

## **Applied Chemistry: Biotechnology and Organic Chemistry (M. Sc.)**

By completing the various stages of the teaching programme (lectures, seminars and practical training) students initially have to acquire a broad knowledge of biotechnology/biochemistry and organic chemistry. At the end of the studies they focus mainly on biotechnology or applied organic chemistry or water technologies. The theoretical parts are accompanied by extensive practical tasks in the laboratories to enhance the practical skills.

The Master's graduates develop a deep understanding of scientific facts, interrelations and conceptions and gain the ability to use this knowledge for solving problems and for working on projects successfully in research and development. They will be able to research a topic in literature and databases, to develop a conception and put it into practice. They are trained to work in teams or as individuals and so gain the ability to communicate results by using different media.

Students who focus on organic chemistry master modern methods in organic synthesis and the necessary analytical methods. They gain a knowledge of important product groups such as pharmaceuticals, detergents and cosmetics and are acquainted with the application properties of these products. They are able to apply their knowledge to special areas of application.

Students who focus on biotechnology are prepared for the interdisciplinary industries of biotechnology and pharmaceuticals. They master modern molecular-biological methods and acquire an expertise in proteomics to design bio-catalysts.

Besides this they master technically advanced skills to develop and optimise fermentation processes for the production of chemicals (white biotechnology). Their knowledge will allow them to solve problems in highly innovative fields, such as biotechnological research as well as applied biotechnology.

Students who focus on water technologies master modern methods of water treatment and the necessary analytical methods to manage the water quality. They gain a knowledge of all issues of water chemistry and environmental legislation. They are able to apply their knowledge to special areas of application.