Between lecture hall and lab

A research project of their own, first-class science and supervision and access to a team of researchers from all over the world are just a few of the reasons students have for embarking on a Bachelor’s, Master’s or doctoral program at the Biozentrum. With the Biozentrum Research Summer and the Basel Summer Science Academy, the Biozentrum offers even the youngest researchers an opportunity to experience the world of research firsthand.
Studying at the cutting edge of research

“‘It’s a huge step from having an experiment explained to you in a lecture to finally get some hands-on experience,’” says Julian Dommann with delight when talking about the third year of his Bachelor’s degree. The early involvement of students in the research lab has always been a tradition at the Biozentrum. It is this exposure to real-life questions, along with the outstanding guidance in the problem-solving process and modern technological infrastructure that make studying at the Biozentrum so attractive to many students.

During the first two years, students get to grips with the fundamentals of all natural sciences: mathematics, physics, chemistry and biology, at the same time having a first glimpse into biomedical disciplines: biochemistry, microbiology, immunology and neurobiology. After that, it’s off to the lab. In four six-week block courses they acquaint themselves with the molecular biology toolkit – from using a pipette or a microscope to working with cell cultures. “It is during the block courses, when you are in the lab the whole day, that you really start to understand what research is all about,” says Catherine Helbing, another Bachelor’s student. During this time, students get to know the research groups and laboratories, which was another key aspect for Catherine, as this has helped her figure out the direction she would like to take after her Bachelor’s degree.

Yet even a winning formula evolves with the times: “Four years ago, we launched the Biozentrum Research Summer to give motivated students an opportunity to experience cutting-edge research first-hand even earlier in their career,” explains Professor Sebastian Hiller, Chair of the Teaching Committee at the Biozentrum and program director. Many participants describe their six-to-nine-week summer internship in one of the Biozentrum’s research groups as a unique opportunity to step out of the school mentality and immerse themselves in the practical world of research as early as their second year of their Bachelor’s study. And next year the Bachelor’s degree program will become even more practical, a one-year laboratory course for experimental molecular biology being introduced.

The Biozentrum offers a number of specializations on the Bachelor’s program, tailored to the diversity of biomedical sciences. Besides the more traditional specialization in molecular biology, a major in computational biology is also offered, reflecting just how radically the availability of “big data” and the developments in computer science have transformed research in the natural sciences. Students who are interested in engineering applications in biology can also apply for the trinational biotechnology program in which the Biozentrum participates after four semesters.

Research becomes the main focus for students by the time they start their Master’s at the latest. At least ten months of the three-semester program is spent on laboratory work, which is followed by the publication of the results in a Master’s thesis. Meanwhile, students further expand their horizons by attending courses of the Graduate Teaching Program, which is offered by the Biozentrum in collaboration with researchers from the Friedrich Miescher Institute for Biomedical Research, the Department of Biosystems Science and Engineering at ETH Zurich, the Department of Biomedicine and the Swiss Tropical and Public Health Institute.

The Biozentrum is committed to sparking an enthusiasm for science among very young learners. The Basel Summer Science Academy, launched in 2019, offers high-school students a taste of the research world during two-week-long workshops, while the kidscience weeks by “Schweizer Jugend forscht” or the Pestalozzi School Camp give even primary-school pupils an opportunity to explore the world of molecular biology that is invisible to the naked eye.

“With the Biozentrum Research Summer we give motivated students an opportunity to experience cutting-edge research first-hand even earlier in their career.”

– Prof. Sebastian Hiller

Evi Sonderegger
Karolin Berneiser's choice of the Biozentrum for her doctorate was inspired by a Biozentrum alumnus she met in a lab in Boston. "A unique aspect of doing research here is the close proximity of so many different fields. And not just spatially – people take an interdisciplinary and cooperative approach to their work. Then there are the synergies with other academic institutions such as the FMI or the D-BSSE of the ETH Zurich and cooperations with industry partners." It’s not just the broad range of cutting-edge interdisciplinary research, however, that attracts prospective PhD students to the Biozentrum. "We’re a colorful bunch of people from different countries, and complement each other really well," Karolin says of her research group. A total of 120 PhD students are currently working at the Biozentrum, which is home to people from around 50 countries.

Karolin Bemeiser’s choice of the Biozentrum for her doctorate was inspired by a Biozentrum alumnus she met in a lab in Boston. "A unique aspect of doing research here is the close proximity of so many different fields. And not just spatially – people take an interdisciplinary and cooperative approach to their work. Then there are the synergies with other academic institutions such as the FMI or the D-BSSE of the ETH Zurich and cooperations with industry partners." It’s not just the broad range of cutting-edge interdisciplinary research, however, that attracts prospective PhD students to the Biozentrum. "We’re a colorful bunch of people from different countries, and complement each other really well," Karolin says of her research group. A total of 120 PhD students are currently working at the Biozentrum, which is home to people from around 50 countries.

Karolin is a recipient of one of the coveted Biozentrum PhD Fellowships. "The program is a unique tool that allows us to actively recruit outstanding young researchers from around the world," explains Professor Marek Basler, Head of the PhD Fellowships Program. Ten PhD fellowships are awarded per year according to a competitive selection process – excellence is the sole deciding factor. The most interesting feature of the fellowships is that they are not tied to a particular research group or project. The fellows can choose their research project after rotating through up to three different research groups at the Biozentrum. "It was really interesting to be able to get a feel for the different groups before making a decision," says Đorđe Relić, another PhD fellow. "And not just because of the research topic, but also with regard to the different working methods." This can also be a decisive factor. Enea Maffei, for instance, deliberately chose to work in a smaller team because he believes that being able to quickly exchange ideas and information is an advantage.

Exchange of this sort is the lifeblood of scientific research, which is why the Biozentrum also offers plenty of opportunities to engage in it outside of the research groups. "We try to combine research with social life," says Enea, a member of the PhD Student Association Committee Board. "We organize lectures, the PhD Lunch Talk where doctoral researchers present their project, apéros and much more." A particular highlight for Enea is the Life Sciences Party, organized together with other institutes and companies in Basel, while Đorđe, also a board member, singles out the two-day PhD Retreat. The internal lecture series Discovery Seminars, and the annual Biozentrum Symposium with over 300 participants are also key platforms offering junior researchers the opportunity to present their findings to a large audience and gain insights into different research fields.

Another important, international and highly qualified group of junior researchers at the Biozentrum are its 100 postdocs. After earning their PhD, many young researchers decide to go abroad for a few years, as international experience at a renowned institution and expertise in a particular research field are essential prerequisites for an academic career. The broad range of research conducted at the Biozentrum makes it an ideal place for postdocs to kick-start their career. They enjoy the support of their group leader, but also their peers: The Biozentrum Postdoc Society advises its members on career issues, as well as holding networking events to help new arrivals find their way around and extend the Biozentrum’s global network. On completing their postdoc at the Biozentrum, these modern nomads head off in every conceivable direction: Today, countless Biozentrum alumni work as professors at prestigious universities or as top executives in industry and business.
More than 300 participants attend the annual Biozentrum Symposium. The aim is to promote scientific exchange and interdisciplinary teamwork between the research groups. Furthermore, it offers young scientists in particular a platform to present their research findings to a broad audience. The symposium is also a great opportunity to strengthen the Biozentrum community.