properties to basic principles of good manufacturing practice

If you hold a Bachelor's degree in pharmaceutics, chemistry, or biology and wish to further your knowledge to take on specialist and management roles in the pharmaceutical industry, our Medical and Pharmaceutical Biotechnology Master's program is the ideal fit for you.

This four-semester program is designed to provide you with extensive knowledge and valuable skills essential for the biopharmaceutical industry. The program covers the entire value chain, from molecular structures and properties to the basic principles of good manufacturing practice (GMP) and regulatory affairs in the closely regulated environment of the pharmaceutical industry.

By the end of the program, you'll have developed a deep understanding of the intricacies of the biopharmaceutical industry and the skills necessary to excel in your career. You'll be equipped with knowledge of the latest developments in the field, including emerging technologies and innovative techniques.

Overall, the Medical and Pharmaceutical Biotechnology Master's program is an excellent choice for those seeking to advance their careers in the pharmaceutical industry. With a comprehensive curriculum and practical experience, you'll be well prepared to take on specialist and management positions in this exciting and rapidly evolving field.

Key facts

Program start: Winter semester
Duration: 4 Semester
Language: English
Study form: Full time
Tuition fee: 750€ monthly + 70,00€ per month (non-EU) (a one-off registration fee may be due)
Application time: possible all year round

Contact

Study advice
Phone: +49 (0)221 650339 88
E-Mail: study@hs-fresenius.de

Program

Program Details

The Medical and Pharmaceutical Biotechnology Master's program offered by Hochschule Fresenius is designed to equip you with comprehensive knowledge and skills essential for a career in the pharmaceutical biotechnology industry.

Firstly, you'll gain a solid understanding of the pharmaceutical industry through courses on the pharmaceutical industry or manufacturing practices, and will learn how to work with technical equipment. You'll also gain an in-depth understanding of the manufacturing process of pharmaceuticals.

Secondly, the program will provide you with practical skills and knowledge of scientific methods, including biopharmaceutical analysis techniques. You'll also learn about pharmacology and toxicology of biopharmaceuticals, and how to apply data science methods in this field.

Lastly, the program includes management courses to develop your leadership skills, such as project management, and professional communication and presentation.

Program Structure

This Master's program is designed to provide you with an in-depth education in all relevant skills for a career in the field of pharmaceutical biotechnology. In order to achieve this, your classes will focus on three main areas spread over four semesters.

Coursework includes:

Pharmaceutical industry

- Introduction to the pharmaceutical industry
- Sterile process and plant engineering
- Good manufacturing practice
- Upstream processing and bioseparation
- Downstream processing
- Qualification of technical equipment
- Pharmaceutical process validation

Scientific methods

- Biopharmaceutical analysis (e.g. ELISA, chromatography, mass spectrometry)
- Pharmacology and toxicology of biopharmaceuticals
- Laboratory work
- Data science for pharmaceutical biotechnology
- Biochemical process engineering

Management

- Project management
- Lean management and six sigma
- Professional communication and presentation

Since this program has a practical approach, you'll have ample opportunities to engage in hands-on work in our state-of-the-art laboratories.

Career Prospects

Career Prospects

Biopharmaceuticals are playing an increasingly significant role in the fight against diseases such as cancer, diabetes, and multiple sclerosis. The development of mRNA vaccines to combat the COVID-19 pandemic by biotech firms further exemplifies the important role of pharmaceutical biotech professionals.

In terms of career prospects, obtaining a Master's degree in Medical and Pharmaceutical Biotechnology (M.Sc.) will provide you with highly sought-after skills in the emerging pharmaceutical industry 4.0. You'll have access to a diverse range of career paths, including roles in

- biopharmaceutical production
- bioanalytical labs
- regulatory affairs
- quality management
- product management
- engineering consulting firms

As a graduate of this pharmaceutical master's program, you'll also be well-prepared to work in an international context.

Admission

Admission Criteria

To be eligible for admission to the full-time Master's program in Medical and Pharmaceutical Biotechnology (M.Sc.) at Hochschule Fresenius, you must meet the following admission requirements:

Bachelor's Degree
You must hold a Bachelor's degree in a chemistry- or biology-related field of study, such as

pharmacy, chemistry, biology, biochemistry, or biotechnology, with at least 180 credit points.

Language Proficiency
As the program is conducted entirely in English, you must also have English language skills at Level B2 or higher of the European Framework of Reference for Languages.

International Students
If you come from a country outside the European Union or the European Economic Area, it's important to note that you'll usually require a visa to study in Germany. The visa application process can take several months, so we recommend that you begin the process as early as possible.

Pharmazie

Biotechnologie, Bioingenieurwesen