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2008 - 2012 PostDoc - Yale University, New Haven, USA  
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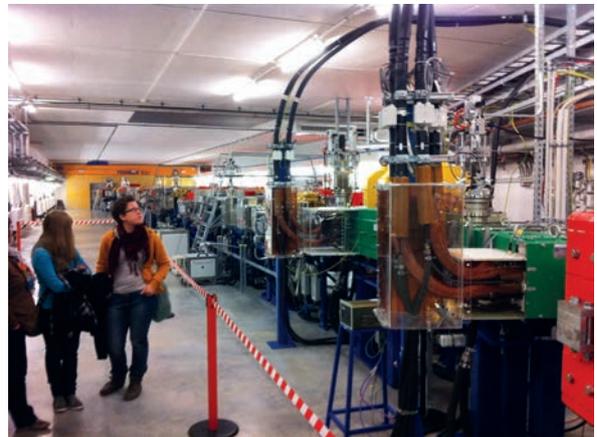
**Rainer Beck**

## Bachelor and Master Study Programs in Biochemistry

Since winter 2012, the Faculty of Biosciences and the Faculty of Chemistry and Geosciences, offer a joint study program Biochemistry Bachelor. The goal is to prepare excellent students for a career in applied research in Life Sciences. Since winter 2015, the consecutive study program Biochemistry Master started.



*Lecture Biochemistry II.*



*Students of Biochemistry visiting the Heidelberg Ion-Beam Center.*

Based on this initial ranking, the top 75 candidates are invited to the BZH for the second round of the selection process: Interviews are conducted by a member of the Faculty of Biosciences together with a member of the Faculty of Chemistry.

### Capacities and Selection of Applicants

Biochemistry Bachelor in Heidelberg is a very selective study program. Between 700 and 1100 candidates per year applied for the 25 slots available. This gives us the privilege to draw the most ambitious and talented applicants.

Initial selection is based not only on grades (focus on math and science), but also on additional qualifications, such as extended laboratory practicals and participation scientific competitions.

### Biochemistry Bachelor

In the first years, students of Biochemistry in Heidelberg undergo a very thorough training in Chemistry; they complete all courses mandatory for students of Chemistry.

Starting in the 2nd year, the students commence their education in Biochemistry:

We made a new lecture series Biochemistry I-III for this study program. Our goal is to offer our students unique lectures, where we can take the time to thoroughly explain and, together with the



**Biochemistry Practical A.**

students, explore molecular mechanisms underlying biochemical processes. We put special emphasis on the relationships of structure and function of biomolecules, and describe biochemical processes quantitatively.

We often sidestep and reference to techniques and laboratory experiments, in an effort to demonstrate how textbook knowledge was initially discovered, and how such data is experimentally generated.

In the 3rd year, students of Biochemistry will start conducting research practicals in research groups of the BZH and affiliated mural and extra-mural institutions.

By this time, the students will have acquired a thorough understanding of Chemistry and Biochemistry. The Bachelor program concludes with a Bachelor thesis and an oral exam on topics of Chemistry and Biochemistry.



**Biochemistry Bachelor students visiting CERN.**

## Biochemistry Master

The consecutive Master program extends over two years and aims at preparing the students for a subsequent training as PhD students.

In contrast to the tightly structured Bachelor program with little freedom of choice, Master students are to choose freely combinations of in total four modules from a list of nine chemical and biological subjects. Out of the nine modules, two were created specifically for Master Biochemistry, one being Pathobiochemistry (coordinated by Britta Brügger and Walter Nickel), the other being Bioinformatics/Molecular Dynamics (coordinated by Rob Russel).

Each module consists of a lecture/seminar, as well as a research practical of 8 weeks. The main focus is on the practical trainings, to this end our students can choose freely the institutions and laboratories where the research practicals will be carried out, including research at the pharmaceutical industry.

After completion of the four modules and their associated research practicals, the students will be prepared to choose the group in which they want to work during the next 6 months for their master thesis. Before commencing the laboratory work, the students will, with the help of respective group leader, formulate a detailed research proposal about their project.

The Master program concludes with a disputation of the Master thesis.

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