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The Food Science study programme at ETH Zürich

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Food Science at the ETH Zurich has an important status for almost 50 years as the only Food Science education opportunity at a top university level in Switzerland. The goal of the program is to train students to become future worldwide leaders and innovators in all domains of food science, thus advancing global sustainable development goals. Food Science education at the ETH Zurich is a broad programme with key pillars in Food Engineering, Food Quality and Safety, Nutrition and Public Health. There are about 60 graduates per year, and around 70% are women. When recently surveyed, graduates enjoy a high level of satisfaction with their education and cite particularly high relevance of course work in food microbiology, food processing and design, as well as practical training in preparation for their future work. The ETH Zurich is amongst the top Science and Technology Universities in the world, and the Food Science study programme is mainly supported by the faculty of the ETH Zurich Institute of Food, Nutrition and Health, with high-calibre research programmes in diverse systems-oriented natural science topics within the ETH Zurich Department of Health Sciences and Technology, offering didactic training as well as research project opportunities for students.

The programme is structured in two main stages: Bachelor's and Master's level programmes. The Bachelor's programme introduces students to the basics in natural, social, engineering and specialist subjects. The Bachelor's degree entitles the holder to enter the Master's programme. The Master's programme imparts specialist expertise and leads to professional qualification with the acquisition of the Master's degree in one of four major areas: Food Processing, Food Quality & Safety, Human Nutrition and a joint Master's programme linking Food and Environmental Sciences, focusing on Public Health. The scope of studies is recorded in credits according to the Bologna model, where one credit point (CP) corresponds to about 30 hours of study. In addition to students who follow the sequential Bachelor's and Master's programmes, students from all over the world who are suitably qualified and pass a competitive admissions process, join at the start of the Master's level.

Bachelor's degree in Food Science – a solid foundation

The first year of studies in Food Science at the ETH Zurich includes basics in Biology, Chemistry, Mathematics and Physics, as well as Social Sciences. It also includes concept courses centred on the World Food Systems, introducing students to diverse aspects along the entire food value chain. It concludes with the first-year examinations, the first hurdle in this course of study. In the second and third years, the choice of subjects increasingly focuses on Food Science subjects, with an early anchoring course on the foundations of food science, the students embark into topics such as Food Technology, Food Processing, Food Materials Science, Food Chemistry and Analytics, and Food Microbiology and Biotechnology, Human Nutrition, and practical laboratory courses in all of these areas. The Bachelor's thesis completes the three-year bachelor's programme. The teaching language at the Bachelor's level is predominantly German.

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Shana J. Sturla is Full Professor of Toxicology at the ETH Zurich. Professor Sturla was born in New York, USA and studied Chemistry at the University of California at Berkeley and the Massachusetts Institute of Technology. She carried out a postdoctoral fellowship in Toxicology with Professor Stephen S. Hecht at the University of Minnesota Cancer Center, where her research concerned tobacco carcinogenesis and cancer chemoprevention with dietary compounds. In 2004, she became an Assistant Professor at the University of Minnesota, in 2009, she joined the faculty of the Institute of Food, Nutrition and Health at the ETH Zurich as Associate Professor, and in 2015 was promoted to Full Professor. She leads the Laboratory of Toxicology at the ETH Zurich. The goal of her research is to promote food and drug safety by elucidating the chemical basis of mutagenesis and toxicity, and to promote innovative bioanalysis strategies for predicting chemical hazards on the basis of molecular responses and in vitro testing. From 2018 to 2022, Professor Sturla is the Director of Studies in Food Science at the ETH Zurich. She has created and teaches a new series of courses in Toxicology, as well as a Minor in Food Toxicology at the ETH Zurich, educating students in Food Science and Nutrition in the Bachelors, Masters and Advanced Study levels. In addition, she provides lectures in Chemistry and Health Science and Technology concerning Biological Chemistry and Molecular Disease Mechanisms, as well as the Carcinogenesis module for the Swiss Masters of Advanced Study in Toxicology. She is involved in initiating in 2021 the Food Science Forward! project aiming to comprehensively update the ETH Zurich study program in Food Science with topics and learning strategies for Food Science professionals of the future. Professor Sturla is Vice President of the Swiss Society of Toxicology, Immediate Past Chair of the American Chemical Society Division of Chemical Toxicology, Member of the Platform Chemistry of the Swiss Academies of Science, and Editor-In-Chief of the Journal Chemical Research in Toxicology. Her website is *www.toxicology.ethz.ch*.

The bachelor´s programme is comprised of 180 credit points (CP):

Area	Courses	Credit Points	
Natural and Engineering Sciences	Biology Chemistry Mathematics Physics Computer Science Environmental Systems Excursions	30 16 21 12 2 2 1	**84**
Social Sciences	Economics, Legislation, Management	10	**10**
Food Science	World Food System Food Science Excursions Electives	4 62 2 3	**71**
Bachelor's thesis		15	**15**

Master's degree in Food Science – a step towards the top

By completing the Master's programmes in Food Science at the ETH, students gain the ability to work on complex issues and systems-oriented problems at a high scientific level. Students acquire skills that enable them to take on responsible tasks in industry, public administration and research.

There are four majors to choose from:
Food Processing
Food Quality and Safety
Nutrition and Health
Human Health, Nutrition and Environment

In addition, there are further courses within or outside of the major, i.e. minors and electives. The following minors are available:
Food Biotechnology
Food Chemistry
Food Microbiology
Food Physics
Food Process Design
Food Sensory Science and Consumer Behaviour
Food Toxicology
Public Health Nutrition
Safety and Quality in the Agri-Food Chain

The language of instruction at the Master's level is English. The Master's programme is comprised of 90 credits points (CP):

Structure of the Master's Degree Programme			90
Major	Disciplinary subjects Methodology subjects Optional subjects	20 10 10	**40**
Minor I			**10**
Minor II or Electives			**10**
Master's thesis			**30**

The capstone of the Master's program is the six-months original thesis project. The thesis research is presented with a formally evaluated oral research presentation and a written thesis. There is a poster presentation connected with the Master's graduation celebration. Finally, there are a number of awards given to students for top performance in the course program and in distinct scientific focus areas of the Master's thesis project domains.