



Life Sciences and
Facility Management

TRANSPARENCY

2019 edition

Facts and information about
studies – continuing education – research
and development – services

Management and organisation

School of Life Sciences and Facility Management



Foto: Frank Brüdert

School management:

Karin Altermatt, Christian Hinderling, Margrit Büeler, Rolf Krebs, Urs Hilber, Michael Kleinert, Antje Junghans, Daniel Baumann

Organisation:

- Department Transversalis
Director: Karin Altermatt
- Institute of Applied Simulation
Director: Prof. Marcel Burkhard (not pictured)
- Institute of Chemistry and Biotechnology
Director: Prof. Dr. Christian Hinderling
- Institute of Facility Management
Director: Prof. Dr.-Ing Antje Junghans
- Institute of Food and Beverage Innovation
Director: Prof. Michael Kleinert
- Institute of Natural Resource Sciences
Director: Prof. Dr. Rolf Krebs

Senior management:

Prof. Dr. Urs Hilber, Dean of ZHAW LSFM

Margrit Büeler, Assistant to the Dean

Prof. Dr. Daniel Baumann, Head of Education, Research and Resources (until 31.5.2019)

To the future – with agility

Dear reader,

Everybody talks about agile management. True to our strategic guiding principle

‘ZHAW Life Sciences and Facility Management – Studying and Researching in Wädenswil: practically-oriented, creative, passionate and reflective’

and our strategic and content-related positioning

‘Environment, Food, Health – with our competencies in life sciences and facility management, we make an important contribution to solving some of the challenges facing society today and to improving our quality of life’, we have set out not just to talk about agility, but to practice it.

Topic platforms

In 2018, we defined and began working on four strategic focus areas: ‘Environment@LSFM’, ‘Agro-Food-Business@LSFM’, ‘Health@LSFM’ and ‘Digitization@LSFM’. The common denominator in all of these is that they brought to life by our best employees in a bottom-up approach. The aim of the initiative is twofold: to raise the profile of our school even further, and to live up to our strategic, content-related promise of making an important contribution to solving our social challenges and improving our quality of life.

Digitization

Digitization is also on everyone’s lips nowadays. Industry, administration and universities are under great pressure as a result of the ever-increasing pace of digitization. In 2018, the Government Council of the Canton of Zurich (Regierungsrat) prepared the ‘Zurich Digitization Initiative’. At the ZHAW, an equivalent was created with ‘ZHAW digital’, and the overarching initiatives are being implemented in our school with the strategic theme ‘Digitization@LSFM’.

Triple O-Model

In incipient stages today, yet probably mainstream tomorrow: the Triple O-Model. Classical classroom instruction (‘on site’) will remain one of the three didactic pillars of the model, due to our state-of-the-art infrastructure and the high proportion of practical work. The classical approach will be supplemented by

‘on line’ courses, which will give students more flexibility in how, when and where they learn. The third pillar today is still largely a dream of the future – the crediting of skills and competencies acquired in the world of work, i.e. ‘on the job’. In 2018, the year under review, we began thinking about the Triple O-Model and how it could be implemented in our school.

Curriculum reform

Curriculum reforms are underway in many of the ZHAW’s schools, including ours. Our reform has two main objectives: 1. to make our courses even more attractive for our students, and 2. to maintain the high quality of our courses. All study programmes work on the topics ‘minor concepts’, ‘part-time models’, ‘International Profile’ and ‘natural sciences and humanities fundamentals’. We will be offering interesting innovations for our students in autumn 2019 and 2020.

Campus development

Our excellent infrastructure is a ‘key asset’. In 2018, the Cantonal Council of Zurich (Kantonsrat) decided to expand our infrastructure with a ‘Food Campus’. Over the next four years, one of the most modern infrastructures for teaching and research in this field will be created for our ‘Food and Beverage Innovation’ topics. Starting in 2023, we will train our students in food technology in a unique environment and also inspire our research partners and clients with our top infrastructure.



Prof. Dr. Urs Hilber
Dean

Learn more about us.

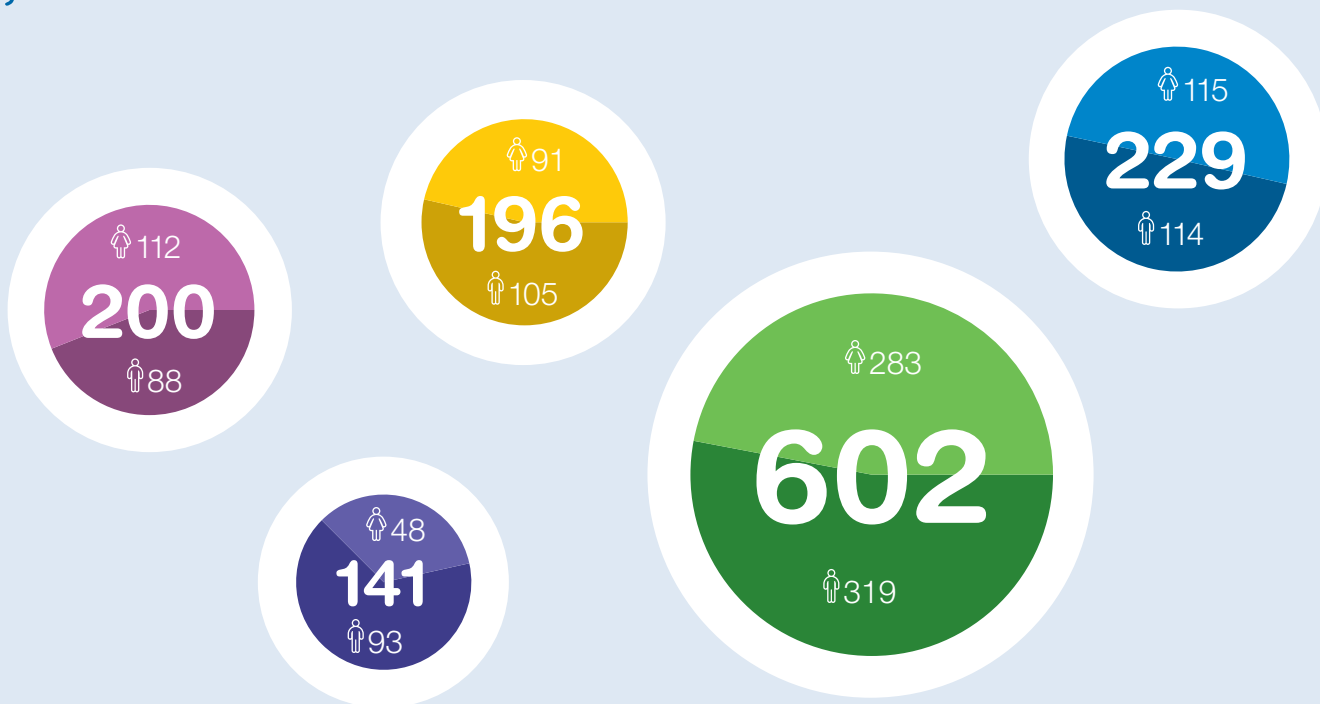
Simply scan the QR code and off you go!



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

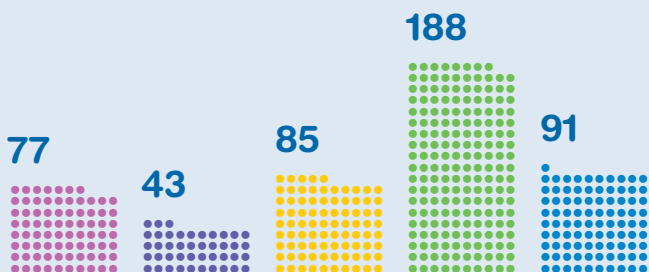
Bachelor's degree programme 2018

1,368 Students



Life Sciences and Facility Management

484 Admissions



Life Sciences and Facility Management

Graduates



Biotechnology **50**
 Chemistry **39**
 Food Technology **45**
 Natural Resource Sciences **100**
 Facility Management **53**

Biotechnology
 Chemistry
 Food Technology
 Natural Resource Sciences
 Facility Management

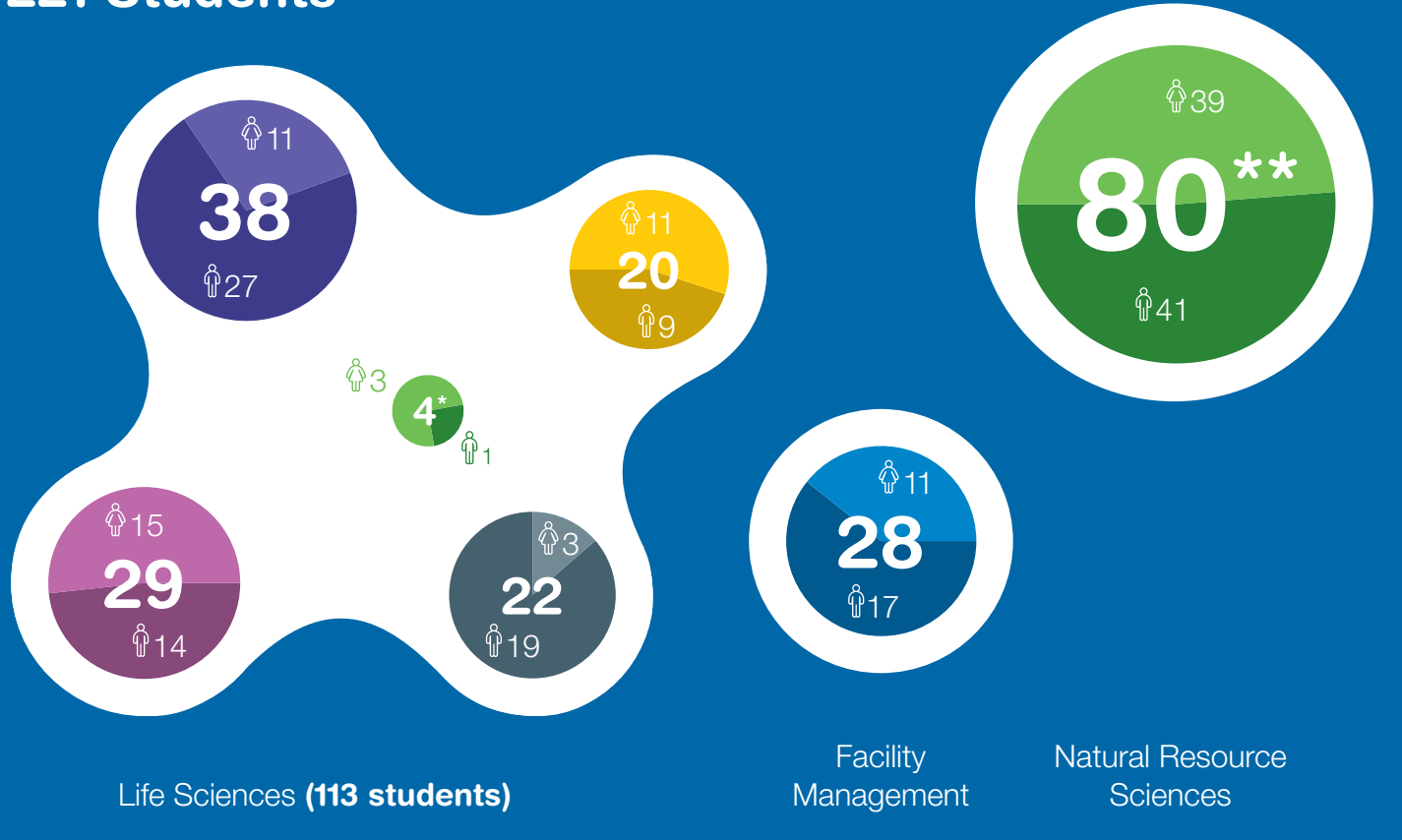
Status as of 15.10.2018 based on SBFI report
 Number of students

Master's degree programme 2018

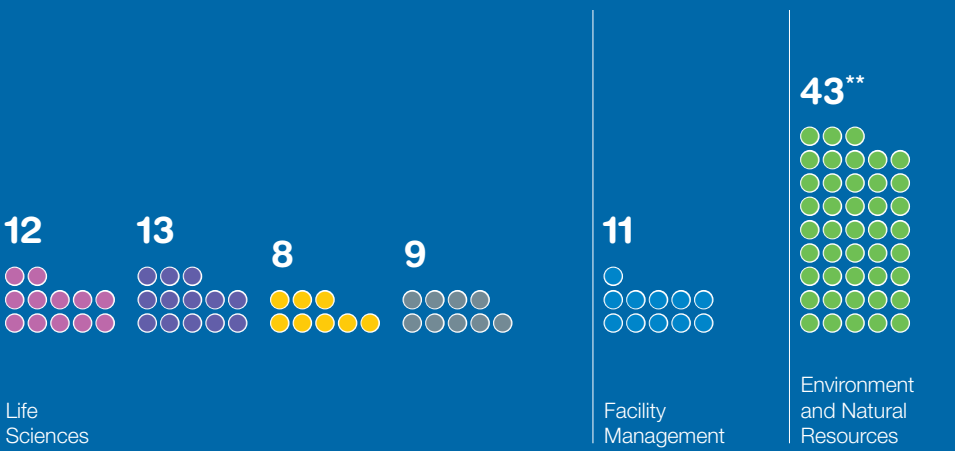
+ Learn more about our study programmes.



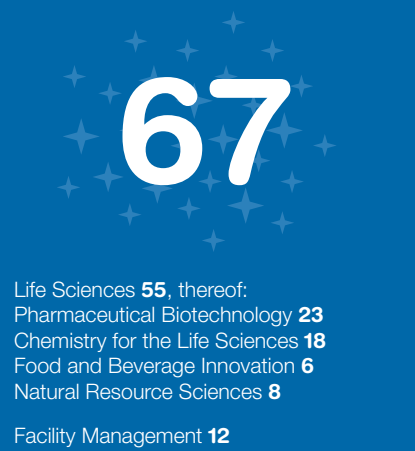
221 Students



96 Admissions



Graduates



Master of Science ZFH in Life Sciences with specialisations in:

- Pharmaceutical Biotechnology
- Chemistry for the Life Sciences
- Food and Beverage Innovation
- Natural Resource Sciences (until 2017)
- Applied Computational Life Sciences

Master of Science ZFH in Facility Management

- Facility Management

Master of Science ZFH in Environment and Natural Resources

- Environment and Natural Resources (new from 2017)

Status as of 15.10.2018 based on SBF1 report Number of students

Continuing education, courses and conferences

2018

Programmes

The extensive range of continuing education programmes offered at the Wädenswil and Zurich locations include international conferences, various further education courses (WBK), certificate and diploma courses (CAS, DAS) and postgraduate courses over several semesters (MAS). The continuing education programme is aimed at those who have completed a university education, are already working and would like to expand upon or deepen their specialist knowledge.

Qualifications

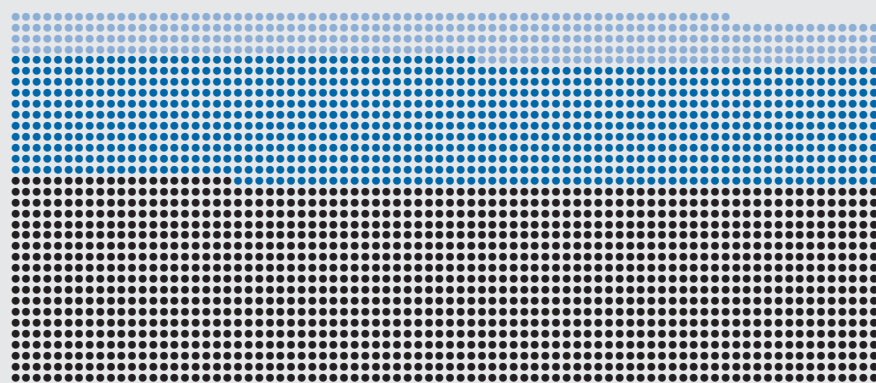
MAS: Comprising 60 credits, the Master of Advanced Studies (MAS) is the most comprehensive of our continuing education programmes. The programme is part-time, mostly modular in structure and takes place over several semesters. Consisting of a number of partial qualifications, it is completed with a Master's thesis.

DAS: The Diploma of Advanced Studies (DAS) comprises 30 credits. It provides in-depth further training in a specific professional field.

CAS: The Certificate of Advanced Studies (CAS) is an independent qualification with 10–15 credits, which can also form part of an MAS or DAS.

Participants
in the continuing education events

2,774



MAS, DAS, CAS **352**
Continuing education courses **925**
Symposia **1,497**

Number of continuing
education events

79

Status as of 31.12.2018



Business & Organization
Kotler/Armstrong Strategic Maps

Research and Development Competencies



The disciplinary expertise in each of our five institutes constitutes a solid basis for providing expert solutions to the problems our partners and customers may present. We carry out projects and assignments with a practically-oriented and creative approach. Whether as part of a specific Bachelor's thesis or as an interdisciplinary research project over several years, we welcome the opportunity to support you.

■ Research focal points at the Institute of Applied Simulation

- Complex biosystems
- Computational life sciences
- Predictive & bio-inspired modelling

■ Research focal points at the Institute of Chemistry and Biotechnology

- Analytical and physical chemistry
- Biochemistry, micro- and molecular biology, protein technology and bioanalytics
- Cell biology und tissue engineering
- Chemical and biological processes and plants
- Chemistry and new materials
- Pharmaceutical drug research and drug development

■ Research focal points at the Institute of Facility Management

- Business Skills in FM
- Hospitality and Service Management
- Real Estate Management
- Strategic Facility Management

■ Research focal points at the Institute of Food and Beverage Innovation

- Beverage technology and flavour research
- Consumer behaviour and consumer diet
- Food technology and packaging
- Food quality and safety, and quality management

■ Research focal points at the Institute of Natural Resource Sciences

- Ecotechnologies and energy systems
- Integrative ecology
- Organic agriculture
- Sustainability transformation
- Tourism and sustainable development
- Urban ecosystems

Publications

Extracts from 2018

+ Learn more about

our research and
development.



Scientific publications are an important element in the transfer of knowledge between research and practice. A selection of key publications from 2018 is presented below. A complete list of all publications from the School of Life Sciences and Facility Management can be found at

www.zhaw.ch/lsfm/research.

IAS

Garcia, V., Zoller, St., Anisimova, M.

Accounting for programmed ribosomal frame-shifting in the computation of codon usage bias indices. *Genetics Society of America. G3: Genes, Genomes, Genetics*. doi 10.1534/g3.118.200185|10.21256/zhaw-4732.

Detmer, F., Fajardo, D., Mut, F., **Juchler, N., Hirsch, S.,** Pereira, V., Bijlenga, P., Cebal, J. External validation of cerebral aneurysm rupture probability model with data from two patient cohorts. *Acta Neurochirurgica*. doi 10.1007/s00701-018-3712-8.

Mattle-Greminger, M., Bilgin Sonay, T., Nater, A., Pybus, M., Desai, T., de Valles, G., Casals, F., Scally, A., Bertranpetit, J., Marques-Bonet, T., van Schaik, C., **Anisimova, M.,** Krützen, M. Genomes reveal marked differences in the adaptive evolution between orangutan species. *BioMed Central. Genome Biology*. doi 10.1186/s13059-018-1562-6|10.21256/zhaw-4776.

ICBT

Kang, C., Honciuc, A. Influence of geometries on the assembly of snowman-shaped Janus nanoparticles. *American Chemical Society. ACS Nano*. doi 10.1021/acsnano.8b00960|10.21256/zhaw-3591.

Ughetti, M., **Jussen, D., Riedlberger, P.** The ejector loop reactor: application for microbial fermentation and comparison with a stirred-tank bioreactor. *Wiley. Engineering in Life Sciences*. doi 10.1002/elsc.201700141.

Zucchetto, N., Brühwiler, D. Strategies for localizing multiple functional groups in mesoporous silica particles through a one-pot synthesis. *American Chemical Society. Chemistry of Materials*. doi 10.1021/acs.chemmater.8b03603.

IFM

Janser, M., Hubbuch, M. Explaining the energy performance gap in professionally managed buildings. In Hackenfort, M., Carabias-Hütter, V., Hartmann, C., Janser, M., Schwarz, N., Stücheli-Herlach, P. (Eds). *BEHAVE 2018. 5th European Conference on Behaviour and Energy Efficiency. Book of Abstracts* (pp. 172-173). doi 10.21256/zhaw-1370.

Schmitter, P., Kofler, A. FM services get digital: key prerequisites to integrate intelligent personal assistants in Swiss hospitals. *Research Papers for the 17th EuroFM Research Symposium EFMC 2018*. ISBN 978-94-90694-09-8.

Ashworth, S., Meslec, M., Druhmman, C. Integrating life cycle sustainability analysis with BIM. *Research papers for the 17th EuroFM Research Symposium EFMC 2018*. ISBN 978-94-90694-09-8.

ILGI

Yildirim, S., Röcker, B. Active packaging. Elsevier. *Nanomaterials for Food Packaging: Materials, Processing Technologies, and Safety Issues*. doi 10.1016/B978-0-323-51271-8.00007-3.

Romanens, E., Freimüller Leischfeld, S., Volland, A., Stevens, M., Krähenmann, U., Isele, D., **Fischer, B.,** Meile, L., **Miescher Schwenninger, S.** Screening of lactic acid bacteria and yeast strains to select adapted anti-fungal co-cultures for cocoa bean fermentation. Elsevier. *International Journal of Food Microbiology*. doi 10.1016/j.ijfoodmicro.2018.10.001.

Pedan, V., Rohn, S., Holinger, M., **Hühn, T., Chetschik, I.** Bioactive compound fingerprint analysis of aged raw pu-erh tea and young ripened pu-erh tea. *MDPI. Molecules*. doi 10.3390/molecules23081931|10.21256/zhaw-3963.

IUNR

Bättig-Frey, P., Jäger, M., Treichler Bratschi, R. Combining art with science to go beyond scientific facts in a narrative environment. Taylor & Francis. *Journal of Museum Education*. doi 10.1080/10598650.2018.1523624.

Dengler, J., Wagner V., Dembicz, I., García-Mijangos, I., Naqinezhad, A., Boch, S., Chiarucci, A., Conradi, T., Filibeck, G., Guarino, R., (...) & Biurrun, I. 2018. *GrassPlot – a database of multi-scale plant diversity in Palaeartic grasslands*. *Phytocoenologia* 48: 331-347.

Egloff, S., Pietsch-Schmied, C. Ethoxyquin: a feed additive that poses a risk for aquatic life. *Inter-Research. Diseases of aquatic organisms*. doi 10.3354/dao03279|10.21256/zhaw-3408.

Finances

2018



In April 2018, the Cantonal Council took a far-reaching decision regarding the training of future experts and the implementation of research projects: a new, technically state-of-the-art building for food and beverage technology is to be erected on the Reidbach campus by 2023. We are greatly looking forward to this.

Stable student situation

As has been the case in previous years, the number of Bachelor students enrolled remained virtually constant at a high level (1,368 in 2018, 1,360 in 2017). The number of Master's students rose slightly by 10 to 221 in 2018. In the future, we plan to orientate ourselves with even greater emphasis on the needs of Generation Y and Z, whose attitudes are characterised by volatility, uncertainty, complexity and ambivalence. 65 per cent of the jobs in which Generation Z will work do not yet exist. Preparing them for this is a major challenge.

Significant growth in research

Research and development performed extremely well. Our researchers generated almost CHF 22 million in 2018, which is CHF 3,7 million more than in the previous year. This shows that our research has its finger on the pulse of today's world and responds to practical needs, a fact of which we are extremely proud. At around CHF 2,1 million, revenues from services were slightly below the previous year's level (CHF 2,4 million).

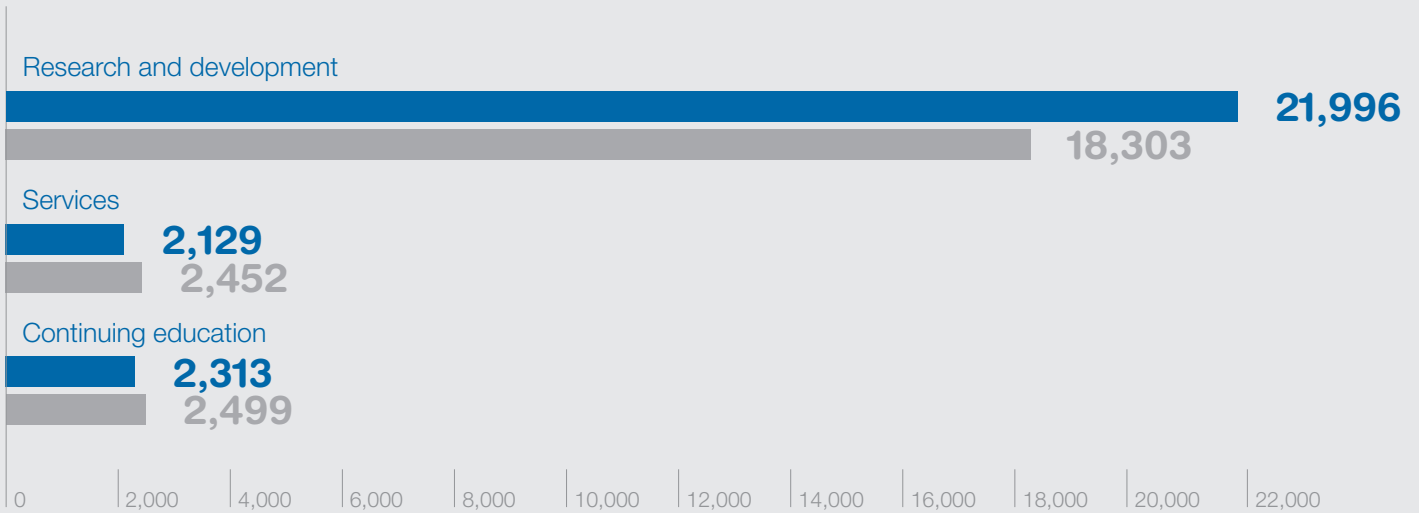
Qualified personnel

More than 3,000 qualified and motivated people from 56 nations work at the ZHAW. They greatly value the stimulating working environment and the creative freedom at our university. With 614 people (469 full-time positions), the ZHAW in Wädenswil is the largest employer and therefore of great importance for the Zurich Park Side region. We are pleased to once again report a very balanced gender distribution (311 women and 303 men).

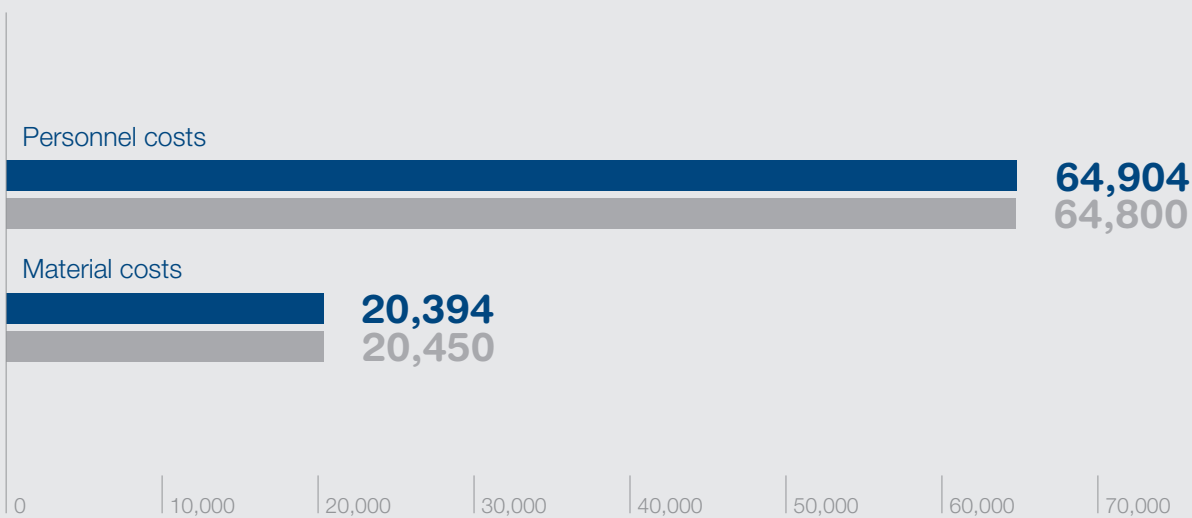
Motivated for the future

Our school's economic and financial situation is stable. We are facing the future with practical relevance, creativity, passion and the ability to reflect, and are delighted to be able to make an important contribution to the further development of our country through education and research. We greatly appreciate the trust that we receive from private companies, public institutions and our sponsoring canton. This motivates us even more for the future.

Revenue from the performance areas of research and development, services and continuing education



Costs for all performance areas (studies, research and development, services, continuing education)



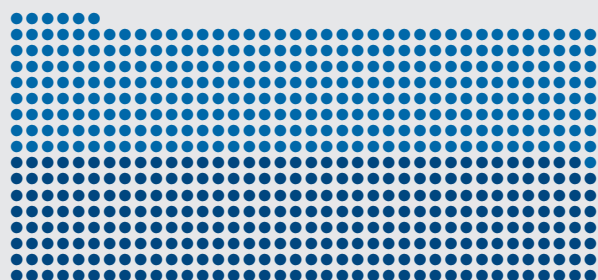
■ 2018
■ 2017

Revenue not including contributions from the Canton of Zurich.
All amounts are given in 1,000 CHF.

Employees

School of LSFM

Personnel



♀ 311 · ♂ 303

614

Full-time equivalents

469

Employees by organisational unit



Employees by category



Status as of 31.12.2018

Foundations and boards

Foundations

The School of Life Sciences und Facility Management (LSFM) supports various foundations, primarily technically and with personnel, and thanks to this commitment, also benefits financially. The LSFM is represented in the following foundations:

Stiftung Technische Obstverwertung, Wädenswil

- Prof. Dr. Urs Hilber, Dean of ZHAW LSFM

Stiftung Gartenbau, Wädenswil

- Prof. Dr. Rolf Krebs, Director of the Institute of Natural Resource Sciences, ZHAW

grow, Wädenswil start-up organisation

- Prof. Dr. Urs Hilber, Dean of ZHAW LSFM (on the board of trustees)
- Dr. Jos Hehli, Head of strategic projects and international relations, ZHAW LSFM (on the board of trustees)
- Catherine Kroll, Director of the Technology Transfer Office, ZHAW LSFM (senior management)

Alumni organisations

Representatives of the School of Life Sciences und Facility Management:

Alumni ZHAW Facility Management

- Prof. Dr.-Ing. Antje Junghans, Director of the Institute of Facility Management, ZHAW (member)
- Simon Ashworth, Research Associate, Institute of Facility Management, ZHAW (member of the board)

Alumni ZHAW Life Sciences

- Prof. Dr. Daniel Baumann, Head of Education, Research and Resources, ZHAW LSFM

Alumni Netzwerk Wädenswil

- Prof. Dr. Daniel Baumann, Head of Education, Research and Resources, ZHAW LSFM

Advisory boards

To ensure the long-term practical relevance and quality of education, as well as applied research and development, numerous representatives of business and professional organisations support our institutes in an advisory capacity.

■ Advisory board of the Institute of Chemistry and Biotechnology

- Prof. Dieter Beckmann, Institute for Bio-processing and Analytical Measurement Techniques
- Dr. Gunter Festel, Owner of FESTEEL CAPITAL
- Prof. Dr. Christian Hinderling, Director of the ZHAW Institute of Chemistry and Biotechnology
- Dr. Erich Hochuli, formerly of F. Hoffmann-La Roche Ltd.
- Eva-Maria Kupsch, Dow Europe GmbH
- Dr. Jan Lucht, scienceindustries, Chemistry Pharma Biotech Business Association
- Dr. Ferruccio Messi, Cell Culture Technologies LLC
- Dr. Hans-Peter Meyer, University of Applied Sciences Western Switzerland
- Dr. Thomas Münch, Givaudan Schweiz AG
- Dr. Martin Riediker
- Dr. Philippe Steiert, CSEM, Swiss Center for Electronics and Microtechnology
- Markus Tanner, Werthenstein Biopharma GmbH
- Dr. Pius Waldmeier, Head of Synthesis & Process Research Group, F. Hoffmann-La Roche Ltd.
- Dr. Roland Wohlgermuth, Sigma-Aldrich Chemie GmbH

■ Advisory board of the Institute of Facility Management

- Ricarda Berg, CEO, Sauter FM GmbH
- Michael Bürki, Head of IMS Clean, Post Real Estate Management and Services Ltd
- Astrid Furrer, Co-President of the Social Conference of the Canton of Zurich
- Renate Gröger, Director of Operations, University Hospital Zurich

- Prof. Dr. Tore Haugen, Norwegian University of Science (TNU)
- Prof. Dr.-Ing. Antje Junghans, Director of the ZHAW Institute of Facility Management
- Wolfgang Stiebellehner, Head of Property Management, Livit Ltd
- Dr. Jürg Werner, CEO, Metall Zug AG
- Daniel Zbinden, CKW Conex AG, Luzern

■ Advisory board of the Institute of Food and Beverage Innovation

- Dr. Michael Beer, Vice Director, Head of Food and Nutrition, Federal Office of Public Health
- Dr. Thomas Büeler, Head Innovation & Process Intelligence, Emmi Management AG
- Prof. Michael Kleinert, Director of the ZHAW Institute of Food and Beverage Innovation
- Cédric Ochsner, Head of Operations, Member of the Executive Board, Midor AG
- Andreas Schwab, Head of Production, Member of the Executive Board, Le Patron Orior Menu AG
- Prof. Dr. Erich Windhab, Professor of Food Process Engineering, ETH Zürich

■ Advisory board of the Institute of Natural Resource Sciences

- Prof. Jean-Bernard Bächtiger, former Director of the ZHAW Institute of Natural Resource Sciences
- Ursin Ginsig, Managing Director of Eberhard Recycling AG
- Christian Guggisberg, Managing Director, Gastro Star AG
- Karin Hindenlang, Managing Director, Wildnispark Zürich
- Prof. Dr. Rolf Krebs, Director of the ZHAW Institute of Natural Resource Sciences
- Dr. Tove Larsen, Member of the Board of Directors, EAWAG
- Dr. Dr. h.c. Raimund Rodewald, Managing Director, Swiss Foundation for Landscape Conservation
- Dr. Matthias Stolze, Member of the Executive Board, Research Institute of Organic Agriculture (FiBL)

The ZHAW in Wädenswil

The ZHAW at a glance

Eight specialist schools are united under the umbrella of the Zurich University of Applied Sciences (ZHAW). With annual figures of more than 13,000 students in 28 Bachelor and 18 Master's study programmes, in addition to around 7,500 participants in continuing education, the ZHAW is one of the leading universities of applied sciences in Switzerland. All of our locations – Wädenswil, Winterthur and Zurich – lie within the economically strong Greater Zurich Area. They offer a high quality of life for both study and work, and are easily accessible by public transport.

www.zhaw.ch

Attractive Campuses and locations

The Grüental and Reidbach campuses in Wädenswil, which include the RA building on the Seestrasse, are situated in a beautiful location on the western bank of Lake Zurich. The green spaces around the Grüental campus not only serve as learning and research sites, but also inspire the broader public with their extensive collection of plants.

In the immediate vicinity of the train station Wädenswil and the ZHAW campuses, a new building for student accommodation is currently being constructed. This should be ready for occupancy in autumn 2021. By 2023, the Reidbach campus will be home to a unique, state-of-the-art centre of food and beverage technology. In this new building, teaching and research will merge into a single entity and it will be possible to comprehend and work on all of the processes in the food industry in one place.

The continuing education courses of the Institute of Facility Management take place at a central location in Zurich. The research group 'Tourism and Sustainable Development' is right at the forefront at the Center da Capricorns in Wergenstein, Graubünden.

Local and regional roots

Wädenswil has established itself as an education and research town, and actively supports the ZHAW. The ZHAW's networking with regional science and industry is also reflected in its long-standing and close cooperation with the University of Zurich, the ETH Zurich and Zurich Park Side, the regional development organisation, as well as with Agroscope.

International orientation

ZHAW students have the opportunity to spend a semester abroad so that they can be well-prepared for international competition in their future careers. In addition, many of the institutes' research projects and specialist conferences at the LSFM, as well as their Summer and Winter Schools, are internationally-orientated. The specialised foci of these events bring scientists and students from around the world to Wädenswil.

Promotion of entrepreneurship

Together with other initiators, the ZHAW is actively involved in the Wädenswil start-up organisation 'grow'. Advice, inexpensive rooms and the immediate proximity to the university facilitate the step into self-employment. In this way, students later become entrepreneurs and ideas turn into concrete products. grow currently includes 22 organisations with 105 employees. With the programme entrepreneurship @zhaw, the university also provides a start-up and advice centre for employees interested in founding their own company.



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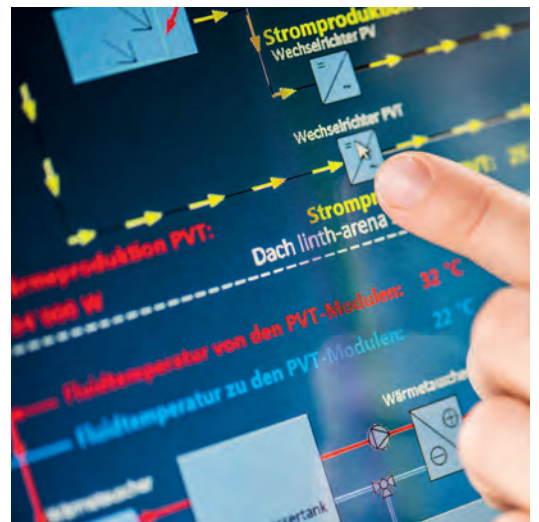
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3



4



1 Campus Grüental, Wädenswil
2 Campus Reidbach, Wädenswil
3 RA building, Wädenswil
4 Center da Capricorns, Wergenstein/GR

Studying and researching in Wädenswil: practically-oriented, creative, passionate and reflective

The ZHAW is one of the leading Swiss universities of applied sciences. The School of Life Sciences and Facility Management currently has around 1,500 students and employs more than 600 people. The educational programme comprises five Bachelor's and three Master's degree programmes as well as a broad range of further training and education courses.

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



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

ZHAW Campus Reidbach / Einsiedlerstrasse

ZHAW Campus Reidbach / Seestrasse

ZHAW Campus Grüental

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Pay us a visit!



bilden und forschen
wädenswil