

New Biotech Master's Degree Launches at Ulm University: Pharmaceutical and Molecular Biotechnology

How do RNA-, protein- or stem cell-based therapies work? How can data science methods from bioinformatics and artificial intelligence be used to develop new pharmaceutical active substances? Students at Ulm University are learning this in the new master's programme in Pharmaceutical and Molecular Biotechnology (PMB). The new study course lies at the intersection of molecular biology, pharmacy and data-driven biotechnology, combining pharmaceutical research with modern therapeutic approaches.

"The Ulm-Biberach region is one of Germany's largest pharmaceutical hubs, which is why training in this field is of particular importance for the area. PMB provides students with the best possible preparation for the local job market," explains Professor Dierk Niessing, programme director and head of the Institute of Pharmaceutical Biotechnology at Ulm University. The current student numbers reinforce the appeal of the university beyond the region as a place to study. The aspiring biotechnologists at Ulm are studying the molecular mechanisms underlying the development and treatment of diseases. The curriculum includes fundamentals of biotechnology such as process development, production and quality assurance. The study plan also includes courses on molecular biology, stem cell and organoid research, and bioinformatics, as well as pharmacology and toxicology, and subjects such as biochemistry, endocrinology and virology. A mobility window enables students to spend a semester studying at a partner university abroad.

The Ulm PMB study programme focuses on protein-, RNA- and cell-based therapies, which are increasingly shaping the development of new medicines. This is complemented by the teaching of bioinformatics approaches – including the targeted use of artificial intelligence – for the analysis of complex biological data and the development and manufacture of active substances. "With this interdisciplinary course of study, we combine traditional life sciences with AI-supported data analysis," says Niessing.

What makes this degree special is that students have the opportunity to undertake their master's thesis within an industrial setting. This is preceded by an internship in the relevant research group at the company, which enables them to familiarise themselves with the work in the research laboratory and get to know their colleagues in advance. "This close collaboration benefits not only future graduates, but also the companies and the University, which can integrate the course content even more effectively," says the coordinator of the study programme, Dr Lena John.

The professional prospects and career opportunities for PMB graduates are excellent. Fields of work include biopharmaceutical Research and Development, the biotechnology and pharmaceutical industries, as well as areas such as bioinformatics and AI-supported data analysis in the life sciences. There are also opportunities for academic research and the award of a doctoral degree.

The entry requirement for the master's programme in Pharmaceutical and Molecular Biotechnology (PMB) is a Bachelor's degree in Biology, Biochemistry, Biotechnology, Molecular Medicine or a related subject, achieved with a grade of at least 2.7. Courses are taught in German and English. A minimum German language proficiency at level C1 is required. The standard duration is four semesters. PMB is the successor of the former cooperative degree programme in Pharmaceutical Biotechnology (PBT) by Ulm University and Biberach University of Applied Sciences, which has been refined in terms of both content and structure.

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Further information

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