

# Molecular Medicine

## Program representative

Prof. Dr. rer. nat. Anja Bosserhoff

## Coordination

Dr. rer. nat. Simone Reiprich

## Address

Dean's office at the Faculty of Medicine  
Krankenhausstr. 12  
91054 Erlangen  
Phone: +49 9131 8524687  
molmed-info@fau.de  
www.med.fau.eu/study/molecular-medicine-b-sc  
www.med.fau.eu/study/molecular-medicine-m-sc

## Aims and structure

The consecutive bachelor/master degree program Molecular Medicine combines subjects of experimental medicine with approaches and questions of molecular biology, biochemistry, and genomics. The advances in biomedical research continually change our knowledge and understanding of basic biological mechanisms and disease-induced alterations, reflected in improvements in diagnosis and therapy.

The degree program Molecular Medicine addresses the need to teach knowledge from both, medicine and natural sciences. An interdisciplinary curriculum optimally prepares the students for the changing requirements in biomedical research. With the master's degree, the students acquire the ability to independently pursue research in medical and related fields.

Graduates of this research-oriented program can work as biomedical scientists in universities, industry, and public administration.

During their studies, our students are closely supervised. New bachelor students, for example, are welcomed with a symposium introducing the study program and the different research activities at the Faculty of Medicine. A degree program coordinator who is responsible for the students ensures specialist counseling. In the mentoring program, each student is assigned a mentor from among the teaching staff of the program. The participation of student representatives in the program committee ensures that students are actively involved in decision-making and further development of the study programs.

## Bachelor's degree program Molecular Medicine

Each winter semester, 37 new students are chosen from among 800 - 1,000 applicants. The B.Sc. degree program spans six semesters in

which a solid education in all basic disciplines of molecular medicine is achieved. Preclinical and theoretical institutes mainly teach the core curriculum in Molecular Medicine. In the first two years, there is a focus on basic sciences and human biology (e.g. chemistry, physics, cell biology) as well as the preclinical disciplines anatomy, biochemistry, and physiology. These courses are complemented by further modules in pathogenesis and experimental therapies (e.g. human genetics, pathology, pharmacology) and practical laboratory work. The degree program concludes with a 2-months experimental thesis.

## Master's degree program Molecular Medicine

The main goal of the consecutive two-year master degree program is to enable students to do independent scientific research. The master's program is highly research oriented. While the B.Sc. curriculum teaches the basics of single disciplines, the M.Sc. degree program focuses on interdisciplinary courses. These courses link theoretical concepts with extensive laboratory practice, analysis, and discussion of current and classical research publications. The master degree program ends with an experimental thesis of six months. A mobility window in the third semester gives students an opportunity to gain laboratory experience abroad or in an industry context.

The curriculum of the M.Sc. degree program was updated significantly as of winter semester 2016/2017. The working language (including examinations) was switched to English, taking into account that English is the lingua franca in biomedical science. This opens the program for qualified international applicants. Furthermore, the student body's wish for more freedom of choice was addressed by the introduction of elective compulsory and elective modules. Students and alumni were strongly involved in the development of the curriculum.

## Perspectives

The master degree program Molecular Medicine offers the opportunity to pursue a high-quality doctoral program at FAU and other universities. Graduates may enroll in a doctoral program (Dr. rer. nat.) offered in collaboration with the Faculty of Sciences. A variety of occupational fields in industry, private laboratory, and public institutions is available to the graduates. Industrial employment options include research and development as well as production and quality control, marketing, or administration.

Private laboratories, hospitals, and authorities seek university graduates experienced in molecular diagnostics, DNA and protein diagnostics for medical and biotechnological applications. Graduated Molecular Medicine students currently have positions in national and international research institutions (e.g. Harvard Medical School, Karolinska Institute) and in industry (e.g. Novartis or Roche). Graduates of the first generation are already holding professorships.



Graduates of Molecular Medicine 2017 (Photo: C. Stolt, FAU)



Bachelor graduates of Molecular Medicine 2018 (Photo: C. Warter, FAU)



The first graduates (2018) of the international master degree program Molecular Medicine (Photo: C. Warter, FAU)