



Life Sciences and
Facility Management

TRANSPARENCY

2023 Edition

Facts and Information about
Study Programmes - Continuing Education -
Research and Development - Services

Competencies and organisations

School of Life Sciences and Facility Management



Photo: Frank Bröderli

School management:

from left: Urs Hilber, Michael Kleinert, Diyana Petrova, Margrit Büeler, Thomas Ott, Antje Junghans, Christian Hinderling, Karin Altermatt, Rolf Krebs
Photo taken in the new building «Future of Food», ZHAW-Campus Reidbach, Wädenswil.

Organisation:

- Department Transversalis
Director: Karin Altermatt
- ICBT Institute of Chemistry and Biotechnology
Director: Prof. Dr. Christian Hinderling
- ICLS, Institute of Computational Life Sciences
Director: Prof. Dr. Thomas Ott
- IFM Institute of Facility Management
Director: Prof. Dr.-Ing. Antje Junghans
- ILGI Institute of Food and Beverage Innovation
Director: Prof. Michael Kleinert
- IUNR Institute of Natural Resource Sciences
Director: Prof. Dr. Rolf Krebs

Management and staff:

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

Regenerative means more than just being sustainable

Learn more about us.
Simply scan QR codes and off you go!



Dear readers,

Ecological, economic and societal challenges such as climate change, loss of biodiversity or hunger require innovative solutions that must be addressed globally. This is why the School of Life Sciences and Facility Management is committed to Planetary Health partnerships, both nationally and internationally. With innovative degree programmes such as the Master's in 'Preneurship for Regenerative Food Systems' or the Master's in 'Circular Economy Management' as well as interdisciplinary research projects, for example the use of side streams from the agricultural and food industry, we are shaping the future of the food.

Berlin–Zurich–Boston: Three cities working together

Swissnex Boston is an important partner of the school. In 2022, relationships with American universities such as Worcester Polytechnic Institute (WPI), Tufts University, Brown University and Babson College were strengthened. The region around Boston is one of the most important innovation centres in the Future of Food sector. At the Berlin Science Week in early November 2022, the school made a significant contribution with exhibits, lectures and panels, and also signed a partnership agreement with the Food Campus Berlin. The aim is to deepen joint activities in the areas of Regenerative Agro-Food Systems, Planetary Health and Planetary Diet, to strengthen international networking and to increase the attractiveness of both partners and locations.

Shaping the future of the Agro-Food sector

Issues such as climate change, loss of biodiversity and hunger need to be tackled with innovative ideas. Preneurs are needed who can initiate and implement the transformation of the entire food and nutrition system towards new business models. The Master's programme 'Preneurship for Regenerative Food Systems' starts precisely here. Participants initiate, develop and implement innovative business models for sustainable food systems. The first course started in Spring 2022 and is in great demand.

Understanding the dimensions of the circular economy

Autumn 2023 sees the start of another new type of master's programme, the Master's in 'Circular Economy Management', which will provide students with the skills they need to better understand the circular economy and take a decisive step into the future. Students will acquire a solid knowledge of decision-making tools, current and future manufacturing technologies, digital transformation, value chains and regulatory issues relevant to the circular economy. The programme was jointly designed and developed by three schools within the ZHAW (School of Management and Law, School of Engineering and School of Life Sciences and Facility Management).

A new ZHAW beacon is being built

The new Future of Food building on the Reidbach campus in Wädenswil brings together the entire value-added network for food, beverages and nutrition under one roof. Research focuses on regenerative food production, innovative fermentation processes and sustainable packaging. The building is scheduled to be occupied in Autumn 2023. In February 2024, the 'Lake Week' education and research festival will demonstrate how the Future of Food is brought to life in teaching and research in the new part of the campus. The programme for this event is in the works; we are planning to have expert conferences, workshops, guided tours and exhibitions with the participation of our partners from all over the world.

Find out more about the «Lake Week» education and research festival on:
zhaw.ch/lakeweek/en



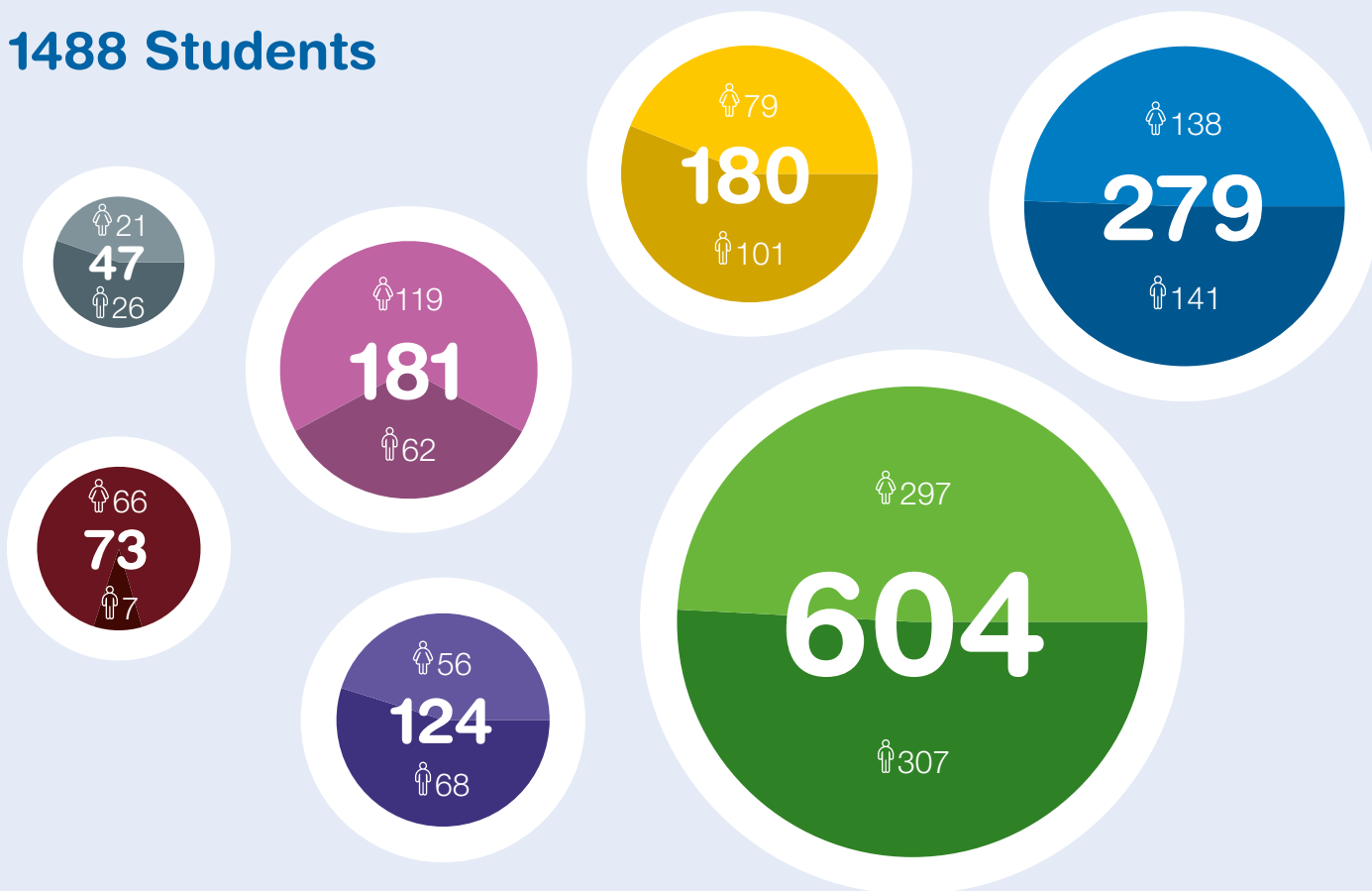
Prof. Dr. Urs Hilber
Dean



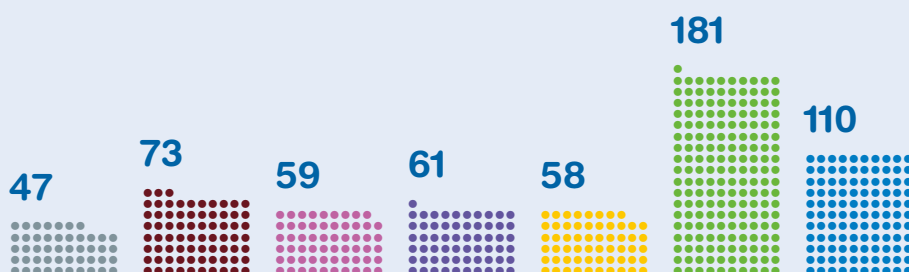
Environment | Food | Health | Society
Our competencies in Life Sciences
and Facility Management.

Bachelor's degree programme 2022

1488 Students



589 Admissions



Graduates



Applied Digital Life Sciences (Start HS22)
Biomedical Laboratory Diagnostics (Start HS22)
 Biotechnology
 Chemistry
 Food Technology
 Natural Resource Sciences
 Facility Management

*first time 2025

Status as of 15.10.2022 based on SBFI report
 Number of students

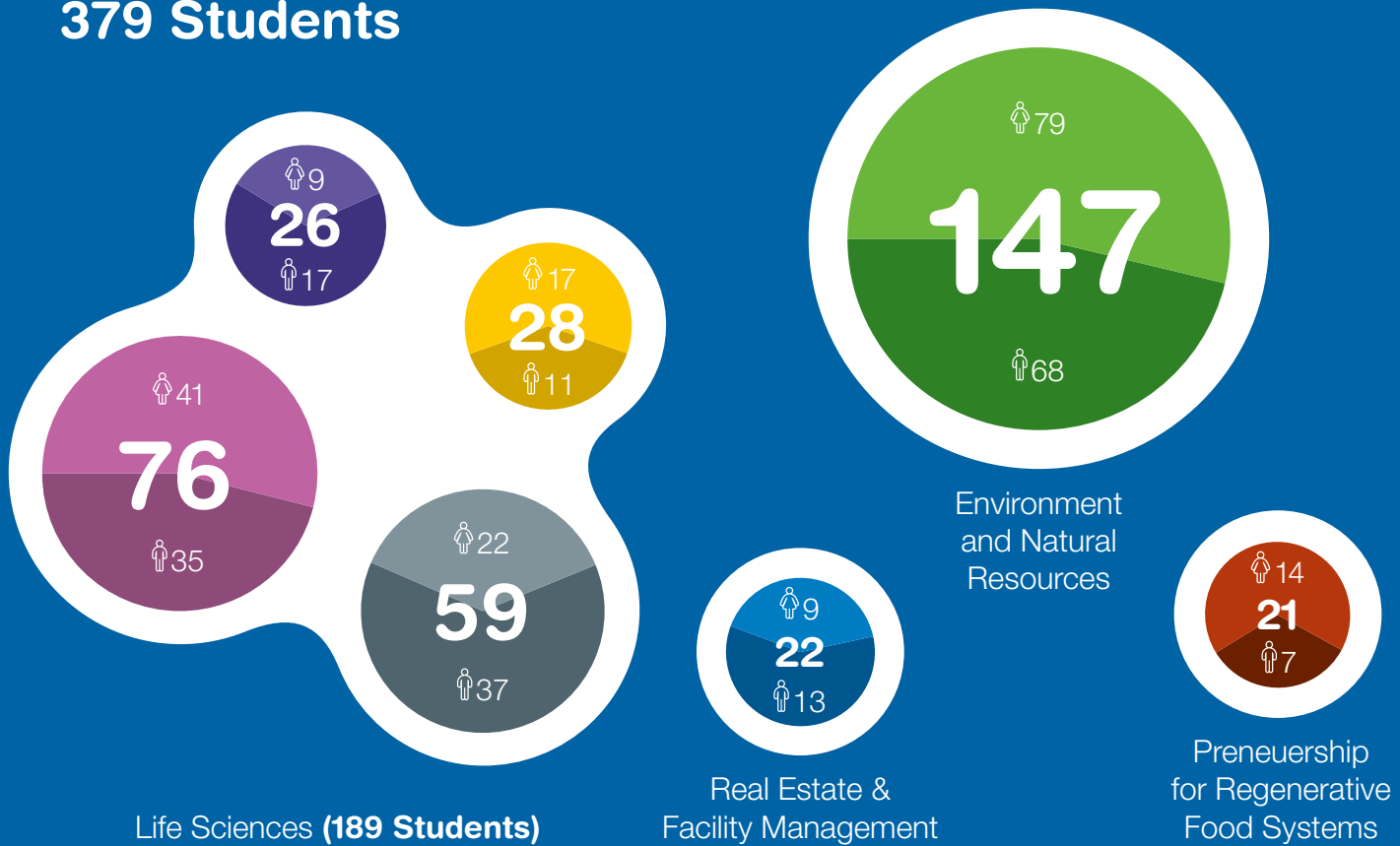
Master's degree programme 2022

+ Learn more about

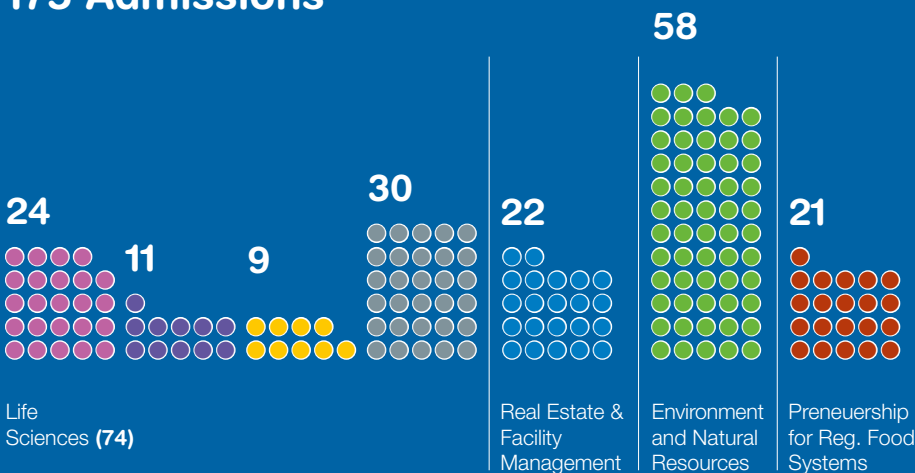
our study programmes.



379 Students



175 Admissions



Graduates



Master's degree in Life Sciences with specialisations in:

- Pharmaceutical Biotechnology
- Chemistry for the Life Sciences
- Food and Beverage Innovation
- Applied Computational Life Sciences

Master's degree in Real Estate & Facility Management

Revision of the degree programme, starting as an MSc in Real Estate and Facility Management in Autumn 2023.

Master of Science in Environment and Natural Resources

Master of Preneuership for Regenerative Food Systems (Start FS22)

*first time 2024

Status as of 15.10.2022 based on SBF1 report Number of students

Continuing education, courses and conferences

2022

Programmes

The extensive range of continuing education courses at the campuses in Wädenswil and Zurich locations ranges from international conferences to various continuing education courses (WBK), and from certificate and diploma courses (CAS, DAS) to postgraduate courses lasting several semesters (MAS). The continuing education programme is aimed at interested persons who have completed a university education, are already working and would like to expand upon or deepen their specialist knowledge.

Qualifications

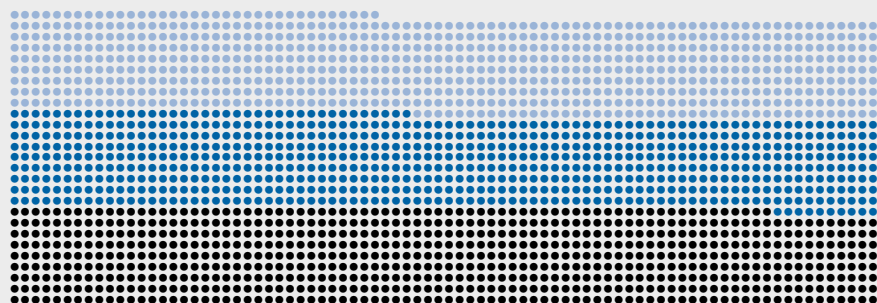
MAS: Comprising 60 credits, the Master of Advanced Studies (MAS) is the most comprehensive of our continuing education programmes. The programme is part-time, takes place over several semesters and is mostly modular in structure. Comprising an accumulation of partial qualifications, it is completed with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

DAS: The Diploma of Advanced Studies (DAS) comprises 30 credits. It offers 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 be part of a MAS or DAS.

Participants
in the continuing education events

2167



MAS, DAS, CAS **735**
Continuing education courses **704**
Symposia **728**

Number of continuing
education events

97

Status as of 31.12.2022



Research and Development Competencies

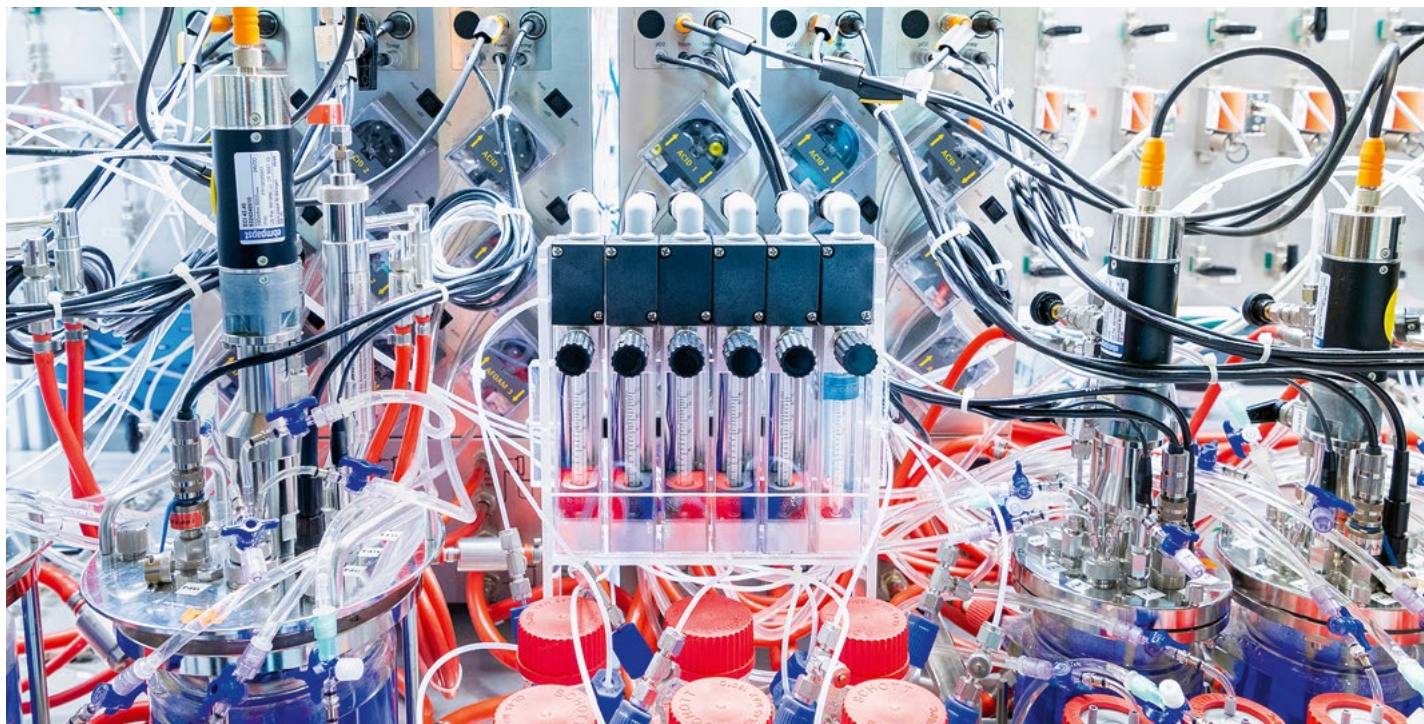


Photo: Frank Bröderli

The disciplinary expertise in our institutes constitutes a solid basis for providing expert solutions to the problems our partners and customers may present. We implement 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 Chemistry and Biotechnology ICBT zhaw.ch/icbt

- Detection and Diagnostics
- Pharma Innovation
- Smart Materials
- Sustainable Solutions

■ Research focal points at the Institute of Computational Life Sciences ICLS zhaw.ch/icls

- Bioinformatics
- Cognitive Computing in Life Sciences
- Computational Health
- Digital Labs & Production

■ Research focal points at the Institute of Facility Management IFM zhaw.ch/ifm

- Facility Management in Healthcare & Food Services
- Real Estate & Facility Management Digital
- Sustainability in Real Estate & Facility Management
- Workplace Management

■ Research focal points at the Institute of Food and Beverage Innovation ILGI zhaw.ch/ilgi

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

■ Research focal points at the Institute of Natural Resource Sciences IUNR zhaw.ch/iunr

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

Publications

Extracts from 2022

+ 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 that appeared in 2022 is presented below. A complete list of publications from the School of Life Sciences and Facility Management can be found at zhaw.ch/lspm/research

ICBT

Sabani, B., Brand, M., Albert, I., Inderbitzin, J., Eichenseher, F., Schmelcher, M., **Rohrer, J., Riedl, R., Lehmann, S.** (2022). A novel surface functionalization platform to prime extracellular vesicles for targeted therapy and diagnostic imaging. *Nanomedicine: Nanotechnology, Biology and Medicine*. 47(102607). 2023.

<https://digitalcollection.zhaw.ch/handle/11475/26903>

Vo, A., Kundu, S., Strong, C., Jung, O., Lee, E., Song, M., Boutin, M., **Raghunath, M., Ferrer, M.** (2022). Enhancement of neuroglial extracellular matrix formation and physiological activity of dopaminergic neural cocultures by macromolecular crowding. *Cells*. 11(14). 2022.

<https://doi.org/10.21256/zhaw-26839>

Voss, M., Hüppi, S., Schaub, D., Hayashi, T., Ligibel, M., Sager, E., Schroer, K., Snajdrova, R., **Buller, R.** (2022). Front cover: Enzyme engineering enables inversion of substrate stereopreference of the halogenase WelO5^{*}. *ChemCatChem*. 14(24). 2022.

<https://doi.org/10.21256/zhaw-26366>

ICLS

Delucchi, M., Spinner, G., Scutari, M., Bijlenga, P., Morel, S., Friedrich, C., Furrer, R., **Hirsch, S.** (2022). Bayesian network analysis reveals the interplay of intracranial aneurysm rupture risk factors. *Computers in Biology and Medicine*. 147(105740). 2022.

<https://doi.org/10.21256/zhaw-25226>

Lardos, A., Aghaebrahimian, A., Koroleva, A., Sidorova, J., Wolfram, E., Anisimova, M., Gil, M. (2022). Computational literature-based discovery for natural products research: current state and future prospects. *Frontiers in Bioinformatics*. 2(827207). 2022.

<https://doi.org/10.21256/zhaw-25030>

Müller, A., **Glüge, S.,** Vidondo, B., **Wróbel, A., Ott, T.,** Sieme, H., Burger, D. (2022). Increase of skin temperature prior to parturition in mares. *Theriogenology*. 190, S. 46–51. 2022.

<https://doi.org/10.21256/zhaw-25437>

IFM

Kirecci, I., Schmitter, P., Hanne, T., Gachnang, P., Gatzju Grivas, S. (2022). Reifeegradmodelle als Grundlage für den digitalen Veränderungsprozess im Facility Management in Healthcare: eine integrative Literaturrecherche. *Journal für Facility Management*. 23, S. 9–26. 2022.

<https://doi.org/10.21256/zhaw-26667>

Meslec, M. (2022). Reconceptualizing real estate development as a business incubator for sustainable and smart urban products. In 28th Annual Conference of the European Real Estate Society Conference (ERES), Milan, Italy, 22–25 June 2022.

<https://digitalcollection.zhaw.ch/handle/11475/27326>

Weber, C., Krieger, B., Häne, E., Yarker, J., McDowall, A. (2022). Physical workplace adjustments to support neurodivergent workers: a systematic review. *Applied Psychology: An International Review*. 2022.

<https://doi.org/10.21256/zhaw-25612>

ILGI

Kirchsteiger-Meier, E. (2022). Neuerungen des Codex Alimentarius, insbesondere zu HACCP und zur Lebensmittelsicherheitskultur. *Lebensmittelrecht im Mehrebenensystem: Neuerungen, Entwicklungen, Spannungslagen*. S. 21–35. 2022.

<https://digitalcollection.zhaw.ch/handle/11475/25765>

Knecht, L.E., Heinrich, N., Born, Y., Felder, K., Pelludat, C., Loessner, M., **Fieseler, L.** (2022). Bacteriophage S6 requires bacterial cellulose for *Erwinia amylovora* infection. *Environmental Microbiology*. 24(8). S. 3436–3450. 2022.

<https://digitalcollection.zhaw.ch/handle/11475/24748>

Ruegg, N., Teixeira, S.R., Beck, B.M., Monnard, F.W., Menard, R., **Yildirim, S.** (2022). Application of antimicrobial packaging based on modified calcium carbonate and EOs for RTE meat products. *Food Packaging and Shelf Life*. 34 (100982). 2022.

<https://digitalcollection.zhaw.ch/handle/11475/26037>

IUNR

Bergauer, M., **Dembicz, I., Babbi, M., Blank-Pachlatko, J., Catalano, C., Gehler, J., Widmer, S., Dengler, J.** (2022). Scale-dependent patterns and drivers of vascular plant, bryophyte and lichen diversity in dry grasslands of the Swiss inneralpine valleys. *Alpine Botany*. 132(2). 2022.

<https://doi.org/10.21256/zhaw-25279>

Schmautz, Z., Walser, J.C., Espinal, C.A., **Gartmann, F., Scott, B., Pothier, J.F.,** Frossard, E., **Junge, R., Smits, T.H.M.** (2022). Microbial diversity across compartments in an aquaponic system and its connection to the nitrogen cycle. *Science of the Total Environment*. 852(158426). 2022.

<https://doi.org/10.21256/zhaw-25917>

Trachsel, S., Moser, R., Reutz, B., Göpfert, R. (2022). How can farmers be better integrated into nature parks? AgriPark – Transdisciplinary development of approaches for better cooperation between agriculture and Regional Nature Parks. *eco.mont* 14(1). 2022.

<https://doi.org/10.21256/zhaw-23947>

Finances

2022



Photo: Frank Bröderli

Student numbers on the increase

1,867 students are currently enrolled at the LSFM, meaning that 2022 student numbers have surpassed those of 2021 (1,762). Of this 1,867, 1,488 are completing bachelor's degrees (compared to 1,433 in the previous year) and 379 thereof their master's degrees (compared to 329 in the previous year). The growth in student numbers is primarily due to the introduction of new study programmes: in 2022, 47 students started the Bachelor in Applied Digital Life Sciences and 73 students the Bachelor in Biomedical Laboratory Diagnostics for the very first time. In addition, there were 22 enrolments on the newly designed Master's in Real Estate & Facility Management and 21 students started their studies in the Master's in Preneurship for Regenerative Food Systems.

More participants in continuing education

There are currently 2,167 participants in continuing education courses, meaning a growth could be recorded in 2022 (compared to 2,094 in the previous year). There was a sharp increase in the number of participants in MAS, DAS and CAS courses; while 355 people took part in the previous year, a total of 735 completed a continuing education course at the ZHAW School of Life Sciences and Facility Management in 2022. As before, the majority of courses were held online, but on-site events were also very popular. We are making steady progress towards our strategic goal of growth in continuing education.

Research funding remains at a high level

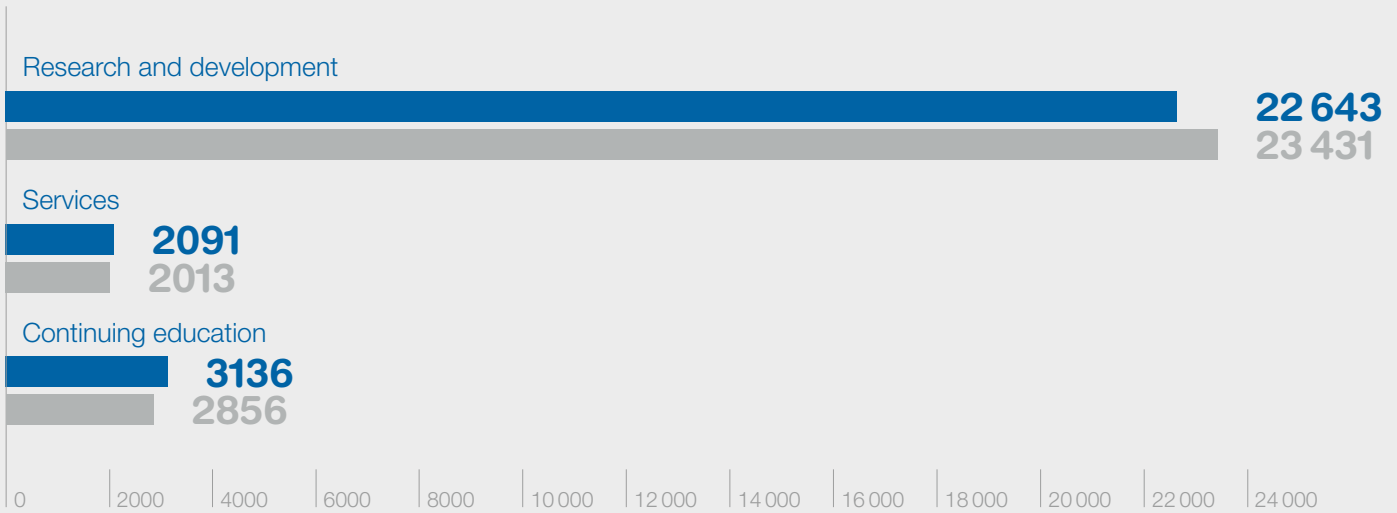
After an excellent result of 23.4 million Swiss francs in 2021, research contracts were just as successful in 2022. The attainment of 22.6 million Swiss francs in research funding is very pleasing and confirms the competence of our researchers.

Current projects and topics of our research can be found in our project database as well as in the biannual publication 'Transfer' (subscribe free of charge).

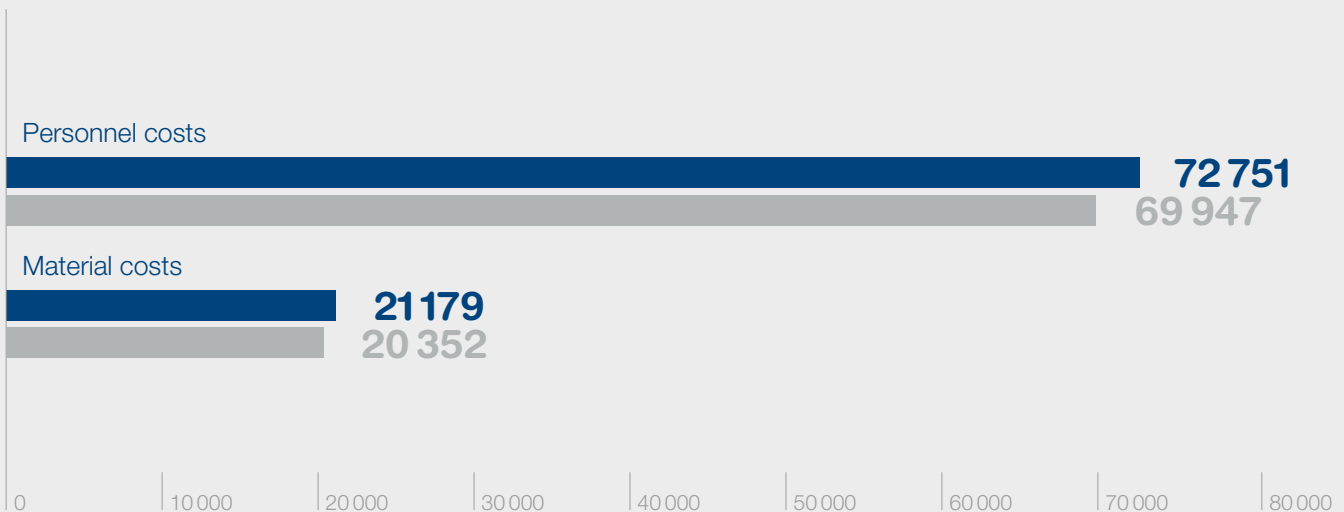
zhaw.ch/lsfm/research/transfer



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)



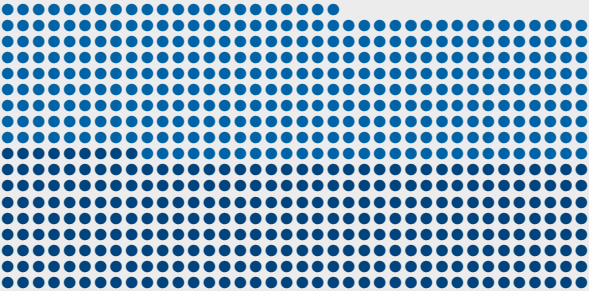
■ 2022
■ 2021

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

Employees

School of LSFM

Personnel



355 · 313

668

Full-time equivalents

527

Employees by organisational unit



Employees by category



Status as of 31.12.2022

Foundations and boards

Foundations

The School of Life Sciences and Facility Management (LSFM) supports various foundations, mostly in terms of technical expertise and personnel, and thanks to this commitment, also benefits financially. The LSFM is represented by the following people in the foundations listed below:

Foundation for the Technical Processing of Fruit, Wädenswil

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

Müller-Thurgau-Stiftung

- Prof. Dr. Urs Hilber, Dean, ZHAW LSFM, (on the board of trustees)

grow, Wädenswil start-up organisation

- Prof. Dr. Urs Hilber, Dean, 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, Head of the Technology Transfer Office, ZHAW LSFM, (senior management)

Alumni organisations

Representatives from the School of Life Sciences and Facility Management:

Alumni of 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 of ZHAW Life Sciences

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

Alumni Netzwerk Wädenswil

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

Advisory boards

In order to ensure the long-term practical relevance and quality of the education as well as applied (application-oriented) research and development, numerous representatives of industry and professional associations support our institutes in an advisory capacity.

■ Advisory Board of the Institute of Chemistry and Biotechnology (ICBT)

- Dr. André T. Dahinden
- Prof. Dr. Dr. Gunter Festel, FESTEL CAPITAL and Technische Universität Berlin
- Prof. Dr. Christian Hinderling, Director of the ICBT, ZHAW
- Dr. Eva-Maria Kupsch, CAMM Solutions (Source Graphics GmbH)
- Dr. Jan Lucht, scienceindustries, Chemistry Pharma Biotech Business Association
- Dr. Ferruccio Messi, Cell Culture Technologies LLC
- Dr. Hans-Peter Meyer
- 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.
- Prof. Dr. Roland Wohlgemuth, Lodz University of Technology

■ Advisory Board of the Institute of Facility Management (IFM)

- Michael Bürki, Head of CREM Services & Business Development, Swiss Post
- Markus Faber, COO Customer Operation, Apleona HSG AG
- Astrid Furrer, Councilwoman Planning and Building Wädenswil
- Renate Gröger, Director of Operations, University Hospital Zurich
- Prof. Dr. Iva Kovacic, Professor and Head of Department of Integrated Planning and Industrial Building at the Faculty of Civil Engineering, Vienna University of Technology
- Karin Leuenberger, Real Estate Office of the Canton of Zurich
- Prof. Dr.-Ing. Antje Junghans, Director of the IFM, ZHAW

- Wolfgang Stiebellehner, Head of Property Management, Livit AG
- Daniel Zbinden, CKW Conex AG, Lucerne

■ Advisory Board of the Institute of Food and Beverage Innovation (ILGI)

- Dr. Michael Beer, Vice Director, Head of the 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 ILGI, ZHAW
- Cédric Ochsner, Lead Consultant eXcellence
- Nadja Nabholz, Owner, Nadja Nabholz Consulting
- Clemens Rüttimann, Managing Director, Biotta AG
- Peter Schmidheiny, Head of Supply Chain, Hilcona AG
- Andreas Schwab, Head of Planning and Control, Bell Schweiz AG
- Thomas Truttmann, Managing Director, Compass Group (Switzerland) AG
- Susan Tschäppät, Head of Quality Management, cpw, Nestlé & General Mills
- Prof. em. Dr. Erich Windhab, Professor of Food Processing Engineering, ETH Zurich
- Othmar Wohlhauser, CTO, Wipf AG

■ Advisory Board of the Institute of Natural Resource Sciences (IUNR)

- Ursin Ginsig, Managing Director, Eberhard Recycling AG
- Dr. Melanie Haupt, Co-Managing Director REDILO GmbH
- Karin Hindenlang, Managing Director, Wildnispark Zurich
- Prof. Dr. Rolf Krebs, Director of the IUNR, ZHAW
- Dr. Tove Larsen, Member of the Board of Directors, EAWAG
- Dr. Dr. h.c. Raimund Rodewald, Managing Director, Swiss Foundation for Landscape Conservation
- Dr. Mathias Stolze, Member of the Executive Board, Research Institute for 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 14,000 students in 33 Bachelor's and 20 Master's programmes and more than 9,500 participants in continuing education each 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. (figures annual report 2022)

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.

By 2023, the Future of Food campus, 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 region's promotional foundation, 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 organisation '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 19 organisations with 187 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 Grüntal, Wädenswil
2 Campus Reidbach with new building, 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

The ZHAW is one of the leading Swiss universities of applied sciences. The School of Life Sciences and Facility Management currently has almost 1,800 students and employs more than 600 people. The educational programme includes Bachelor's and Master's degree programmes as well as a wide range of further training and education courses.

With our expertise in life sciences and facility management, we make an important contribution to meeting societal 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, computational life sciences 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

Residence for students

Contact

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bilden und forschen
wädenswil