



Life Sciences and Facility Management

TRANSPARENCY

2020 edition

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

Management and organisation

School of Life Sciences and Facility Management



Photo: Frank Brüdert

School management:

from left: Margrit Büeler, Diyana Petrova, Antje Junghans, Urs Hilber, Karin Altermatt, Rolf Krebs, Christian Hinderling, Michael Kleinert

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, deputy Dean
- Institute of Natural Resource Sciences
Director: Prof. Dr. Rolf Krebs

Management, Education, Research and Resources:

Prof. Dr. Urs Hilber, Dean of ZHAW LSFM
Margrit Büeler, Assistant to the Dean
Dr. Diyana Petrova, Head of Education, Research and Resources

Master today's challenges and be fit for the future

Dear reader,

At the time of writing, we are in the midst of dealing with the "Corona crisis". Our classrooms, research laboratories and gardens are deserted. Our employees are now working from home and the students are learning online – and this almost from one day to the next. The "LSFM goes online" task force, set up on an ad hoc basis, provided valuable support during the transition to online teaching. Thanks to a high level of commitment and great effort on the part of everyone involved, we were able to switch almost all of the lessons to online within a very short time. The corona crisis has also meant that digitisation has experienced a huge boost – I also call it the digital transplosion (an explosive transformation).

Future skills

We started "Digital Transformation@LSFM" as an initiative in 2018 and the interdisciplinary team has achieved a great deal. The future skills (as exemplified below) were discussed in qualitative interviews and workshops with representatives from business, ZHAW LSFM alumni, students, lecturers and thought leaders. When asking what skills graduates will need in the future to be fit for the job market, seven skills have emerged: digital literacy, collaboration, navigating complexity, creativity, critical questioning, self-directed learning and self-leadership. These topics are now being worked on in Design Thinking workshops.

Future topics

In addition to the "Digital Transformation@LSFM" topic platform, enormous progress has also been made in the other three strategic fields of "Environment", "Food" and "Health". The newly founded "Health Research Hub@LSFM" connects research groups within the ZHAW and promotes their cooperation. With a network surrounding health-related research, the "Digital Health Lab Day" conference was created.

In 2019, a website was constructed on the topic of "Agro-Food Business", where the prospects of future intra- or entrepreneurs will be explored with interested co-creators. New educational programmes are planned to make the agro-food sector more sustainable. The "Environment@LSFM" topic platform is divided into two areas. First, "BioMat@LSFM", where the aim is to replace petrochemical materials with bio-material and thus solve environmental problems. Second, "Sustainable Campus Living Lab@LSFM", where we want to further develop the unique Wädenswil campus as a Living Lab. Here, we pursue topics such as circular economy, biodiversity, life cycle management, smart cities and facilities & services.

The Future of Food

In 2019, excavation began for the new "Future of Food" building on the Reidbach campus. Over the next four years, one of the most modern teaching and research infrastructures will be built on seven floors for the "Food and Beverage Innovation" area. The move is planned for 2023. In the "Future of Food" building, the entire food value chain comes into play. This will enable us to provide our research partners and our food technology students with a unique, top-level infrastructure.



Prof. Dr. Urs Hilber
Dean

Learn more about us.

Simply scan the QR code and off you go!

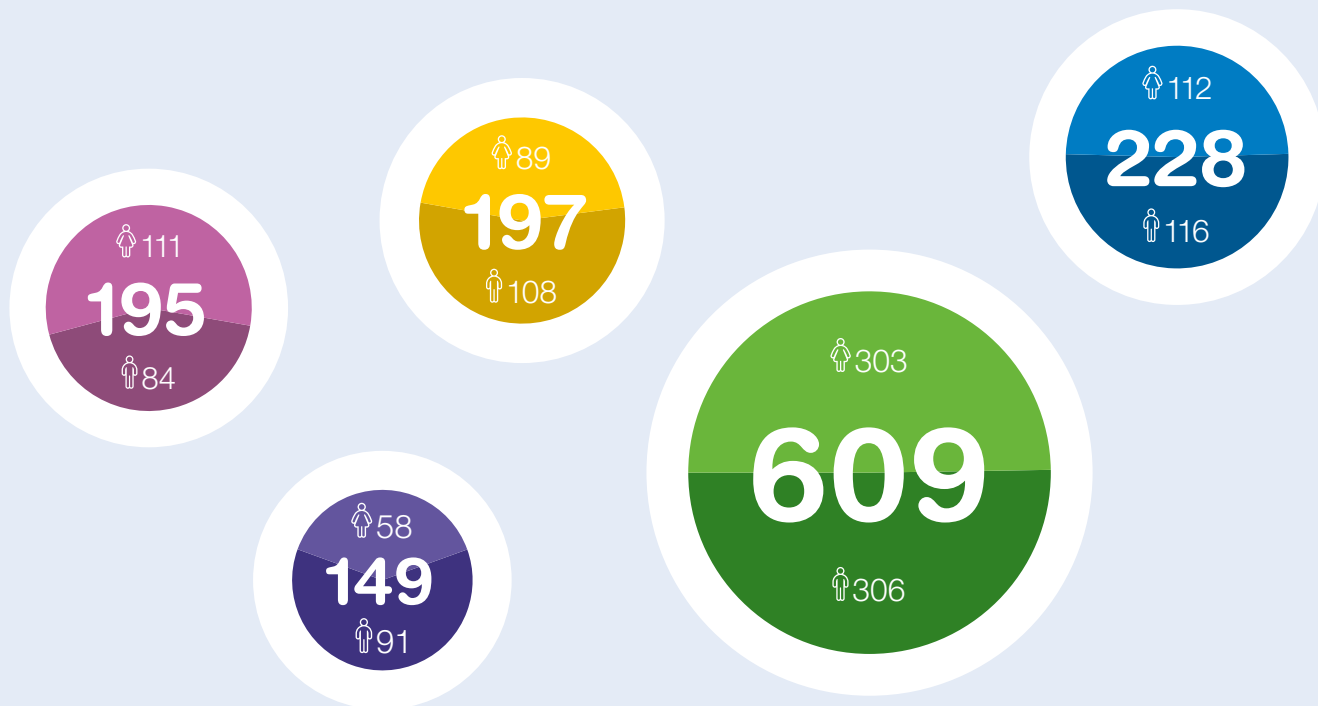


Environment | Food | Health | Society
Our competencies in Life Sciences
and Facility Management.

Bachelor's degree programme

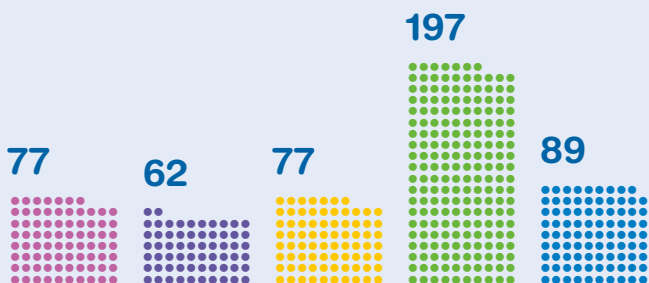
2019

1378 Students



Life Sciences and Facility Management

502 Admissions



Life Sciences and Facility Management

Graduates



Biotechnology **55**
 Chemistry **34**
 Food Technology **45**
 Natural Resource Sciences **146**
 Facility Management **67**

Biotechnology
 Chemistry
 Food Technology
 Natural Resource Sciences
 Facility Management

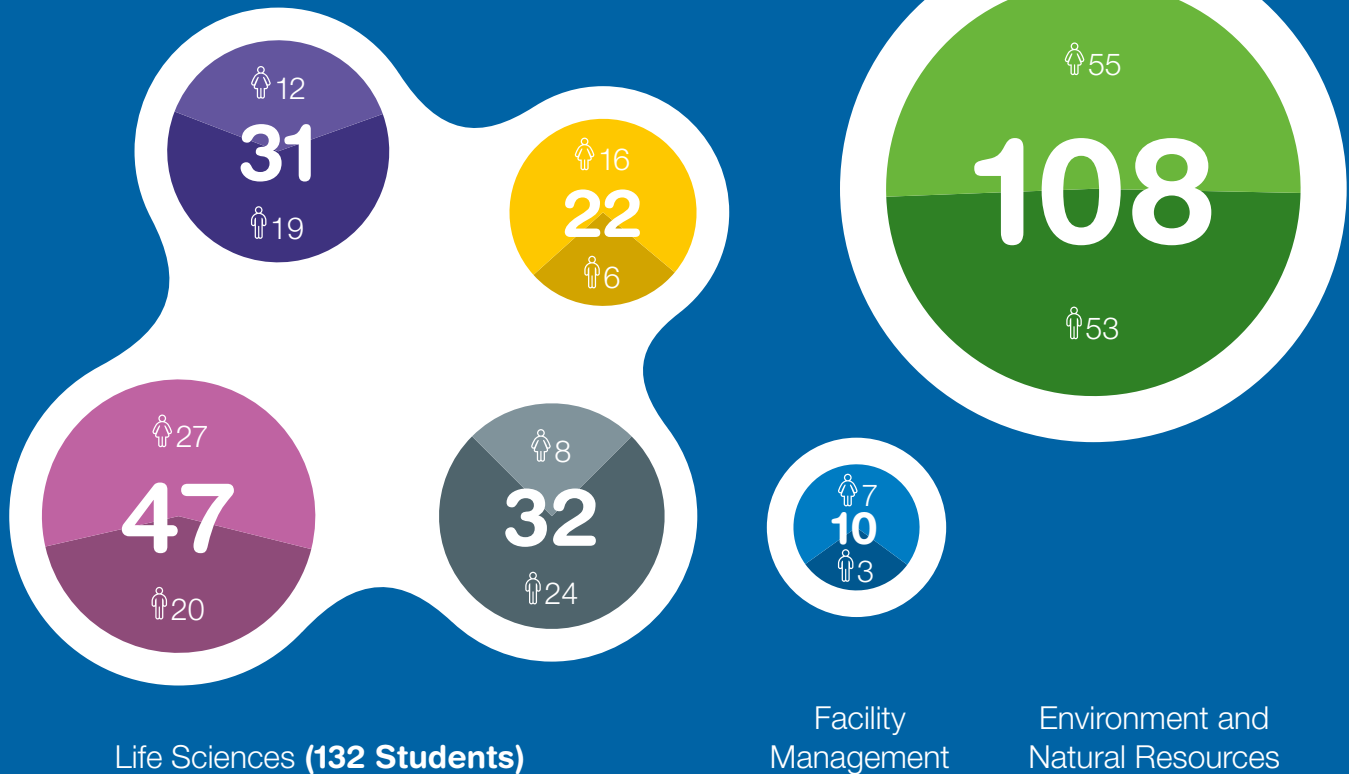
Status as of 15.10.2019 based on SBFI report
 Number of students

Master's degree programme 2019

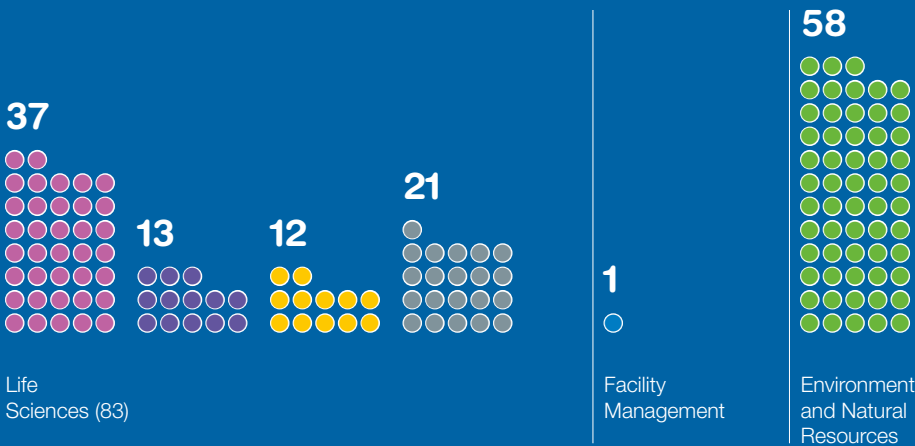
+ Learn more about our study programmes.



250 Students



142 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 15.10.2019 based on SBF1 report Number of students

Continuing education, courses and conferences

2019

Programmes

The extensive range of continuing education programmes offered at the Wädenswil and Zurich locations include international conferences, various further education courses, 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

3222



MAS, DAS, CAS **407**
Continuing education courses **1041**
Symposia **1774**

Number of continuing
education events

82

Status as of 31.12.2019

Photograph on right: Moss wall in one of the classrooms:
Part of the Biophilia Living Lab in the ZHAW's RA building



Research and Development Competencies



Photo: Frank Bröderli

Plant used in Beverage Technology

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 and bio-inspired modelling

■ Research focal points at the Institute of Chemistry and Biotechnology

- Analytical and physical chemistry
- Biochemistry, micro- and molecular biology, tissue engineering and bioanalytics
- Cell biology and tissue engineering
- Chemical and biotechnological 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
- Strategies in FM

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

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

■ Research focal points at the Institute of Natural Resource Sciences

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

Publications

Extracts from 2019

+ 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 2019 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/lsvm/research.

IAS

Ott, T., Glüge, S., Bödi, R., Kauf, P.

Economic measures of forecast accuracy for demand planning: a case-based discussion. Applied data science: lessons learned for the data-driven business. <https://digitalcollection.zhaw.ch/handle/11475/17378>

Anisimova, M. Evolutionary genomics: statistical and computational methods. New York: Humana. Methods in Molecular Biology. <https://digitalcollection.zhaw.ch/handle/11475/19481>

Juchler, N., Schilling, S., Bijlenga, P., Rüfenacht, D., Kurtcuoglu, V., **Hirsch, S.** Understanding morphological irregularity: a raster-based study. Tagungsband CMBE19 Proceedings. <https://digitalcollection.zhaw.ch/handle/11475/18566>

ICBT

Hayashi, T., Ligibel, M., Sager, E., **Voss, M.,** Hunziker, J., Schroer, K., Snajdrova, R., **Buller, R.** Evolved aliphatic halogenases enable regiocomplementary C-H functionalization of an added-value chemical. *Angewandte Chemie: International Edition*. <https://digitalcollection.zhaw.ch/handle/11475/18903>

Gall, F.M., Hohl, D., **Frasson, D., Wermelinger, T.,** Mittel, P.R., **Sievers, M., Riedl, R.** Drug Design Inspired by Nature: Crystallographic Detection of an Auto-Tailored Protease Inhibitor Template. *Angewandte Chemie: International Edition*, 2019, 58 (12), 4051-4055. <https://onlinelibrary.wiley.com/doi/full/10.1002/anie.201812348>

David, R., Marcolli, C., **Fahrni, J.,** Qiu, Y., Perez Sirkin, Y., Molinero, V., Mahrt, F., **Brühwiler, D.,** Lohmann, U., Kanji, Z. Pore condensation and freezing is responsible for ice formation below water saturation for porous particles. *Proceedings of the National Academy of Sciences of the United States of America*. <https://digitalcollection.zhaw.ch/handle/11475/16910>

IFM

Schmitter, P., Kofler, A., Gerber, N., Hofer, S. Smart infrastructure – smart services: focus on non-medical support services in hospitals. Tagungsband Proceedings CIB World Building Congress. <https://digitalcollection.zhaw.ch/handle/11475/18843>

Asworth, S., Tucker, M., **Druhmann, C.** Critical success factors for facility management employer's information requirements (EIR) for BIM. *Facilities*. <https://digitalcollection.zhaw.ch/handle/11475/15233>

Weber, C. The meaning and measurement of privacy at work: development and evaluation of the privacy at work inventory (PAW). Tagungsband 19th EAWOP Congress. <https://digitalcollection.zhaw.ch/handle/11475/17386>

ILGI

Chetschik, I., Pedan, V., Chatelain, K., Kneubühl, M., Hühn, T. Characterization of the flavor properties of dark chocolates produced by a novel technological approach and comparison with traditionally produced dark chocolates. *Journal of Agricultural and Food Chemistry*. <https://digitalcollection.zhaw.ch/handle/11475/16605>

Kirchsteiger-Meier, E. Food regulations and enforcement in Switzerland. Reference module in food science. <https://digitalcollection.zhaw.ch/handle/11475/18786>

Sych, J., Kaelin, I., Gerlach, F., **Wrobel, A.,** Le, T., FitzGerald, R., Pestoni, G., Faeh, D., Krieger, J., Rohrmann, S. Intake of processed meat and association with sociodemographic and lifestyle factors in a representative sample of the Swiss population. *Nutrients*. <https://digitalcollection.zhaw.ch/handle/11475/18600>

IUNR

Ruinelli, M., Blom, J., **Smits, T., Pothier, J.** Comparative genomics and pathogenicity potential of members of the *Pseudomonas syringae* species complex on *Prunus* spp. *BMC Genomics*. <https://digitalcollection.zhaw.ch/handle/11475/16175>

Dengler, J., Widmer, S., Staubli, E., **Babbi, M., Gehler, J., Hepenstrick, D.,** Bergamini, A., **Billeter, R.,** Boch, S., **Rohrer, S., Dembicz, I.** Dry grasslands of the central valleys of the Alps from a European perspective: the example of Ausserberg (Valais, Switzerland). *Hacquetia*. <https://digitalcollection.zhaw.ch/handle/11475/17798>

Berger, V. Social norm-based gamification to promote eco-friendly food choice. *Journal of Consumer Marketing*. <https://digitalcollection.zhaw.ch/handle/11475/17195>

Finances

2019



Photo: Frank Brüderli

Extremely pleasing development among our Master's students

The number of Bachelor's students enrolled is growing moderately and is practically constant compared to the previous two years (1378 in 2019, 1368 in 2018). On the other hand, the development among master's students is very encouraging, the number of enrolled students having increased to 250 in 2019 (previous year: 221).

Research makes an important contribution

The Research and Development department at the School of LSFM is still on course for success. In 2019, our researchers generated close to CHF 24 million – almost CHF 1.9 million more than in the previous year. This proves that our research is clearly relevant and working on solutions that are in demand in the real world, and that we are making a contribution to the economy and to society as a whole.

And we're proud of this. At CHF 2.2 million, service revenues were slightly above the level of the previous year (2.1 million).

Balanced gender split, marginally more women

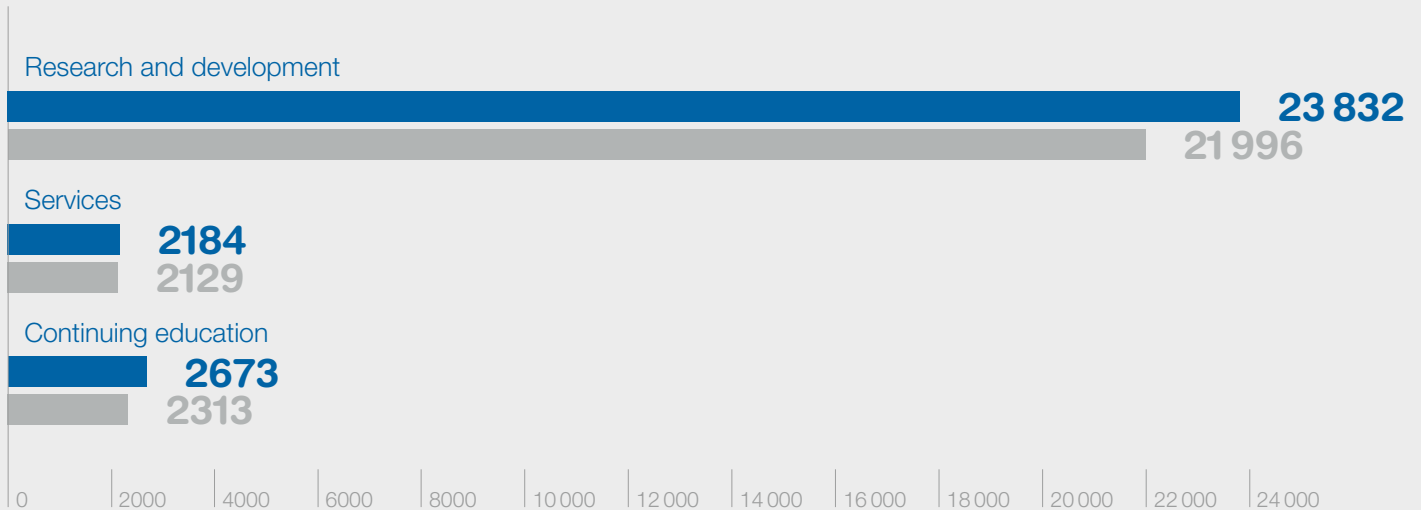
Around 3,300 qualified and motivated people work at the ZHAW, including 660 (509 full-time positions) at the School of Life Sciences and Facility Management LSFM in Wädenswil. This makes the ZHAW the largest employer in Wädenswil and it is also very important for the Zurich Park Side region. The gender distribution is balanced, with the proportion of women being marginally higher at 331 (men 329).

Positive in the future

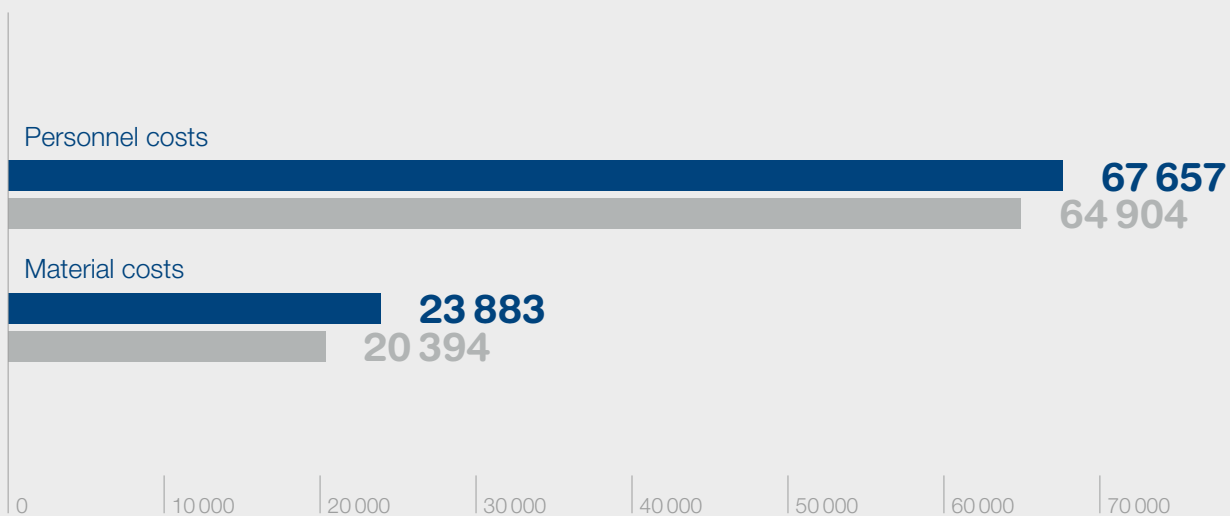
The consequences of the corona pandemic for our universities will become clear with the 2020 annual accounts and what follows thereafter. What is certain is that thanks to a digital "transposition", we have been able to design

"Studying and researching in Wädenswil: practical, creative, passionate and reflective" in an unexpected but future-oriented way. That makes us feel very positive about the future. In this way, digital learning opportunities will be developed further and inter-institutional co-operation will become even stronger. We very much appreciate the trust that we receive from our students, from private companies, public institutions and from our sponsoring cantons. This is very motivating.

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)



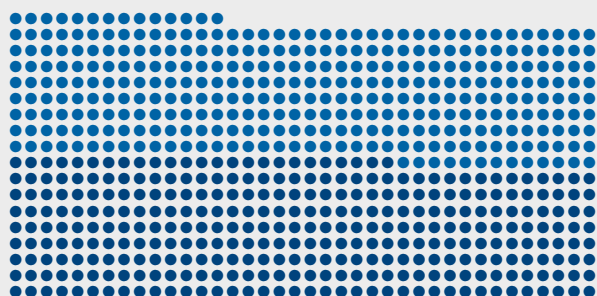
■ 2019
■ 2018

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

Employees

School of LSFM

Personnel



♀ 331 · ♂ 329

660

Full-time equivalents

506

Employees by organisational unit



Employees by category



Status as of 31.12.2019

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:

Foundation for the Technical Processing of Fruit, Wädenswil

- Prof. Dr. Urs Hilber, Director, ZHAW LSFM

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)
- Irene Arnold, Programme Director for Bachelor's degrees, Institute of Facility Management (Member of the Board)

Alumni ZHAW Life Sciences

- Dr. oec. Diyana Petrova, Head of Education, Research and Resources, ZHAW LSFM

Alumni Netzwerk Wädenswil

- Dr. oec. Diyana Petrova, 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 Bioprocessing and Analytical Measurement Techniques
- Dr. André T. Dahinden
- Dr. Gunter Festel, Owner of FESTEL CAPITAL
- Prof. Dr. Christian Hinderling, Director of the ZHAW ICBT
- 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
- Dr. Pius Waldmeier, Head of Synthesis & Process Research Group, F. Hoffmann-La Roche Ltd.
- Dr. Roland Wohlgemuth, Lodz University of Technology

■ Advisory board of the Institute of Facility Management

- Ricarda Berg, CEO, Sauter FM GmbH
- Michael Bürki, Head of CREM Services and Business Development at The Swiss Post
- 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 IFM
- 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
- Erland Brügger, CEO, Rivella AG
- Dr. Thomas Büeler, Head of Food Safety and Analytics, Hochdorf Swiss Nutrition Ltd.
- Prof. Michael Kleinert, Director of the ZHAW ILGI
- Cédric Ochsner, Head of Operations, Member of the Executive Board, Midor AG
- Nadja Nabholz, Owner, Nadja Nabholz Consulting
- Clemens Rüttimann, Managing Director, Biotta AG
- Peter Schmidheiny, Head of Innovations, Hilcona AG
- Andreas Schwab, Head of Production, Le Patron Orior Menu AG
- Thomas Truttmann, Managing Director, Compass Group (Schweiz) AG
- Susan Tschäppät, Head of Quality Management, Nestlé Suisse SA
- Prof. Dr. Erich Windhab, Professor of Food Process Engineering, ETH Zürich
- Othmar Wohlhauser, CTO, Wipf AG

■ Advisory board of the Institute of Natural Resource Sciences

- Prof. Jean-Bernard Bächtiger, former Director of the ZHAW IUNR
- 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 IUNR
- 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 almost 13,500 students in 28 Bachelor's and 18 Master's courses, in addition to around 8,800 participants in continuing education every year, the ZHAW is one of the leading universities of applied sciences in Switzerland. All of our locations – Wädenswil, Winterthur and Zurich – are located within the economically strong Greater Zurich Area. They offer a high quality of life for both work and study and are well served by public transport.

www.zhaw.ch

Attractive campuses and locations

The Grüental and Reidbach campuses in Wädenswil, which includes 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 serve not only as learning and research sites, but also inspire the general public with their extensive collection of plants.

In the immediate vicinity of the train station 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, a unique, state-of-the-art centre for food and beverage technology, currently under construction on the Reidbach campus, will have been completed. 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 under one roof.

The continuing education courses offered by the Institute of Facility Management take place at a central location in Zurich. The research group "Tourism and Sustainable Development" is leading the way 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 regional networking of science and industry is also evident in the ZHAW's long-standing and close cooperation with the University of Zurich and the ETH Zurich as well as with Zurich Park Side, the regional location promotion and Agroscope.

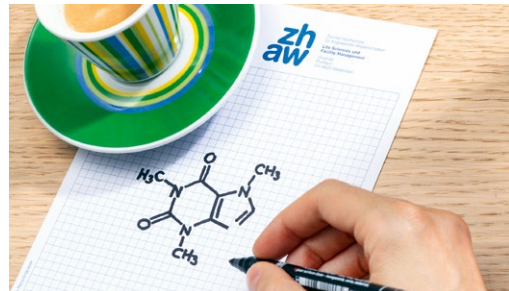
International orientation

ZHAW students have the opportunity to spend a semester abroad so that they are well prepared for international competition in their future careers. In addition, many of the Wädenswil institutes' research projects and specialist conferences, as well as their summer and winter schools, are also internationally-oriented. The specialised programmes of these events bring scientists and students from all over the world to Wädenswil.

Promotion of entrepreneurship

Together with other initiators, the ZHAW is actively involved with the Wädenswil start-up organization "grow". Advice, inexpensive rooms and the immediate proximity to the university facilitate the step into self-employment. In this way, ZHAW students later become entrepreneurs and ideas turn into concrete products. grow currently comprises 18 organisations with 105 employees.

Through the "entrepreneurship@zhaw" programme, the university also provides a point of contact and advice for employees interested in starting a business.



- 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

ZHAW Campus Reidbach / Einsiedlerstrasse
«The Future of Food» (under construction)

ZHAW Campus Reidbach / Seestrasse

ZHAW Campus Grüental



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

Contact details

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Pay us a visit!



bilden und forschen
wädenswil