



1988	Ph.D. - ETH Zürich, Switzerland
1989 - 1991	PostDoc - Yale University School of Medicine, New Haven, USA
1992 - 1999	PostDoc - Institute of Biochemistry I, Heidelberg University / BZH
1999	Habilitation in Biochemistry, Heidelberg University, Medical Faculty
2000 - 2002	Scientific Director - German Cystic Fibrosis Association
since 2002	Head of the teaching unit and lecturer - BZH

Cordula Harter

Teaching and Education

BZH's activities in biochemical education are unique: We train more than 1000 undergraduate students of three faculties and offer an elaborate graduate program for around 60 PhD students. In addition, we engage in the development of modern curricula and novel teaching formats.

The teaching unit

BZH's teaching activities are centrally coordinated. Our office provides services for students and teaching staff, manages courses and examinations, maintains the electronic learning platform, and cooperates with the deans' offices in curricular and interdisciplinary affairs. Our teaching laboratories are managed by technicians who set up the students' experiments and take care of the infrastructure. Our lab space can accommodate up to 120 students and is equipped with instruments for biochemical analyses as well as for large scale preparations. For advanced courses a cell culture lab, a cold room and a dark room are available. In a computer room with 14 workstations students can use special software and online tools, like databases for gene and protein analysis.

Undergraduate Program

Approximately 800 medical students, 190 biology students and 120 chemistry students participate in courses each year. In addition, 25 students

are trained each year in a selective biochemistry study program which is described in a separate section of this report. All students attend obligatory courses which consist of lectures, seminars and practicals and are individually organized for the students of the respective subject. In addition, students can choose among various electives.

Medicine

The medical students' courses extend from the second throughout the fourth semester. They are systematically structured from fundamental biomolecules, metabolic pathways, cell and organ functions, to the molecular basis of diseases.

As a novel teaching format, we recently introduced the "inverted classroom", a concept which moves the lecture outside the classroom – as an online lecture - and allows the students to prepare a topic at home and deepen the knowledge later in the classroom. Another innovative teaching format are virtual patients: We integrated electronic cases in our curriculum in order to emphasise the clinical relevance of biochemistry and to foster self-directed learning.

The preclinical curriculum at Heidelberg University is likewise unique in that topics are taught interdisciplinary with other preclinical subjects like anatomy and physiology but also with clinical subjects, e.g. pharmacology. The high quality of our curriculum is confirmed by very good results in internal as well as national examinations:

Heidelberg continues to rank among the top three German medical faculties (out of 31) in the national state examinations.



Medical students prepare selected topics in a interactive seminar.

Biosciences

For students of biosciences, we offer courses at the Bsc and Master level. Our Bsc program starts in the first semester with a seminar “Current topics of the life sciences”. In the second semester, the foundations of biochemistry, e.g. enzymatic catalysis and metabolism, are taught in a core course which consists of lectures and a practical. For students of the third to fifth semester courses at an advanced level are offered, e.g. a practical where students apply technologies to regulate gene expression. At the master level, the BZH participates in the major “Molecular and Cellular Biology (MCB)” of the international master program “Molecular Biosciences”. BZH group leaders offer lectures on topics of their current research and lab rotations. Upon completion of the course program, students have the opportunity to perform a thesis in one of the research groups and later on to apply for a graduate program.

Chemistry

For chemistry students, we offer two modules at the bachelor level: one obligatory for students of the third semester and one elective for students of the fourth and fifth semester. In the obligatory module fundamental biochemistry is taught in lectures and seminars, and students learn to handle basic lab equipment and to analyse various types of biomolecules. In the elective module students get insight into more sophisticated tech-

niques, like protein crystallography and structural analyses. Master students perform a lab rotation and participate in research seminars. Our electives are in great demand which gives us the privilege to choose the best students for a bachelor thesis and afterwards for the master or doctoral program.



Practical work in small groups is an essential element of our educational program.

Graduate program

To offer excellent research opportunities in a stimulating and supportive atmosphere and to prepare our graduates for a career in academia or industry are our demands on graduate education. To this end, we provide not only state-of-the-art laboratories for our approximately 60 graduate students, but also comprehensive training in our BZH graduate program or in one of the other graduate programs on campus, like the Hartmut Hofmann-Berling international graduate school of molecular and cellular biology (HBIGS). Graduate students' program includes supervision by an advisory committee, progress reports in our department seminar and participation in a program which offers a variety of courses ranging from laboratory techniques to soft skills. Interaction among the BZH graduate students is further intensified by regular social and scientific meetings, like the yearly doctoral retreat, which is organized by our board of PhD students. In addition, opportunity is given to discuss science issues in guest speakers' seminars and at international conferences.

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