



Life Sciences and Facility Management

TRANSPARENCY

2021 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. Antje Junghans
- Institute of Food and Beverage Innovation
Director: Prof. Michael Kleinert
- 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

Covid-19 pandemic and the numbers

Dear reader,

Biggest immediate challenge

We could scarcely have imagined that Covid-19 would become the biggest, most immediate global challenge facing our society, which is currently pushing all previous challenges, including climate change, into the background. The lockdown posed enormous challenges for universities as well, perhaps especially so. New tools, alternative forms of teaching and collaboration, previously only used exploratively by avant-gardists, suddenly became mainstream within a week. Change creates a lot of pressure. Because of Covid-19, we are experiencing a digital transformation under extreme time pressure and an enormous additional workload for students and employees. Thanks to the strategic initiative 'Digital-Transformation@LSFM', which we launched in 2019, we were not caught unprepared in March 2020 to accept the digital challenge and to deal with it constructively.

The right decision

The uncertainty among young people regarding their occupational future was particularly noticeable in 2020. What to do after completing their apprenticeship, or after finishing their baccalaureate? To start studying now, despite it taking place online, was a courageous and correct decision. A record 768 people decided to study at the ZHAW in Wädenswil. 662 students started in one of the five bachelor's courses, and another 146 in the two master's courses in Life Sciences, and in Environment and Natural Resources. Our Transversalis Department produced a publication entitled 'Zeitzeugnis' documenting how students and employees experienced this period.

Traces of Covid-19

The Corona year has left its mark on continuing education, which was to be expected, and our research and development success brought us great satisfaction. Researchers quickly learned to apply protection concepts professionally. It was possible to begin research quickly with the necessary caution, initially for projects directly related to Covid-19, and later for all other projects as well. We were thus able to achieve a result comparable to 2018. However, we just missed the top result from 2019, our most exceptional year, by around 10%.

Accelerating Innovation

In March 2021, the Zurich University of Applied Sciences Council (ZFH) approved the new bachelor's degree in Biomedical Laboratory Diagnostics as the first of several newly-planned degree programmes. The course, which is set to begin in the autumn semester 2022, combines high scientific and technical standards with the ways in which members of health professions think and act. It emerged from collaboration between the School of Life Sciences and Facility Management and the School of Health Professions. This bachelor's degree serves to close a gap in the Swiss education system and offers graduates of professional education and training colleges a further opportunity for development.

Full steam ahead!

After the foundation stone was laid for the new building at the Reidbach campus in January 2020, the seven-story building quickly shot up. The outer shell is now finished and work for the move in 2023 is on track. At the Future of Food campus, the entire food value chain will be united under one roof, where a top-level infrastructure is being created for our researchers, our research partners and our food technology students.

We look back on 2020 with humility. Employees and students, but also everyone who supported us during this extraordinary year, be it as research partners or as construction workers in the 'Future of Food' campus, colleagues from the ZHAW schools who develop new courses with us, and politicians who have made decisions which are important for us regarding Covid-19, but also with regard to our cantonal financing of teaching and research – our deep thanks go to all of them.



Prof. Dr. Urs Hilber
Dean

Learn more about us.

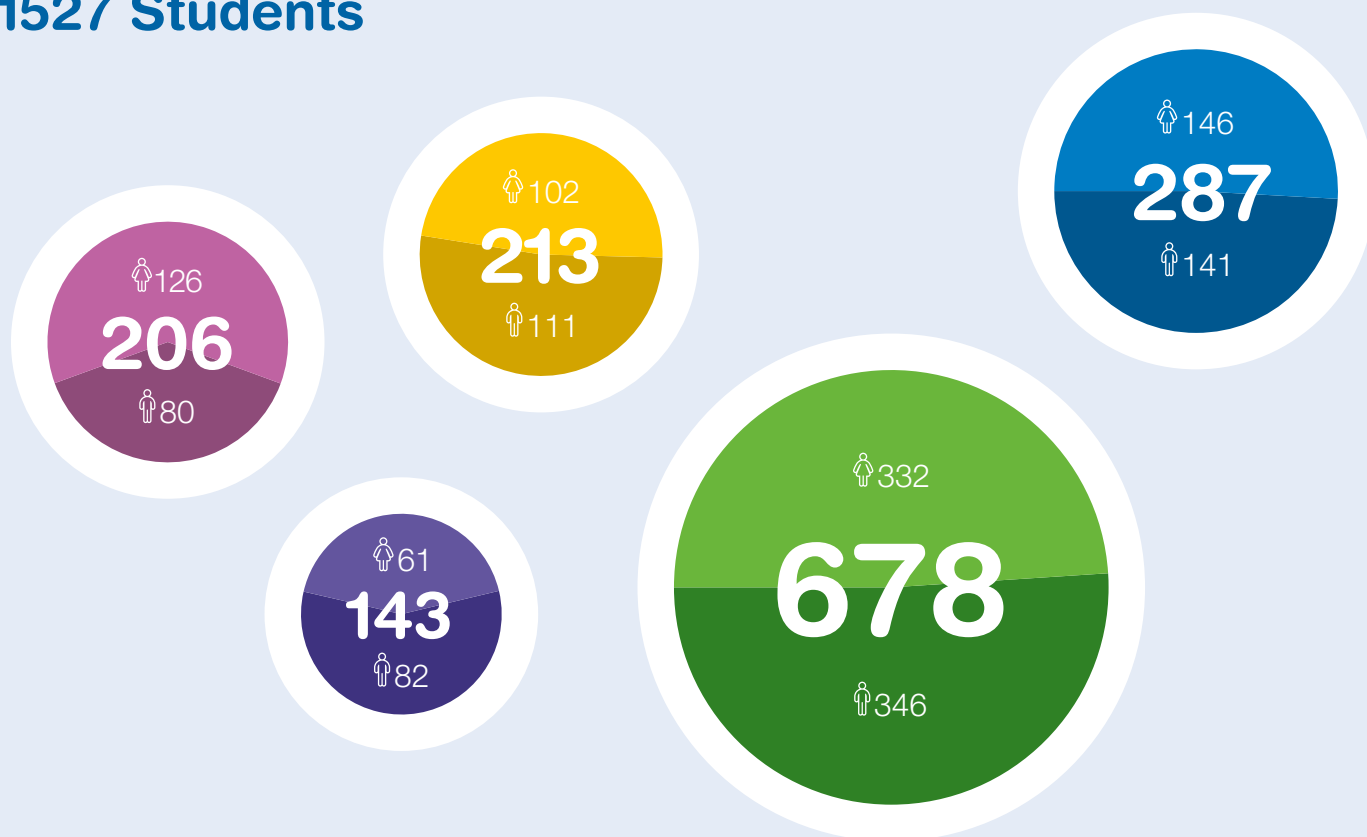
Simply scan the QR code and off you go!



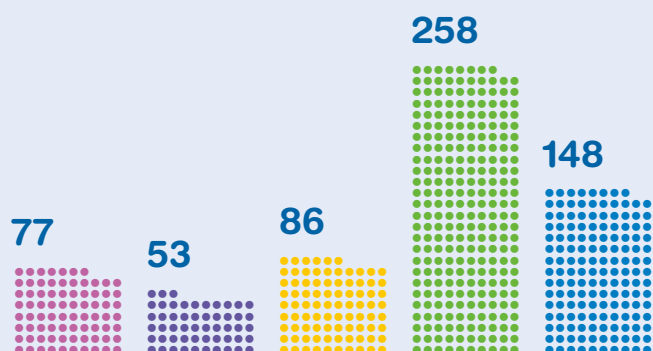
Environment | Food | Health | Society
Our competencies in Life Sciences
and Facility Management.

Bachelor's degree programme 2020

1527 Students



622 Admissions



Graduates

256

Biotechnology **42**
 Chemistry **30**
 Food Technology **53**
 Natural Resource Sciences **82**
 Facility Management **49**

Biotechnology
 Chemistry
 Food Technology
 Natural Resource Sciences
 Facility Management

Status as of 15.10.2020 based on SBFI report
 Number of students

Master's degree programme 2020

+ Learn more about

our study programmes.



310 Students

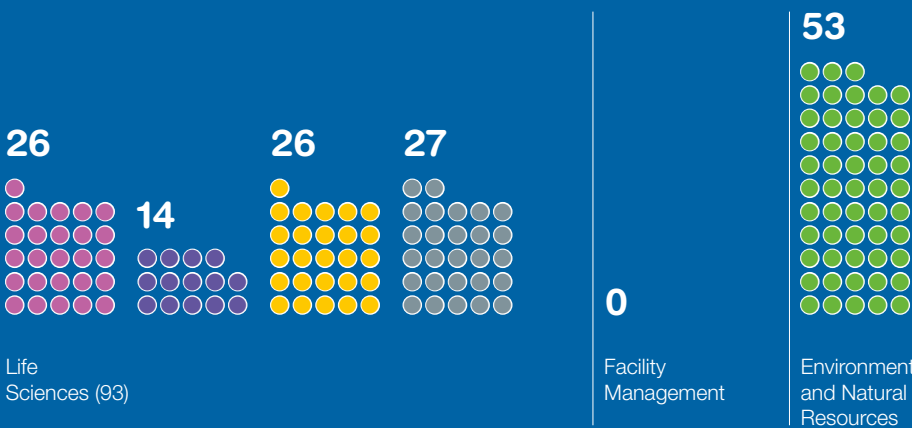


Life Sciences (185 Students)

Facility Management

Environment and Natural Resources

146 Admissions



Life Sciences (93)

Facility Management

Environment and Natural Resources

Graduates



Life Sciences 30, thereof:
 Pharmaceutical Biotechnology 5
 Chemistry for the Life Sciences 12
 Food and Beverage Innovation 7
 Applied Computational Life Sciences 6

Facility Management 7

Environment and Natural Resources 24

Master of Science ZFH in Life Sciences with specialisations in:
 ● Pharmaceutical Biotechnology
 ● Chemistry for the Life Sciences
 ● Food and Beverage Innovation
 ● 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

Status as of 15.10.2020 based on SBF1 report
 Number of students

Continuing education, courses and conferences

2020

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

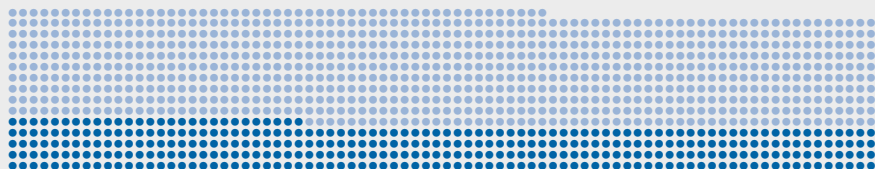
MAS: Comprising 60 credits, the Master of Advanced Studies (MAS) is the most comprehensive of our continuing education programmes. The programme is part-time, mostly modular in structure and takes place over several semesters. Consisting of a number of partial qualifications, it is completed with a Master's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

1209



MAS, DAS, CAS 356

Continuing education courses 853

Symposia 0

Number of continuing
education events

40

Status as of 31.12.2020

Photograph on right: solar pavilion at Campus Grüental



Research and Development Competencies



Photo: Frank Bröderl

Vertical greening: Part of the Biophilia Living Lab in the ZHAW's RA building at Seestrasse 55 in Wädenswil

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

- Cognitive Computing in Life Sciences – Predictive & Bio-inspired Modelling
- Computational Genomics
- Computational Health – Complex Biosystems
- Computational Life Sciences
- Digital Labs in Life Sciences

■ 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 Food and Beverage Innovation

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

■ Research focal points at the Institute of Natural Resource Sciences

- Communicating sustainability, sustainability transformation and tourism
- Ecological engineering; circulatory and energy systems
- Integrative ecology and wildlife management
- Organic farming, agroecology and food systems
- Urban ecosystems and climate adaptation

■ Research focal points at the Institute of Facility Management

- Facility Management digital
- Facility Management in Healthcare
- Sustainability in Facility Management
- Workplace Management

Publications

Extracts from 2020

+ 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 2020 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/lspm/research

IAS

Garcia, Victor; Bonhoeffer, Sebastian; Fu, Feng. Cancer-induced immunosuppression can enable effectiveness of immunotherapy through bistability generation: a mathematical and computational examination. <https://digitalcollection.zhaw.ch/handle/11475/19962>

Juchler, Norman; Schilling, Sabine; Glüge, Stefan; Bijlenga, Philippe; Rüfenacht, Daniel; Kurtcuoglu, Vartan; **Hirsch, Sven.** Radiomics approach to quantify shape irregularity from crowd-based qualitative assessment of intracranial aneurysms. <https://digitalcollection.zhaw.ch/handle/11475/19849>

Maiolo, Massimo; Ulzega, Simone; Gil, Manuel; Anisimova, Maria. Accelerating phylogeny-aware alignment with indel evolution using short time Fourier transform. <https://digitalcollection.zhaw.ch/handle/11475/20794>

ICBT

Lindenmann, Urs; Brand, Michael; Gall, Flavio; Frasson, David; Hunziker, Lukas; Krosiakova, Ivana; Sievers, Martin; Riedl, Rainer. Discovery of a class of potent and selective non-competitive sentrin-specific protease 1 inhibitors. <https://digitalcollection.zhaw.ch/handle/11475/21813>

Voss, Moritz; Honda Malca, Sumire; Buller, Rebecca. Exploring the biocatalytic potential of Fe/α-ketoglutarate dependent halogenases. <https://digitalcollection.zhaw.ch/handle/11475/19230>

Jossen, Valentin; Eibl, Dieter; Eibl-Schindler, Regine. Numerical methods for the design and description of in vitro expansion processes of human mesenchymal stem cells. <https://digitalcollection.zhaw.ch/handle/11475/21975>

IFM

Gerber, Nicole. Sag mir wo die Daten sind, wo sind sie geblieben... <https://digitalcollection.zhaw.ch/handle/11475/20053>

de Sousa, Rita Tavares; Teles, Soraia; Bertel, Diotima; **Schmitter, Paul;** Abrantes, Diogo. Advisory on ambient assisted living solutions: towards an advisor concept and training curriculum. <https://digitalcollection.zhaw.ch/handle/11475/20475>

Häne, Eunji; Monero Flores, Virna; Lange, Stefanie; Bébié Gut, Pascale; Weber, Clara; Windlinger Inversini, Lukas. Office workplaces in universities and hospitals: literature review. <https://digitalcollection.zhaw.ch/handle/11475/20372>

ILGI

Müller, Denise; Stöppelmann, Felix; Kinner, Mathias; Gantenbein-Demarchi, Corinne; Miescher Schwenninger, Susanne. Lactic acid bacteria fermentation of milling by-products and further post-processing to breakfast cereals. <https://digitalcollection.zhaw.ch/handle/11475/19996>

Schmid, Tamara; Baumer, Beatrice; Rüegg, Ramona; Näf, Patrick; Kinner, Mathias; Müller, Nadina. Evaluation of innovative technological approaches to replace palm oil with physically modified Swiss rapeseed oil in bakery products. <https://digitalcollection.zhaw.ch/handle/11475/19756>

Mathis, Beat; **Häfele, Martin; Flüeler, Thomas;** Gerber, Oliver. Aromaverluste in Obstsaft und Obstwein durch Schöpfung und Filtration. <https://digitalcollection.zhaw.ch/handle/11475/19677>

IUNR

Itten, René; Hirschier, Roland; Andrae, Anders; Bieser, Jan; Cabernard, Livia; Falke, Annemarie; Ferreboeuf, Hugues; Hilty, Lorenz M.; **Keller, Regula;** Lees-Perasso, Etienne; Preist, Chris; Stucki, Matthias. Digital transformation – life cycle assessment of digital services, multifunctional devices and cloud computing. <https://digitalcollection.zhaw.ch/handle/11475/20632>

Schmitt, Emilia. Do regional food labels and brands contribute to achieving the SDGs? <https://digitalcollection.zhaw.ch/handle/11475/21002>

Tonolla, Diego; Geilhausen, Martin; **Döring, Michael.** Seven decades of hydrogeomorphological changes in a near-natural (Sense River) and a hydropower-regulated (Sarine River) pre-Alpine river floodplain in Western Switzerland. <https://digitalcollection.zhaw.ch/handle/11475/20966>

Finances

2020

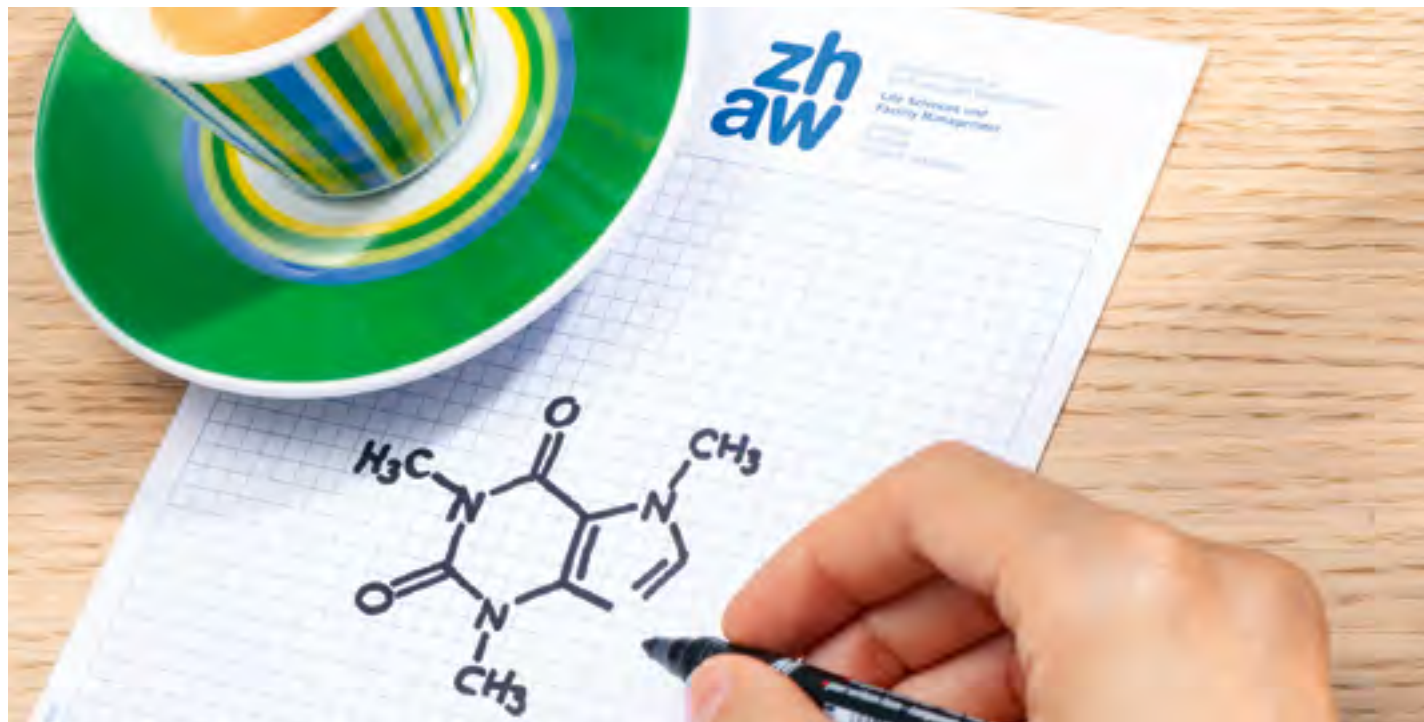


Foto: Frank Brüdert

Increase in student numbers

In 2020 we were able to register over 1,800 enrolled students – an enormously pleasing growth. Of these, 1,527 are bachelor students (previous year 1,378) and a further 310 are studying for a master's degree (previous year: 250). The strategic topic 'DigitalTransformation@LSFM', which was initiated before the pandemic, identified seven 'Future Skills' that are important for our students and employees. Collaboration, creativity and self-leadership are three of them. The pandemic has clearly demonstrated that we are on the right track here. Completing or starting a degree during a pandemic is a unique challenge that our students have taken on and coped with admirably, for which they deserve great respect.

Fewer participants in continuing education

Not surprisingly, continuing education numbers declined in the pandemic year due to the greatly reduced possibility of on-site presence. In addition to professional development, strengthening their professional network is a critical consideration for participants when deciding to pursue continuing education, and face-to-face events are important in this respect.

Our programmes are also practice-oriented and take place in laboratories, technical centres or the ZHAW's outdoor facilities. All of this was only possible during the pandemic within major constraints. Where the infrastructural dependencies were lower, a rapid digital transformation also took place. The number of participants fell to 1,209 in 2020, compared with almost three times as many in the previous year (3,222). Our strategic goal of achieving growth in continuing education remains a challenge.

Stable numbers in research

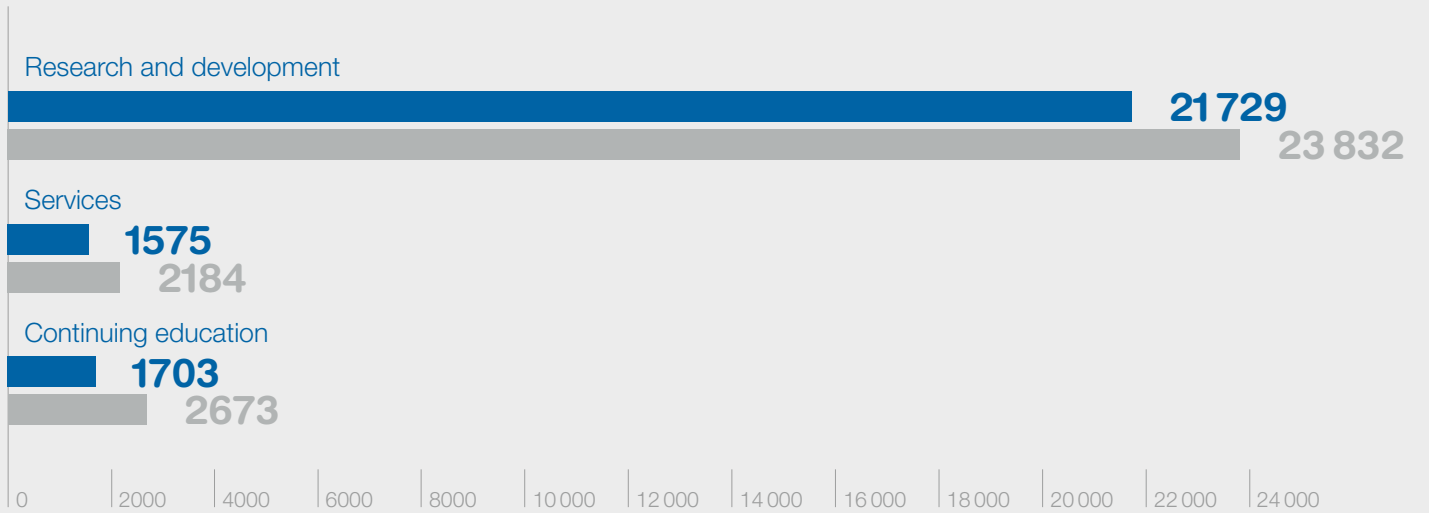
The Covid-19 crisis had surprisingly little impact on research and development at the School of Life Sciences and Facility Management. In 2020, as was the case in 2018, our researchers generated almost CHF 22 million. Compared to 2019, our most exceptional year, this is a drop of almost 2 million. With research topics such as new materials for masks, or biotechnological processes for the manufacture of vaccines, our researchers immediately provided answers to practical questions arising due to the pandemic. The research environment in the life sciences, to which the ZHAW School of Life Sciences and Facility Management belongs, is outstanding, as is clearly shown by the latest cluster study con-

ducted by the cantonal department of economic affairs, Life Sciences Zurich 2021/2022. The cantonal co-financing of this service mandate is essential for this success.

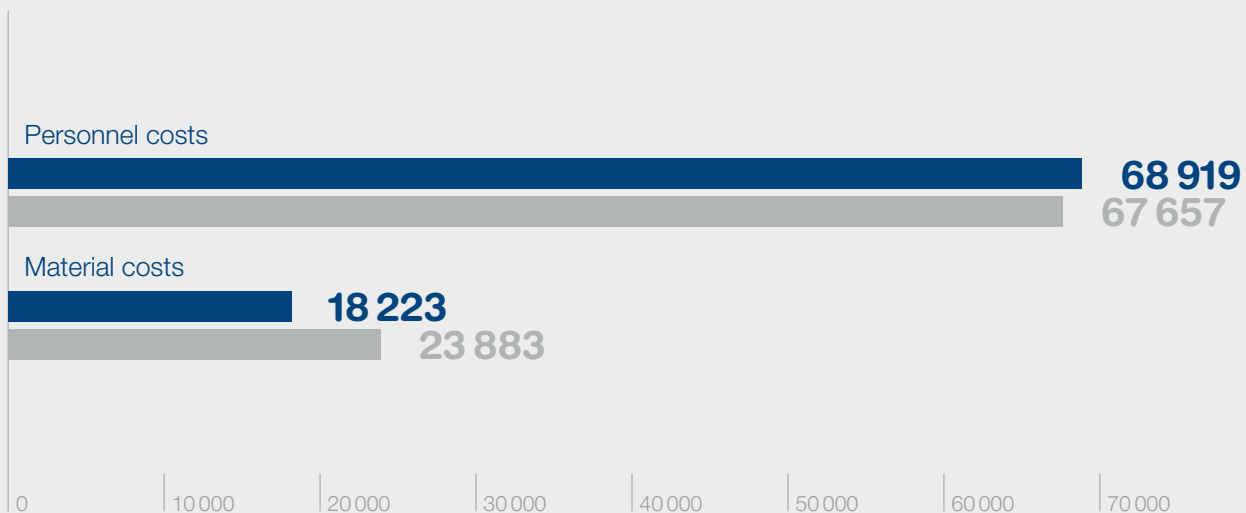
Digital future and physical presence

The far-reaching and, above all, enduring consequences the corona pandemic will have for our universities will only become apparent later. 'Studying and researching in Wädenswil: practical, creative, passionate and reflective' has experienced an unexpected digital 'transplosion', and we are in a different place today than we were before the pandemic. Conventional courses had to be (temporarily) replaced by digital learning programmes. However, much more important is that we also see innovations; future-oriented, sustainable programmes and forms such as online conferences have been newly created for the future. This future, which started in 2020, is definitely more digital. At the same time, we also recognize the significance and importance of physical meetings and real live exchange. Post Covid-19, we will probably more consciously enjoy the exchange at the coffee machine between online meetings.

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)



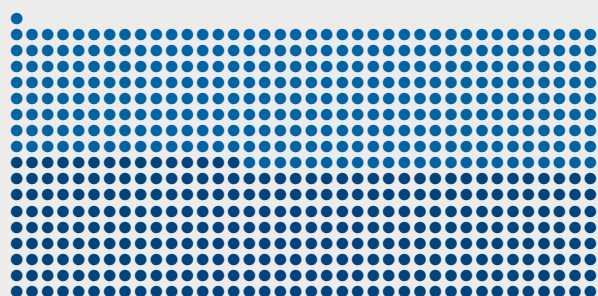
■ 2020
■ 2019

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

Employees

School of LSFM

Personnel



♀ 328 · ♂ 319

647

Full-time equivalents

501

Employees by organisational unit



Employees by category



Status as of 31.12.2020

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. 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

- Dr. André T. Dahinden
- Prof. Dr. Dr. Gunter Festel, FESTEL CAPITAL and Technical University at Berlin
- 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
- Markus Faber, COO Customer Operation, Apleona HSG AG
- Astrid Furrer, Co-President of the Social Conference of the Canton of Zurich
- Renate Gröger, Director of Operations, University Hospital Zurich
- Prof. Dr. Iva Kovacic, Head of Research Group for Integrated Planning, Department for Industrial Building at Vienna University of Technology
- Prof. Dr. Tore Haugen, Norwegian University of Science (TNU)

- Prof. Dr. 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, Dipl. Food Science ETH, Balsthal
- 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
- 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 14,000 students in 29 Bachelor's and 18 Master's courses, in addition to around 9,500 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 151 employees.

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



1



2



3



4



5



1 Campus Grüental, Wädenswil
2 Campus Reidbach, Wädenswil
3 RA building, Wädenswil
4 Center da Capricorns, Wergenstein/GR
5 Lagerstrasse, Zurich (continuing education)

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

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

ZHAW Campus Reidbach / Seestrasse

ZHAW Campus Grüental

The ZHAW is one of the leading Swiss universities of applied sciences. The School of Life Sciences and Facility Management currently has around 1,800 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.

Contact details

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Pay us a visit!



bilden und forschen
wädenswil