



## Life Sciences and Facility Management



### Institute of Chemistry and Biotechnology

Studies, continuing education, research and  
development, services

# Practice-oriented educational programmes

## Bachelor's

The ZHAW's Bachelor's programmes lead to a professional qualification and provide practice-oriented specialist knowledge, general education and working methodology. Thanks to our network with over 70 universities in Europe and overseas, we offer students attractive opportunities for stays abroad.

### Biotechnology

The Biotechnology Bachelor's programme takes an interdisciplinary approach, combining biological, medical and technical sciences.



**Susanne Dombrowski,**  
Programme Director, dosu@zhaw.ch

### Chemistry

The Bachelor's programme in Chemistry concerns itself with the conversion of various starting materials into substances with new chemical, physical and biological properties. Specialisations: Chemistry, Biological Chemistry.



**Prof. Dr. Achim Ecker,**  
Programme Director, ecke@zhaw.ch

## Master's

In the research-based Master's programme, students deepen their specific specialist knowledge. Project partners from business and industry are offered the opportunity to collaborate at the interface of theory and practice.

### Specialisation in Pharmaceutical Biotechnology

Students of this specialisation are sought-after professionals for the globally growing pharmaceutical market as well as related fields, such as the food and cosmetics industry and the environmental sector. They work on the development and production of active pharmaceutical ingredients, project management, engineering, consulting, marketing and sales.



**Prof. Dr. Regine Eibl,**  
Head of Specialisation, eibs@zhaw.ch

### Specialisation in Chemistry for the Life Sciences

As a Master's graduate with this specialisation, you will take on varied management tasks in branches of the chemical industry and at possible interfaces between the Life Sciences. You will make a valuable contribution to solving socially relevant challenges in the fields of medicine, nutrition, ecology and environmental technology as well as in green chemistry.



**Prof. Dr. Jürgen Stohner,**  
Head of Specialisation, sthj@zhaw.ch

## Continuing education

The continuing education programmes for companies and organisations are tailored to fit the specific needs of the customer. These bespoke training courses take place either at the ZHAW in Wädenswil or at the customer's premises.

The ZHAW Certificate of Advanced Studies in The Science and Art of Coffee was held for the first time in 2010. It is the first post-graduate course on coffee at a Swiss university.



**Prof. Dr. Chahan Yeretzian,**  
Head, yere@zhaw.ch

We offer various courses in the fields of phytotherapy and phytopharmacy in cooperation with the SMGP (Swiss Medical Society for Phytotherapy)



**Dr. Evelyn Wolfram,**  
Head, wola@zhaw.ch

We also provide specific courses in bioanalytics, GMP, microscopy and quality control, and courses for up- and downstreaming processing of mammalian cell culture-based production processes. Specialist conferences on various topics – also taking place in an international context – offer an additional platform for professional exchange and broadening one's knowledge.

# Unique combination in the life sciences

## Focus

The Institute for Chemistry and Biotechnology (ICBT) brings together the competencies that must increasingly interact in the converging fields of chemistry and life sciences. It focuses on the concerns of SMEs as well as trade and industry in the pharmaceutical, chemical and environmental sectors.

The following principles form the basis of our mindset and behaviours at the ICBT:

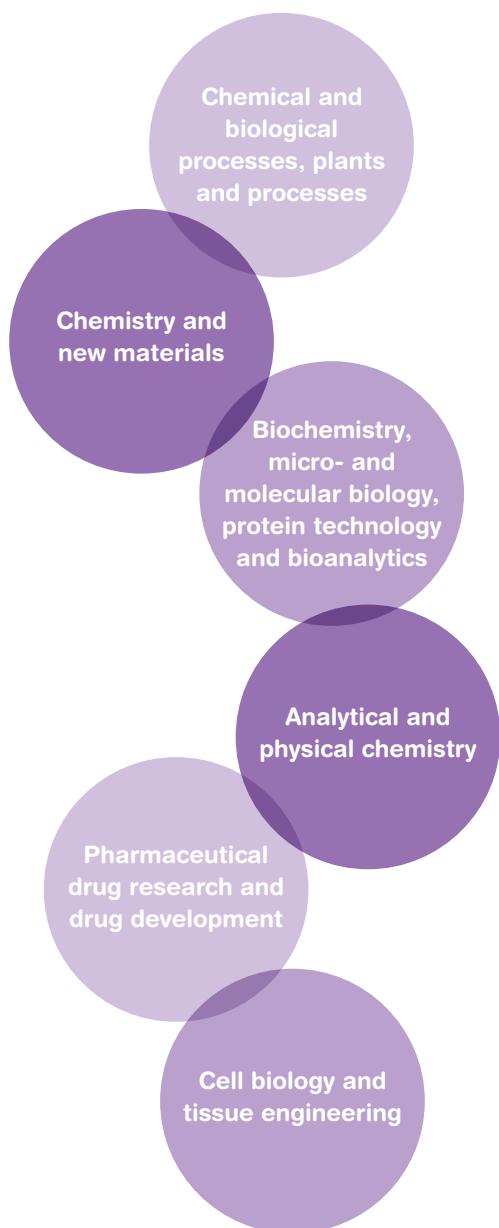
- sound scientific foundations,
- being up-to-date, topicality and flexibility in teaching and research,
- networking with other disciplines.

## Educational programmes   Research

Our educational programmes prepare you for the future. In our Bachelor's and Master's programmes, as well as in continuing education and at conferences, up-to-date and well-founded knowledge is imparted. The programmes we offer include:

- Bachelor's degree in Biotechnology with specialisations in Biotechnology and Pharmaceutical Technology
- Bachelor's degree in Chemistry with specialisations in Chemistry and Biological Chemistry
- Master's degree in Life Sciences with specialisations in Pharmaceutical Biotechnology and Chemistry for the Life Sciences
- CAS in The Science and Art of Coffee
- Individual training for companies
- Symposia

The ICBT is actively involved in research and development in the following areas:



## This is what we are committed to

«Many years of experience and professional expertise are combined in our institute at a depth and level of completeness that is nationally unique. We are active across the entire spectrum, from molecules and organisms to sustainable production processes on an industrial scale. This makes us a high-performance partner – whether in teaching, research, continuing education or services. We are one of five institutes at the ZHAW's Department of Life Sciences and Facility Management in Wädenswil and employ around 170 people. We maintain close co-operation and interdisciplinary exchange with our colleagues at the ZHAW. It is precisely at the interfaces between the disciplines that new, creative approaches emerge.»



**Prof. Dr. Christian Hinderling,**  
Head of Institute, hicr@zhaw.ch

# Practical, creative, passionate and reflective

## Specialisation Centres

The ICBT has highly-developed, coordinated and networked specialist centres. Our specialists implement projects proactively, in a solution-oriented manner and on schedule. As our client, you benefit from our many years of experience and a strong network. Whether you are looking for an answer to a simple question or need a scientific partner for a complex multi-year project, we will be happy to support you. If you wish, we can also take on administrative tasks for you, such as project applications to funding agencies. We are there for you!

### Biochemistry and Bioanalytics

«Our strength lies in recombinant protein technology with a focus on therapeutic monoclonal antibodies and next-generation formats. We have great expertise in bioanalytics, especially mass spectrometry.»



**Prof. Dr. Christiane Zaborosch,**  
Head of centre, zabc@zhaw.ch

### Bioprocess and Cell Culture Technology

«We work on the optimisation of biotechnological production processes up to pilot scale. The focus is on upstream processing and products for the pharmaceutical, cosmetics and food industries.»



**Prof. Dr. Dieter Eibl,**  
Head of centre, eibl@zhaw.ch

### Biocatalysis and Process Technology

«We develop products, applications and manufacturing processes through an innovative combination of bio- and chemocatalysis, biosynthesis and bioprocess technology.»



**Prof. Dr. Rebecca Buller,**  
Head of centre, bull@zhaw.ch

### Functional Materials and Nanotechnology

«We create nanostructured particles, fibres or porous silicates. They show their ability through self-organisation, as host systems or as selective filters.»



**Prof. Dr. Christian Adlhart,**  
Head of centre, adas@zhaw.ch

### Analytical Chemistry

«We use our state of the art infrastructure to apply and further develop analytical methods and technologies. Our core competencies are chromatography, mass spectrometry, molecular spectroscopy and sensor technology.»



**Prof. Dr. Caspar Demuth,**  
Head of centre, demc@zhaw.ch

### Industrial Chemistry and Processes

«We develop and optimise manufacturing processes with the help of online process analytics, chemometrics, measurement and control technology, and microreaction technology.»



**Prof. Dr. Achim Ecker,**  
Head of centre, ecke@zhaw.ch

## **Micro- and Molecular Biology**

«We combine current methods to demonstrate the potential of microorganisms, the efficiency of active substances and the application of recombinant proteins.»



**Prof. Dr. Martin Sievers,**  
Head of centre, sima@zhaw.ch

## **Drug Discovery and Pharmaceutical Product Development**

«Based on our complementary core competencies, we develop innovative medicines, from drug discovery to medicinal chemistry, pharmacology and galenics.»



**Prof. Dr. Rainer Riedl,**  
Head of centre, rira@zhaw.ch

## **Environmental Biotechnology**

«Since 1994, we have been meeting the challenges in the field of microbiological processes for the utilisation of biomass, organic waste and waste water to produce higher-value products.»



**Prof. Dr. Urs Baier,**  
Head of centre, burs@zhaw.ch

## **Cell Biology and Tissue Engineering**

«We are developing new ways of producing living tissue models for testing, diagnostics and therapy. In this way, we contribute to the reduction of animal testing.»



**Prof. Dr. Michael Raghunath,**  
Head of centre, ragh@zhaw.ch

## **Competency Centres**

### **TEDD Tissue Engineering for Drug Development and Substance Testing**

TEDD is an innovative, international collaboration platform in the field of 3D cell culture and tissue models for testing purposes (pharmaceuticals, cosmetics, food). Its members come from academia, medicine and industry.

[www.zhaw.ch/icbt/tedd](http://www.zhaw.ch/icbt/tedd)

### **CCBIO Competency Centre Biocatalysis**

The CCBIO develops biocatalytic and biosynthetic innovations through the combination of chemistry, biotechnology, micro- and molecular biology, analytics and engineering sciences. It is a partner for the industrial implementation of enzyme-based tools and methods.

[www.zhaw.ch/ccbio](http://www.zhaw.ch/ccbio)

### **CEC Coffee Excellence Centre**

The CEC is a leading coffee research centre and has worked closely with industry partners worldwide over the past ten years to bring new technologies and innovations to market. The CAS The Science and Art of Coffee is a unique postgraduate course for coffee connoisseurs and professionals.

[www.zhaw.ch/icbt/coffee](http://www.zhaw.ch/icbt/coffee)

# Studying and researching in Wädenswil: practical, creative, passionate and reflective

The ZHAW is one of Switzerland's leading universities of applied sciences. The Department of Life Sciences and Facility Management currently has over 1500 students and employs around 600 people. The educational programme comprises five Bachelor's and three Master's programmes, as well as a broad range of continuing education programmes.

With our competencies in life sciences and facility management, we make an important contribution to meeting social challenges and improving our quality of life in the fields of environment, food and health. Five research-strong institutes in the fields of chemistry and biotechnology, food and beverage innovation, environment and natural resources, applied simulation and facility management make their contribution in the form of research, development and services.



Environment | Food | Health | Society  
Our competences in Life Sciences  
and Facility Management.

## Contact details

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[www.zhaw.ch/icbt](http://www.zhaw.ch/icbt)

Pay us a visit!



bilden und forschen  
wädenswil