

Study Programmes

Architecture and Civil Engineering
Engineering Sciences
Natural Sciences and Mathematics
System-oriented Natural Sciences
Management and Social Sciences



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The basics of all Bachelor's degree programmes in the first two years of study

Management and Social Sciences	
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The ETH Main Building in the city centre



Dear prospective students,

I am delighted that you want to learn more about our study programmes.

If you have a flair for figures and are interested in engineering, natural sciences, architecture or health sciences, then you already have the basic skills you need to study at ETH Zurich.

An ETH study programme will give you a strong foundation in specialist knowledge, which you can then build on to achieve long-lasting success in an era of rapid and constant change in the world of science and technology. Studying at ETH Zurich also gives you something extremely valuable: the ability to reflect on your knowledge and apply it in a variety of contexts. ETH degrees are recognised worldwide. Numerous careers are open to our graduates, in many fields, in the rapidly changing world of industry and research.

This brochure will help you to decide which study programme is right for you. I hope you enjoy reading it.

Sarah M. Springman, Rector

ETH Zurich – Where the Future Begins

Freedom, autonomy, entrepreneurship and openness are fundamental Swiss values that also live at the heart of ETH Zurich. The roots of our scientific and technological university reach all the way back to 1855, when the founders of modern Switzerland created this hub of innovation and knowledge.

The environment at ETH Zurich fosters independent thought in its students and inspires excellence in its researchers. Located at the heart of Europe and with a network that spreads across the globe, ETH Zurich develops solutions for the global challenges of today and tomorrow.

Together, professors, students and doctoral students conduct research in the natural sciences and engineering, in architecture and mathematics, in system-oriented natural sciences and in management and social sciences. The insights and innovations discovered by ETH researchers find applications in the most promising sectors of the Swiss economy, from agriculture to computer science and from micro and nanotechnology to high-tech medicine.



**21,000 students,
of which 4,300 doctoral
students, from more than
120 countries**



500 professors



**355 spin-off companies
since 1996**



**21 Nobel Prize winners
(including Albert Einstein
and Wolfgang Pauli)**



**90 patent applications and 200
invention disclosures per year**

Attractive locations

Zurich (main location)

ETH has two campuses in Zurich: The Zentrum (Central) campus with its historic Main Building encapsulates this university's long tradition, but it is also a vibrant place to socialise and study. Situated on the outskirts of the city is the modern Hönggerberg campus. This site leads the way in terms of forging links between science, industry and the general public.

Basel

The Department of Biosystems Science and Engineering is based in Basel. Its proximity to biochemical and pharmaceutical companies offers scientists the perfect conditions for interdisciplinary research projects.



Study Programmes

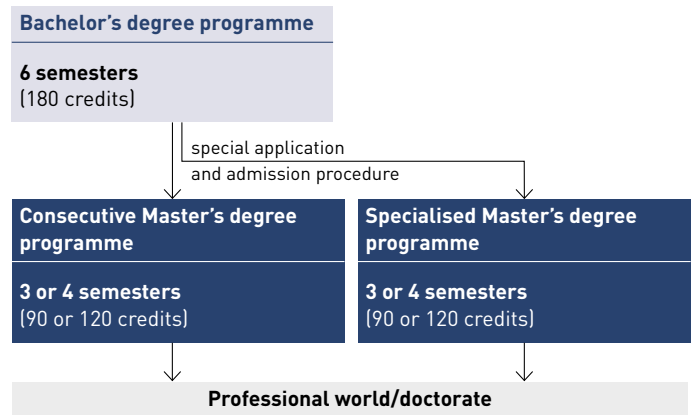
The study programmes at ETH Zurich provide sound academic knowledge, practical experience and expertise in interdisciplinary cooperation as well as training in social skills and critical thinking.

Structure of the study programme

The programme structure offered by ETH Zurich is in line with the guidelines of the “Bologna Declaration”, which outlines the Bachelor’s/Master’s degree system. Students get ECTS credits for their study achievements. One credit corresponds to approximately 30 working hours and includes all study-related activities, such as participation in course units, including preparatory and follow-up work, practical sessions, private study, examinations and semester papers.

Bachelor’s degree programme

The Bachelor’s degree programme comprises 180 credits and is usually completed in three years, or up to five years at most. The first year conveys the fundamentals of mathematics and those natural sciences related to the major (e.g. physics, chemistry and biology). It ends with the first-year examinations. Students studying Electrical Engineering and Information Technology, Computer Science, Mathematics, Physics, Computational Science and Engineering or Human

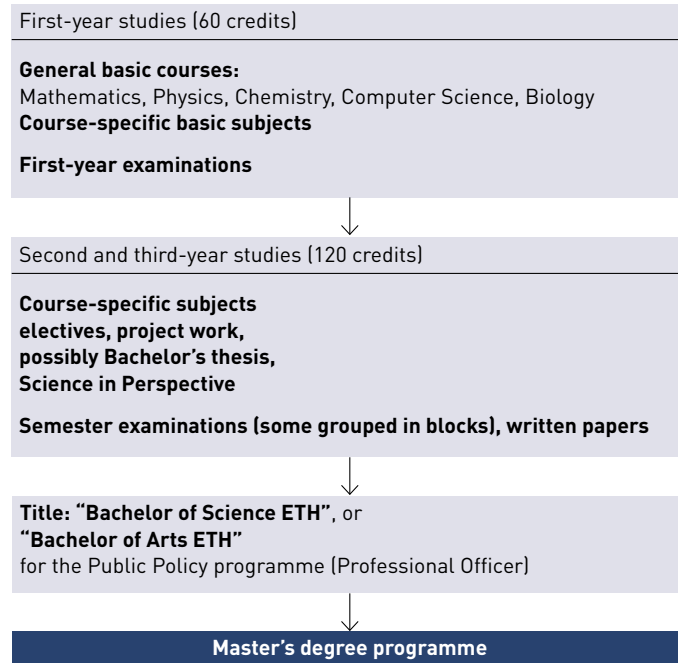


Medicine have the option to complete their first-year examinations in two parts.

In the following four semesters, the theoretical and methodological knowledge of the major is expanded. Students may begin to focus on specific areas in the form of programme-specific subjects, electives or project work, or by concluding with a Bachelor’s thesis.

The Bachelor’s degree programme is at first conducted in German. In the second and third years, some lectures may be in English.

Structure of the Bachelor's degree programme



The Bachelor's degree is not regarded as a professional qualification.

Each ETH Bachelor's programme is followed by at least one consecutive Master's degree programme, to which students may transfer without any additional requirements. Additionally, several specialised Master's degree programmes, mostly interdisciplinary in nature, are also offered. These are open to graduates with outstanding performance records from various Bachelor's degree programmes. They are subject to specific admission requirements and the number of places available is often limited.

Master's degree programme

The Master's degree programme comprises 90 or 120 credits and is designed to take three or four semesters, or up to a maximum of six to eight semesters. It offers students the opportunity to specialise and deepen their education in a subject area which they themselves determine. They then attend lectures and practicals for two to three semesters, before concluding their studies in the third or fourth semester with the Master's thesis. Many programmes are supplemented by an internship of several months carried out outside ETH Zurich.

Most of the Master's degree programmes are taught exclusively in English.

Structure of the Master's degree programme

3 or 4 semesters (90 or 120 credits)

Lectures, semester papers, project work in core courses and electives, possibly an industrial internship

Semester examinations, written papers
Master's thesis (3–8 months)

Title: “**Master of Science ETH**”, or “**Master of Arts ETH**” for the Master's degree in Comparative and International Studies and the Master's degree in the History and Philosophy of Knowledge

Professional world/doctorate

The Master's degree programme is regarded as a professional qualification.

More information about study programmes at ETH Zurich can be found at:

www.ethz.ch → [Studies](#) → [Bachelor](#) →

www.ethz.ch → [Studies](#) → [Master](#) →

Performance assessments

During the Bachelor's and Master's degree programme, performance is primarily assessed by way of examinations every semester (some of which are grouped into examination blocks), independently written papers and presentations. A grading system is used to assess quality, where 6 is the highest grade and 4 is the minimum passing grade, or a pass/fail system is used.

The academic year

The academic year is divided into two semesters of 14 weeks each, beginning in mid-September (calendar week 38) and mid-February (calendar week 8) respectively. Bachelor's degree programmes only commence in autumn. For details on the academic year, see

www.ethz.ch/academic-calendar →

Science in Perspective

In order to broaden their general education, students in the Bachelor's and Master's degree programmes are required to take a certain number of credits in “Science in Perspective”, a study programme which contains general course units from the programme offered by the Department of Humanities, Social and Political Sciences. For further information, see page 84.

What does it take to study successfully at ETH?

Many factors determine educational success. One of the most important is undoubtedly motivation. Students with a clear educational goal have a good chance of successfully completing their selected programme. In addition to possessing a sound overall education and a general interest in science and technology, it is also important to:

- have an aptitude for mathematics, physics, chemistry and biology
- be open to new ideas
- show team spirit
- focus on the overall picture
- be able to think critically and creatively, and
- be persistent.

Good knowledge of German is highly recommended. However, a good knowledge of English is also needed. An increasing number of courses in higher semesters of the Bachelor's degree programmes are taught in English, while most of the Master's degree programmes are taught exclusively in English.

Admission requirements

Bachelor's degree programmes: the requirement for admission to a Bachelor's degree programme is the Swiss Matura, an equivalent

foreign qualification, a Swiss vocational or specialised matriculation certificate with the Swiss Passerelle university entrance examination or graduation from a federally recognised Swiss university of applied sciences. If these prerequisites are not satisfied, the candidate may sit an entrance examination. Holders of foreign credentials must submit a certificate of competence in German in accordance with the ETH Zurich Admissions Ordinance.

Master's degree programmes: the requirement for admission to a consecutive Master's degree programme is a Bachelor's degree from ETH Zurich or ETH Lausanne in the same discipline or an equivalent Bachelor's degree obtained in Switzerland or abroad.

Certain stipulations apply to graduates of Swiss universities of applied sciences who wish to enter a Master's programme.

Acceptance on a Master's degree programme may, depending on the student's background, involve an application procedure. It may also be subject to additional requirements: the acquisition of additional study achievements via attendance of course units from the ETH Bachelor's degree programme; see page 102.

Admission to a specialised Master's degree programme is subject to special conditions.

Student exchange programmes

ETH Zurich takes into consideration the increasing internationalisation of the job market by offering a wide range of exchange programmes during the course of studies. It has exchange agreements with numerous universities both within and outside Europe, thus making it possible for students to spend one or two semesters studying abroad – either during the third year of the Bachelor's degree programme or during the Master's degree programme, depending on how the programme is structured. There are also exchange opportunities available within Switzerland, for example at EPF Lausanne. Such an exchange always requires additional effort, but it also offers experiences valuable for both personal and professional development. More information can be found on the Student Exchange Office website: www.outgoing.ethz.ch →

Summer schools

Each year, various education and research units organise a number of summer schools and other opportunities for short-term study at ETH Zurich.

www.ethz.ch → [Studies](#) → [Non-degree courses](#) → [Summer schools](#) →

Doctoral studies

Doctoral studies can follow on from all Master's degree programmes. They involve the first independent research work qualifying graduates for subsequent scientific employment, and the resulting doctorate is normally essential for a professional career in the field of natural sciences. Doctoral studies usually take around four years to complete and involve paid positions as research assistants (with some exceptions).

www.ethz.ch → [Doctorate](#) →

Embarking on a career

A Master's degree or doctorate from ETH is the best start to a successful career. Countless scientists, engineers, teachers and business entrepreneurs started their careers at ETH Zurich.

The university provides support to Master's graduates and doctoral students embarking on their careers through services such as tailored advice on job applications, available positions and development programmes. To find out more, visit

www.careercenter.ethz.ch →

Teaching qualifications

Students of biology, chemistry, geography, computer science, mathematics, physics and sports may study for a teaching certificate which qualifies them to work in the Swiss Gymnasien (university-track secondary schools, akin to grammar schools). Several Master's degree programmes also offer teaching certificates qualifying holders for positions in vocational schools, specialised secondary schools, and universities of applied sciences and other institutes of higher education. Teacher Training is offered in German only.

www.didaktischeausbildung.ethz.ch →

Continuing education opportunities after completion of studies

ETH Zurich offers a wide range of continuing education programmes (Master of Advanced Studies, Diploma of Advanced Studies, Certificate of Advanced Studies), as well as shorter advanced training courses and online courses for those who have completed their studies. Visit the website of the School for Continuing Education for information on the courses currently offered.

www.sce.ethz.ch →

ARCHITECTURE AND CIVIL ENGINEERING

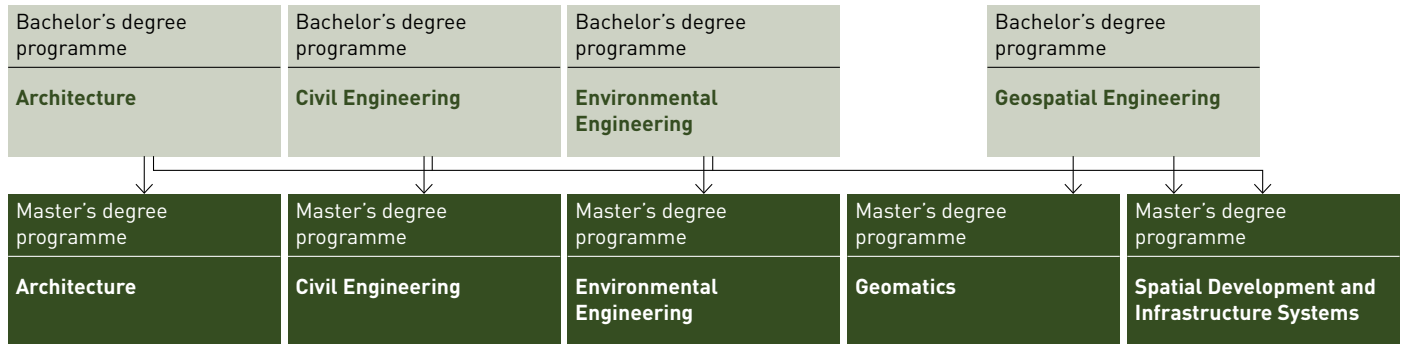


Architecture and Civil Engineering

Society is making increasing demands on the quality of our living and working spaces and our infrastructure and mobility systems. At the same time, our vital soil, water and air resources are becoming scarce and increasingly at risk. Experts from the fields of architecture and civil engineering seek technically, economically and ecologically balanced solutions to address these issues.

Architects design and realise residential, office and industrial buildings. Here they seek creative solutions to satisfy the manifold requirements of both the individual and society at large.

Civil engineers plan and construct infrastructure in the residential, commercial, industrial, transport and energy fields that must be both safe and meet sound technical, economic and ecological requirements.



Environmental engineers use their interdisciplinary knowledge and diverse skills to apply engineering technology to the sustainable management and, if necessary, rehabilitation of such vital resources as water, soil and air.

Geomatic engineers monitor, analyse and visualise our living spaces. The geodata they process are used for navigation, securing property boundaries, issuing early warnings of imminent natural

disasters, and planning and implementing building projects. They also play an indispensable role in various other applications.

Graduates of the ETH Master's degree programme in Spatial Development and Infrastructure Systems deploy their broadly based education in the fields of spatial and transport planning.

Interdisciplinary aspects and an insight into entrepreneurial thought processes are constituent parts of all of these study programmes, in addition to subject-specific knowledge.

Detailed information about all the Architecture and Civil Engineering degree programmes can be found (in German only) at:

www.ethz.ch → [Studium](#) → [Bachelor](#) → [Studienangebot](#) →

Specialised Master's degree programme

Integrated Building Systems see page 92

Architecture

Architecture does not only involve construction. It also comprises a search for creative solutions which address the conflicting issues of building, living and working requirements, aesthetic priorities and maintaining a good quality of life in the structured environment.

Career profile

Architects use architectural resources to create, alter and preserve a structured environment to fulfil the expectations and address the conditions of both the individual and society. In the broad field of construction, their area of responsibility involves analysis, creative thought and action, and negotiation. They reflect on the needs of society and convert these into a structured environment. They respond to changes in conditions and design far-sighted strategies to manage change.

Architects either work independently or as employees in architectural offices. They are also employed in construction companies, administration and large businesses, and work in the fields of design, art and culture.

Programme structure

The Bachelor's degree programme in Architecture is divided into three areas which run through the entire programme. The first, comprising architectural design and construction and the fundamentals of art and creativity, is the main focus. The second covers the scientific and technical disciplines, and the third humanities and social sciences and mathematics.

Bachelor's degree programme

The aim in the first year of study is to develop the perceptive and creative faculties, impart the methodology of architectural design, and provide a grounding in the natural sciences, technology and the humanities and social sciences. This basic knowledge is expanded in the second and third years. Six months of work experience in the field of architecture must also be completed to obtain a Bachelor's degree.



Master's degree programme

The aim of the Master's degree programme is to expand the knowledge acquired in the Bachelor's degree programme, and to foster an increasingly independent and individual approach to working, the development of integrative thought and creative faculties and the handling of larger-scale architectural assignments.

To obtain a Master's degree, proof of external work experience lasting at least six months must be provided.

Bachelor's degree programme (180 credits)

Courses in design and technology:
Visual Design, Drafting, Construction

Courses in technology and natural sciences:
Structural Engineering, Building Technology, Ecology, etc.

Courses in the humanities and social sciences:
Mathematical Thought, Sociology, History of Art and Architecture, etc.

Seminar weeks

Six months' work experience in the architectural field



Master's degree programme (120 credits)

Design

Core subjects, focus work

Electives, seminar weeks

Master's thesis (10 weeks)

Six months' work experience in the architectural field

The Bachelor's degree in Architecture entitles graduates to progress to the Master's degree programme in Spatial Development and Infrastructure Systems, subject to additional requirements.

Civil Engineering

It is difficult to imagine our everyday lives without bridges, tunnels, hydroelectric power plants, road and rail networks, or residential, office and industrial buildings. All of these are subject to increasingly higher demands on standards and functionality because our modern society requires reliable, efficient and safe infrastructure.

Career profile

Civil engineers are highly sought-after specialists who perform demanding tasks in the service of our society. They are more than just cool-headed, smart designers and constructors. While taking the environment into account, they must ensure that buildings and installations are planned functionally, built cost-effectively and can be economically operated and maintained. They work closely with architects, environmental engineers, geomatic engineers, mechanical engineers, electrical engineers, economists, lawyers and other specialists to provide essential bases for political decision-making processes.

They work in engineering offices and construction companies; for federal, cantonal and municipal authorities; in power supply and transport companies; and in research and education.

Bachelor's degree programme

The curriculum begins with the fundamentals of mathematics and natural sciences, and a basic knowledge of engineering. These core competences are subsequently expanded and the foundations laid for the Master's degree programme. The Bachelor's degree programme concludes with a Bachelor's thesis.

Master's degree programme

The Master's degree programme builds upon the knowledge acquired in the Bachelor's degree programme. Students select two out of six possible subject areas (see box). A large range of electives supplement these, making it possible to either specialise further or to broaden out into a wider area of knowledge. Independent project work and seminar papers reinforce the scientific work, and foster the working methods expected in civil engineering. Topical construction projects or research topics are commonly used as examples.



Bachelor's degree programme (180 credits)

General basic courses:

Mathematics, Mechanics, Computer Science, Physics, Geology, etc.

Subject-specific fundamentals:

Selected from the fields of Geotechnical Engineering, Structural Engineering, Transport Systems, Hydraulic Engineering and Water Resources Management, Process Engineering and Materials

Social science subjects:

Law, Business Administration, Systems Engineering

Project work, field courses, Bachelor's thesis



Master's degree programme (120 credits)

Choice of two specialisations from:

- Construction and Maintenance Management
- Geotechnical Engineering
- Structural Engineering
- Transport Systems
- Hydraulic Engineering and Water Resources Management
- Materials and Mechanics

Electives, seminar papers and project work

Master's thesis (16 weeks)

The Bachelor's degree in Civil Engineering entitles graduates to progress to the Master's degree programme in Spatial Development and Infrastructure Systems without any additional requirements.

Environmental Engineering

Water, soil and air are becoming increasingly valuable resources as population increases. The goal of environmental engineers is to manage these vital resources in a sustainable manner and to restore them wherever necessary.

Career profile

Environmental engineers produce well-founded technical solutions drawn from the engineering sciences in the following fields:

- hydrology and water resources management, groundwater
- environmental microfluidics
- urban water management
- river and hydraulic engineering
- ecological systems design
- earth observation for environmental applications
- industrial ecology, air quality control.

They collaborate closely with civil, geomatic and process engineers, economists and social scientists. They work mainly in the fields of water resources management, prevention of water pollution, water supply and waste water treatment, recycling and waste disposal engineering, soil protection, and air and noise pollution control. They work in planning and consulting offices, companies, public administration and research institutes; in the field of risk management in

insurance companies and banks; and in development collaboration projects.

Bachelor's degree programme

The Bachelor's degree programme provides a solid foundation in the fundamentals of mathematics and the natural and engineering sciences. A project in the second semester gives a first insight into practical problem solving. Laboratory work also familiarises students with the necessary analytical and experimental methods. Additional knowledge is acquired in an elective module (see box). The programme concludes with an independent Bachelor's thesis.

Master's degree programme

Building on the basic knowledge acquired in the Bachelor's degree programme, the Master's programme expands students' subject-specific knowledge in a course made up of modules from the fields of water resources management, urban water management, environmental technologies, resource management, and river and hydraulic engineering (see box). This course is supplemented by a broad range of electives. A one-year experimental and computer laboratory provides experience with practical measurement, lab work, collection and analysis of data. Project work and a six-month



Master's thesis provide the opportunity for students to approach a specific topic in an applied or research-oriented manner.

Bachelor's degree programme (180 credits)

General basic courses:

Mathematics, Mechanics, Computer Science, Physics, Chemistry, Geology, etc.

Subject-specific fundamentals:

Hydrology, Hydraulics, Urban Water Management, Ecological Systems Design, Water Resources Management, Air Quality Control, Waste Technology, Earth Observation, etc.

Social science subjects:

Law, Business Administration, Systems Engineering, Project Management

One elective module chosen from:

Soil Protection, Environmental Planning, Civil Engineering, Energy

In addition: laboratory course, Bachelor's thesis



Master's degree programme (120 credits)

Choice of one module from:

- Urban Water Management
- Environmental Technologies
- Resource Management
- Water Resources Management
- River and Hydraulic Engineering

Electives, laboratory course, project work

Master's thesis (6 months)

The Bachelor's degree in Environmental Engineering entitles graduates to progress to the ETH Master's degree programmes in Environmental Sciences or Spatial Development and Infrastructure Systems without any additional requirements.

Geospatial Engineering

Geospatial Engineering graduates use digital models of our living space, sustainable spatial planning and clever transport concepts to play a vital part in building our future and solving the major challenges faced by our society and the world at large.

Career profile

Geomatic engineers are specialists in recording and visualising spatial structures and changes. They use all kinds of different measuring systems, data sources and methods to digitise, analyse and visualise our habitat. Their field of activity ranges from taking measurements of the entire planet through to creating plans, maps and apps, or even applying their skills to dimensional verification in the shipbuilding and plant engineering industries. Engineers with a specialisation in spatial development and infrastructure systems deal with the sustainable development of settlements, landscapes, transport and infrastructure – designed to meet the needs of today and tomorrow. They work independently or as sought-after experts in engineering offices, industrial companies or IT system manufacturers, or in public administration, research, development and education.

Bachelor's degree programme

The Bachelor's degree programme teaches students the fundamental principles of mathematics, the natural sciences and engineering. A project in the second semester provides insights into practical issues and scientific working. Students learn the fundamental skills they need to record, analyse and use spatial data which can be used to model and shape the world we live in. The study programme is ideal preparation for a Master's degree in Geomatics or in Spatial Development and Infrastructure Systems.

Master's degree programme

In their selected Master's degree programme, students build on and deepen their knowledge and skills, selecting individual focus areas from a broad range of subjects. The programme is rounded out with an interdisciplinary project and a 16-week, research-oriented Master's thesis project. Graduates of the Master's degree programme in Geomatics can go on to apply for the Swiss federal licence for surveyors.

Bachelor's degree programme (180 credits)

General basic courses:

Mathematics, Computer Science, Physics, Machine Learning, etc.

Subject-specific fundamentals:

Geodesy, Measurement Technology, Cartography, GIS, Spatial Planning, Transport, etc.

Social science subjects:

Law, Economics

Elective modules:

Geodesy and Satellite Navigation, Digitisation and 3D Modelling, GIS and Cartography, Spatial and Environmental Planning, Transport Systems, Network Infrastructures

Field courses, electives, Bachelor's thesis



Master's degree programme in Geomatics (120 credits)

Choice of two specialisations from:

- Engineering Geodesy and Photogrammetry
- Space Geodesy and Navigation
- GIS and Cartography
- Planning

Electives, seminar and project work

Master's thesis (16 weeks)



Master's degree programme in Spatial Development and Infrastructure Systems (120 credits)

www.re-is.ethz.ch →

The Master's degree programme offers a wide-ranging education in the areas of Traffic Planning, Transport Systems, Spatial Development, Space Utilisation, Urbanism, Environmental Planning and Infrastructure Development. With help from a tutor, students draw up their own individual curricula.

Electives, project work and a 16-week Master's thesis supplement the courses offered.

The Bachelor's degree in Geospatial Engineering entitles graduates to progress to the Master's degree programmes in Geomatics or Spatial Development and Infrastructure Systems without any additional requirements.



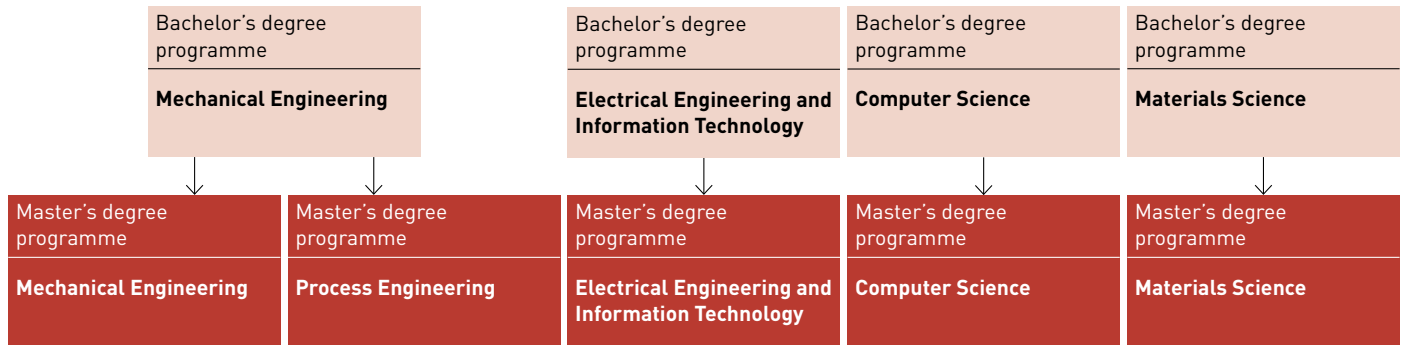
ENGINEERING SCIENCES



Engineering Sciences

Whether for transport, communication, industry or medicine, our high-tech society needs efficient products and production processes: without them our current standard of living would be inconceivable. Engineers are responsible for their development.

Engineering graduates are well prepared to explore a vast and international world of activity. They work in industrial companies in research and development, or as product and sales managers, e.g. in the fields of energy, mechatronics, biomedical engineering and micro- and nanosystems. They may be responsible for logistics and planning in the service sector, or work as consultants and marketing



experts. Banks and insurance companies are also interested in engineers, for example as analysts or damage experts.

Engineers' educational options are correspondingly broad. They are always based on solid mathematical and scientific fundamentals. Apart from the classical engineering disciplines of mechanical engineering, process engineering, electrical engineering

and information technology, computer science and materials science, an increasing number of specialised study programmes are being developed. The Master's degree programme in Management, Technology and Economics, for example, offers holders of Bachelor's degrees in Mechanical Engineering or Electrical Engineering and Information Technology a chance to focus on economics and management. Many other specialised Master's degree programmes offer students interdisciplinary further education in a wide variety of areas.

Detailed information about all the Engineering Sciences degree programmes can be found (in German only) at:

www.ethz.ch → [Studium](#) → [Bachelor](#) → [Studienangebot](#) →

Specialised Master's degree programmes

- **Biomedical Engineering**
- **Biotechnology**
- **Computational Biology and Bioinformatics**
- **Data Science**
- **Energy Science and Technology**
- **Integrated Building Systems**
- **Micro and Nanosystems**
- **Neural Systems and Computation**
- **Nuclear Engineering**
- **Robotics, Systems and Control**

The specialised Master's degree programmes are described on pages 88–95.

Mechanical Engineering

A sound technological basis and a wide horizon provide the basis for the work of mechanical engineers at the interfaces where electronics, computer science, mechanics, thermodynamics and chemistry meet and where products, systems and processes are developed, calculated and planned.

Career profile

Mechanical engineers develop many varied products, ranging from tiny microsensors for medical technology and highly efficient energy plants to applications for automotive and aviation engineering. They use computers to design new machine tools or construct wheelchairs that can climb stairs. In the process engineering field, for example, they control industrial, biotechnical or chemical processes. They also assume management tasks in companies, work as quality or risk assessment experts in the service industry (evaluating fire and explosion hazards, for example), draw up production forecasts, and work in the field of strategic consultancy. Their professional environment is internationally oriented.

Bachelor's degree programme

In the first three semesters, basic theoretical knowledge of mechanical engineering is acquired in compulsory subjects. From the fourth semester onwards, students attend electives in their main areas of interest. In the fifth semester, they select an area of focus or a focus project. A Bachelor's thesis must be written in the sixth semester.

A five-week workshop placement in an industrial company is another component of the Bachelor's degree programme.

Master's degree programme in Mechanical Engineering

At the start of the Master's degree programme, students collaborate with a professor (their tutor) to draw up an individually designed curriculum. This consists of multidisciplinary and core subjects that are closely linked to the area of interest (e.g. sustainable energy use, mechatronics, product development or robotics).

The programme is completed by a twelve-week industrial placement, a semester project and the Master's thesis.



Master’s degree programme in Process Engineering

The Master’s degree programme is similar in structure to the Master’s degree programme in Mechanical Engineering, but the core subjects come from the field of process engineering and cover essential chemical and biological processes. Graduates of the Bachelor’s degree programme in Chemical Engineering are also admitted to this programme without any additional requirements.

Bachelor’s degree programme (180 credits)

General basic courses:
 Mathematics, Computer Science, Chemistry, Physics

Basic courses in engineering:
 Product Development, Control Engineering, Thermodynamics, etc.

Area of focus: Biomedical Engineering; Design, Mechanics and Materials; Energy, Flows and Processes; Mechatronics; Microsystems and Nanotechnology; Production Technology; Management, Technology and Economics

or a focus project

Electives, workshop placement, engineering tools, Bachelor’s thesis

↓

Master’s degree programme in Mechanical Engineering (90 credits)

Core subjects
Multidisciplinary subjects
Semester project
Master’s thesis (6 months)
Industrial placement

↓

Master’s degree programme in Process Engineering (90 credits)

Core subjects
Multidisciplinary subjects
Semester project
Master’s thesis (6 months)
Industrial placement

The Bachelor’s degree in Mechanical Engineering entitles graduates to progress to the Master’s degree programme in Management, Technology and Economics without any additional requirements (see page 80).

Electrical Engineering and Information Technology

Electrical engineering and information technology have become an integral part of our digitalised world. Every “intelligent” device is built with the expertise of electrical engineers, who work with electrical and electronic systems ranging from minuscule semiconductor devices to enormous power plants. Mathematics, physics and computer science form the basis of the diverse toolbox used by electrical engineers to invent, develop and build the technology of the future.

Career profile

Many of the findings and products of electrical engineering influence the way our society functions. Most notably, they include smartphones, navigation satellites, industrial robots, imaging techniques and renewable energies. By studying Electrical Engineering and Information Technology, students will gain the theoretical foundations and practical skills they need to build a successful career in a wide range of different fields relating to information processing, electronics, energy supply and biomedical engineering.

Electrical engineers work in research and development in many industrial companies both in Switzerland and abroad. Many challenging jobs for Electrical Engineering and Information Technology

graduates can also be found in strategy consultancy, sales, marketing and management. Thanks to the versatility of the ETH programmes, their professional skills are also in demand not just in areas such as the aviation and automotive industries, but also in public companies and the service sector.

Bachelor’s degree programme

The first two years of the degree programme focus on building the theoretical foundations in the compulsory subjects. However, practical skills are also acquired from the very first semester through practical sessions and small group projects. In the third year of the programme, Electrical Engineering and Information Technology students can specialise in a focus area and supplement this with electives. A Bachelor’s thesis completes the programme.



Master's degree programme

Students select their own range of subjects from six areas of specialisation, in consultation with a supervising professor (tutor). The Master's degree programme also includes a semester paper and an (optional) industrial placement, and is completed with a six-month Master's thesis.

Bachelor's degree programme (180 credits)

General basic courses:

Mathematics, Physics, Computer Science

Basic courses in engineering:

Networks and Circuits, Digital Circuits, Signals and Systems, Electromagnetic Fields and Waves, Electronic Circuits, Semiconductor Devices

Core subjects for specialisation:

Communication, Computers and Networks, Electronics and Photonics, Energy and Power Electronics, Biomedical Engineering

Practicals, projects, seminars, electives



Master's degree programme (120 credits)

Core subjects and specialisations (same as Bachelor's degree programme, plus Systems and Control as well as Signal Processing and Machine Learning, individually selected in consultation with tutor)

Semester paper (14 weeks, in parallel with course)

Industrial placement (optional)

Master's thesis (6 months)

The Bachelor's degree in Electrical Engineering and Information Technology entitles graduates to progress to the Master's degree programme in Management, Technology and Economics without any additional requirements (see page 80).

Computer Science

Invisible yet indispensable: computer science is omnipresent in our daily lives. Whether it is in smartphones, air traffic control, stock market transactions, industrial plants or tsunami early warning systems, without computer science the modern world would come to a halt.

Career profile

In computer science, it's all about information, or rather the scientific and technical ways of processing, storing, transmitting and presenting information and, ultimately, imparting knowledge. In addition to technical knowledge, creativity and social skills are also very important. Computer scientists are often globally active and collaborate on projects with other experts. Here they act both as specialists and consultants and perform management functions. They operate in very diverse areas of society, which include science, administration, medicine, transport, the environmental sector and finance. Thus computer science is an important mainstay of modern society.

Bachelor's degree programme

During the first year of the programme, students acquire knowledge of the fundamentals of mathematics as well as of systematic programming and its fundamental concepts (data structures, algorithms and parallel programming). In the second year, students become acquainted with the following core areas of computer science: Computer and Software Systems, Theoretical Computer Science and Computational Science. In the third year they deepen their knowledge in selected areas and build a foundation for the Master's degree programme. The Bachelor's thesis completes the programme.

Master's degree programme

During the Master's degree programme, students may either deepen their knowledge in one of the areas of computer science listed in the box to the right or design their own study programme in "General Computer Science" via a combination of different specialisation areas. The programme concludes with a six-month Master's thesis.



Bachelor's degree programme (180 credits)

General basic courses:
 Mathematics, Digital Circuits

Basic computer science:
 Programming, Algorithms, Computer Architecture, Operating Systems, Networks, Databases, etc.

Specialisations:
 Computer and Software Systems, Theoretical Computer Science, Computational Science

Seminar, Bachelor's thesis



Master's degree programme (90 credits)

Possible specialisations:
 Theoretical Computer Science, Information Security, Software Engineering, Information Systems, Distributed Systems, Visual Computing, Computational Science

Interfocus courses

Electives in computer science

Elective courses

Master's thesis (6 months)

Materials Science

Materials are crucial to the performance efficiency, effectiveness, quality and environmental friendliness of products and processes in every aspect of modern life.

Career profile

Research, development, production, testing and life cycle analysis of high-performance materials are some of the areas in which materials scientists are active. They build a bridge between the microstructure and composition of materials on the one hand, and the macroscopic properties of the products made from the materials on the other. This requires a thorough scientific education as well as an understanding of issues relating to process engineering, economics and ecology. A willingness to collaborate on an interdisciplinary level with experts from all these fields is essential.

Bachelor's degree programme

In the first four semesters of the Bachelor's degree programme, the fundamentals of materials science, chemistry, physics and mathematics are taught. The last two semesters are dedicated to specialising in materials science (metals, polymers, ceramics, materials in biology and medicine, composites, characterisation methods). A twelve-week industrial internship or research project during the

lecture-free period and a Bachelor's thesis complement the courses together with numerous exercises, seminars and comprehensive practical laboratory training.

Master's degree programme

After the thorough training in fundamentals in the Bachelor's degree programme, the Master's degree programme gives students the opportunity to specialise in their personal focus area, as well as to take advantage of the full range of materials science courses to expand their breadth of knowledge. Projects undertaken in the lecture-free period give students hands-on experience with cutting-edge research and prepare them for their Master's thesis.

The programme is complemented with a Master's thesis, which is carried out independently in one of the numerous research groups.



Bachelor's degree programme (180 credits)

General basic courses:

Mathematics, Physics, Chemistry

Materials science subjects:

Metals, Polymers, Ceramics, Materials in Biology and Medicine, Composites, Characterisation Methods, Materials Physics, Polymer Chemistry

Seminars, laboratory courses

Industrial internship or research project

Bachelor's thesis



Master's degree programme (120 credits)

Core and elective courses

Two projects, Master's thesis (6 months)

Specialisations according to individually designed curriculum, e.g.

Materials Engineering, Materials Modelling, Materials Characterisation, Materials for Energy and Sustainability or Materials for Electronic Devices

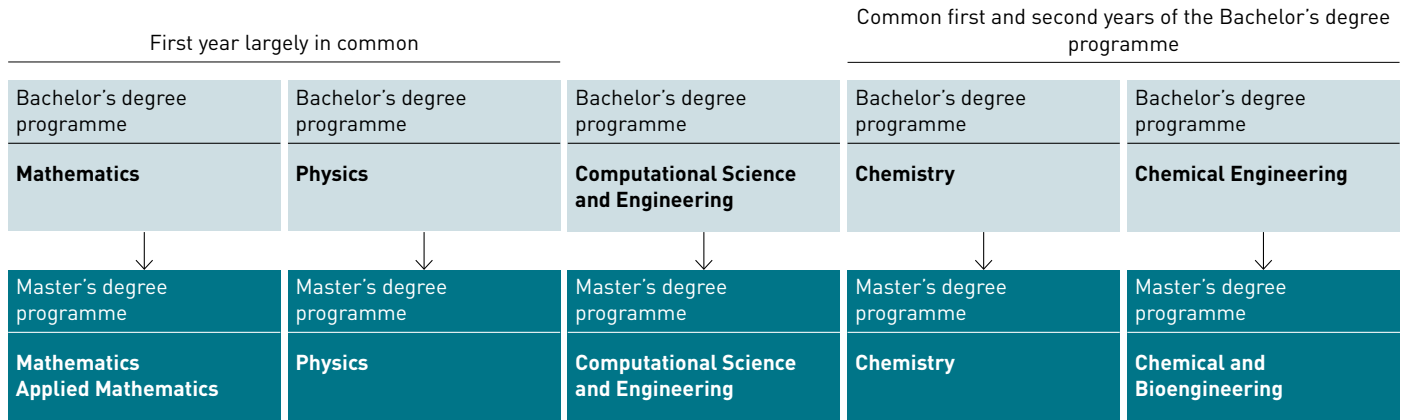
NATURAL SCIENCES AND MATHEMATICS



Natural Sciences and Mathematics

Natural sciences and mathematics are firmly anchored in basic research. They seek the laws that control our universe, the Earth and our lives. They have fathered a wide variety of applications in technology, medicine and economics.

New mathematical insurance models, medicines, plastics and technologies are continually being developed from theories and research projects that initially appeared abstract, but have quickly become established in our world. Over the centuries, our view of the



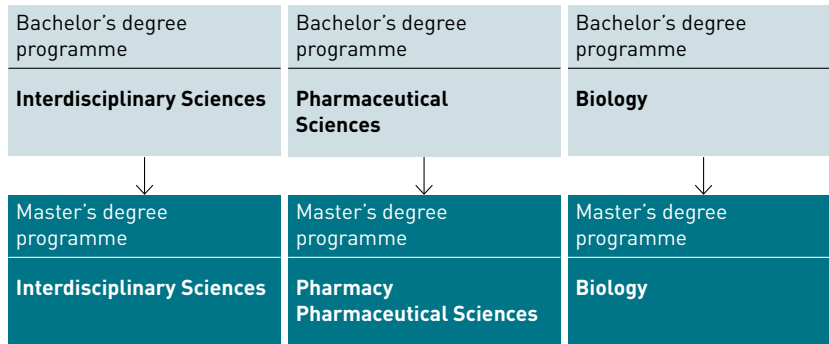
world has also been marked by major mathematical and scientific ideas, such as evolution, the atom and the theory of relativity.

Nowadays, every new development in our lives is analysed and researched within a very short time. The study programmes and majors available at ETH for students to choose from are correspond-

ingly varied. The Master's degree often leads directly to a larger piece of research work in the form of a doctoral thesis.

Detailed information about all the Natural Sciences and Mathematics degree programmes can be found (in German only) at:

www.ethz.ch → [Studium](#) → [Bachelor](#) → [Studienangebot](#) →



Specialised Master's degree programmes

- **High Energy Physics**
- **Neural Systems and Computation**
- **Quantitative Finance**
- **Statistics**

The specialised Master's degree programmes are described on pages 88–95.

Mathematics

Mathematics is the language in which our era's technical and scientific knowledge is formulated. It is also an indispensable tool in computer science, insurance and the economy. However, its actual core is pure mathematics: the intensive study of abstract structures and geometrical objects, and the discovery and description of the laws that govern them.

Educational objective and career profile

The principal aim of a degree in Mathematics is a broad education in the fundamentals of mathematics that allows graduates to independently acquire further knowledge for their future professional work.

Mathematicians work in many different fields. They conduct research and teach at universities, universities of applied sciences and secondary schools. They work for insurance companies and, increasingly, in banks, industry, software development, planning and business optimisation, or as statisticians in the public sector.

A distinct talent for abstract thought is always essential for studying and working with mathematics.

Bachelor's degree programme

The study of mathematics at ETH Zurich differs from degree courses at other institutions of higher education because it dovetails closely with physics. The first year of study is nearly identical in the Mathematics and Physics degree programmes and, after the first year, it is possible to switch in either direction. The first two years of the Bachelor's degree programme cover the fundamentals of mathematics, physics and computer science and advanced knowledge in various mathematical disciplines. From the third year, there are no longer any compulsory courses. Instead, students can choose from a wide range of core subjects, electives and seminars.

Master's degree programme

Students on the Master's degree programme decide whether to study Mathematics or Applied Mathematics. In Mathematics, core subjects and electives can be selected from the fields of pure or applied mathematics. In Applied Mathematics, some courses must be taken from applied fields (e.g. financial and insurance mathematics). In addition, one application area must be selected (e.g. theoretical physics). Students decide only at the end of the programme which degree title they will apply for.



Bachelor's degree programme (180 credits)

Largely common first year for undergraduates in Mathematics and Physics:
 Analysis, Linear Algebra, Numerical Analysis, Physics, Computer Science

Specialised courses from the second year onwards:
 Algebra, Topology, Probability and Statistics, etc.

Core and elective courses from the fields of Pure Mathematics and Applied Mathematics

Seminars, Bachelor's thesis



Master's degree programme (90 credits)

Core and elective courses, seminars, semester papers
Master's thesis (5 months)

Master's degree in Mathematics **Master's degree in Applied Mathematics**

Physics

Physics is the science which studies the natural laws of our world and delivers the basic principles for technical developments. Much that is of enormous practical importance today is based on insights that were gained through physics.

Educational objective and career profile

The degree programme in Physics builds upon a good basic knowledge of mathematics and demands a distinct talent for abstract thinking. It provides broad fundamental training which allows graduates to independently acquire further knowledge in their chosen profession.

Graduate physicists often carry out research in industrial or state-owned laboratories. They are involved in such varied tasks as, for example, the testing of atmospheric processes, materials research, the development of technology on an atomic scale or the use of high-energy rays in medicine. Since physicists are typically found in areas where questions have to be asked, practical experience gained and methods developed, their skills are also valued in many other professional fields.

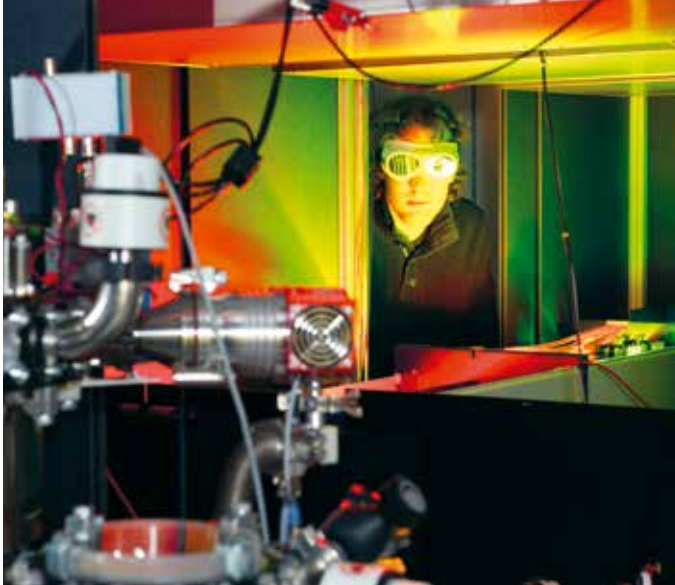
Bachelor's degree programme

The Bachelor's degree programme in Physics at ETH Zurich stands out because of the sound and diverse basic training it offers. Its aim is to familiarise students with fundamental physical concepts, structures and methods, supplemented by a broad basis in mathematical subjects. The first year of study is nearly identical in the Mathematics and Physics programmes, and it is possible to switch in either direction at the end of the first year.

In the second and third years, students attend more specialised lectures in experimental and theoretical physics and carry out practicals to deepen their theoretical and methodological grounding. In the third year, students can choose from a wide range of core subjects to study alongside the practicals. In their final semester, students can either complete semester papers in theoretical or experimental physics or take a theoretical proseminar.

Master's degree programme

With its varied range of electives, the Master's degree programme offers students the opportunity to deepen their knowledge in one or more areas of physics. Particular value is placed on flexibility and learning through research within a research group. The six-month



Master's thesis project may be conducted in the field of experimental or theoretical physics.

Bachelor's degree programme (180 credits)

Largely common first year for undergraduates in Mathematics and Physics:

Analysis, Linear Algebra, Numerical Methods, Physics, Computer Science

Courses in theoretical and experimental physics:

General Mechanics, Electrodynamics, Quantum Mechanics, Thermodynamics, Astrophysics, Solid-state Physics, Quantum Electronics, Nuclear and Particle Physics, etc.

Practicals, semester paper in research groups



Master's degree programme (90 credits)

Theoretical and experimental core subjects

Electives:

e.g. from the fields of Astrophysics, Atmospheric Physics, Biophysics, Solid-state Physics, Nuclear Physics, Medical Physics, Neuroinformatics, Quantum Electronics, Reactor Physics, Particle Physics, Theoretical Physics

Proseminars and semester papers

Master's thesis (6 months)

Computational Science and Engineering

Computational Science and Engineering (CSE) provides future-oriented training in mathematics, computer science and at least two areas of application from the natural and engineering sciences.

Educational objective and career profile

Computational Science and Engineering differs from Computer Science. It also differs from traditional natural and engineering sciences, offering a third component in addition to theory and experiment. Computational Science and Engineering is interdisciplinary, application-oriented, focuses on problem-solving and is essentially based on the use of the computer. Graduates of the CSE programme understand a problem from the scientific and technological point of view, and they have the skills necessary to perform a computer-based analysis of a problem. They can communicate with specialists in the fields of mathematics, physics, chemistry, engineering sciences and computer science in their languages, and work with them to find computer-based solutions to difficult practical problems. Accordingly, their field of activity lies in research and development in the industrial and university sectors.

Bachelor's degree programme

The Bachelor's degree programme comprises three years of study, but it is possible to complete the first year in another degree programme at ETH Zurich or another university.

During the first year, students are taught the fundamentals of mathematics, physics and computer science. During the second year, in addition to a deepening in the fundamentals of mathematics and computer science, they are instructed in the basics of the natural sciences and engineering.

In the third year, students study two compulsory core subjects, as well as one (small) specialisation (see list on the right). Electives, case studies and a Bachelor's thesis conclude the degree programme.

Master's degree programme

The Master's degree programme consists of two compulsory core subjects, one (major) field of specialisation from those listed for the Bachelor's degree programme, electives, case studies, a semester paper and a six-month Master's thesis project.



Bachelor's degree programme (180 credits)

First year:

Mathematics, Physics, Computer Science
(or first year completed in another degree programme, except
Architecture, Materials Science and the Public Policy programme
[Professional Officer])

Basic courses from:

Mathematics, Computer Science, Engineering and Natural Sciences

Core courses:

High Performance Computing, Machine Learning, Software Design

One field of specialisation selected from:

Astrophysics, Physics of the Atmosphere, Chemistry, Fluid Dynamics,
Systems and Control, Robotics, Physics, Computational Finance,
Electromagnetics, Geophysics, Biology

Electives, case studies, Bachelor's thesis



Master's degree programme (90 credits)

Core courses:

Advanced Numerical Methods for CSE, Computational Statistics,
How to Write Fast Numerical Code

Field of specialisation (see Bachelor's degree programme)

Electives, case studies, semester paper

Master's thesis (6 months)

Chemistry / Chemical and Bioengineering

Our environment consists of a vast variety of molecules. The molecular sciences research their structure and their formation in nature. However, they also deal with the products and chemical processes in our industrial society, from the manufacture of a drug to environmental technology processes.

Professional training in the molecular sciences is very diverse, but it has a common basis. Therefore the two programmes available at ETH offer combined teaching in the fundamentals of science during the first two years of study. The aim of this is for students to acquire the basic scientific knowledge necessary to acquaint them with various fields of activity. From the third year onwards training diverges, as described below.

Educational objective and career profile

Chemistry – understanding and creating molecules

Chemistry deals with the fascinating world of molecules. During their studies, chemists gain the knowledge and skills to research, understand and describe the properties and behaviour of molecules. They also learn the methods and strategies for producing new molecules with desired characteristics.

Research is therefore one of the most important areas of activity in chemistry, particularly in the context of developing new substances and synthetic procedures. Further fields include chemical analysis, environmental protection and safety, patents and documentation. Graduates work at universities, in private and state-owned laboratories, at research institutes and in the chemical industry, but are also sought after in other sectors of industry, public services, the health service, administration and education.

Chemical and Bioengineering – from molecules to products

In our modern society, there is hardly a product which is not at least partly made from industrially manufactured chemical substances or chemically altered raw materials. One of the main tasks of chemical and bioengineering personnel is to develop and implement the necessary transformation processes at an industrial level, always taking into account economic efficiency and ecological sustainability.

Chemical engineers are active in the areas of process development and production. They generally work where materials are produced, processed and refined, mainly in the chemical or pharmaceutical industries, but also in other process industries such as metal and machines, electronics, foodstuffs, textiles and synthetics.



The degree programme

Common first and second years of the Bachelor's degree programme

The first two years provide basic knowledge in the core subjects of analytical, inorganic, organic and physical chemistry, plus basic training in mathematics, physics, computer science and biology. Laboratory work is of great importance: here students familiarise themselves with experimental work and apply theoretical knowledge taught in the lectures to practical problems.

Third year of the Bachelor's degree programme and Master's degree programme in Chemistry

The third year of the Bachelor's degree programme in Chemistry includes compulsory lectures in the core subject areas of inorganic, organic and physical chemistry, plus a wide range of electives.

The Master's degree programme, which is usually three semesters long, comprises compulsory lectures in the core subject areas described above, plus a comprehensive range of electives. Practical training in industry or in the laboratory, project work and a five-month Master's thesis project familiarise students with research work based on current topics.

Third year of the Bachelor's degree programme and Master's degree programme in Chemical and Bioengineering

In the third year of the Bachelor's degree programme in Chemical Engineering, students acquire the knowledge in the engineering disciplines necessary for planning, developing and optimising industrial processes for the economic and ecological production of chemical products. The theoretical courses are supplemented by a practical course and case studies in which students deal thoroughly with aspects of planning, modelling and simulating chemical processes.

The Master's degree programme in Chemical and Bioengineering, which usually lasts for three semesters, includes compulsory lectures in the core subject areas of biochemical engineering, products and materials, process design, catalysis and separation, plus a range of electives. Case studies, project work or an industrial placement and a five-month Master's thesis project familiarise students with research work on current topics.

A transfer from one Bachelor's degree programme to the other is possible without any additional requirements during or after completion of the first two years of the programme.



Most Master's graduates in these disciplines progress to a doctoral programme after their Master's degree as preparation for an academic career.

Common first and second years of the Bachelor's degree programme

Bachelor's degree programme in Chemistry
(180 credits)

General basic courses:

Chemistry, Physics, Biology, Mathematics, Computer Science, etc.

Further lectures:

Analytic, Inorganic, Organic and Physical Chemistry

Electives, laboratory courses

Master's degree programme in Chemistry
(90 credits)

Advanced lectures in Inorganic, Organic and Physical Chemistry

Electives, practical training (industry or laboratory) and project work

Master's thesis (20 weeks)

Bachelor's degree programme in Chemical Engineering
(180 credits)

General basic courses:

Chemistry, Physics, Biology, Mathematics, Computer Science, etc.

Further lectures:

Chemical Engineering subjects, Process Engineering, Business Administration

Laboratory courses, case studies

Master's degree programme in Chemical and Bioengineering
(90 credits)

Advanced lectures in Biochemical Engineering, Products and Materials, Process Design, Catalysis and Separation

Electives, project work or industrial placement, case studies

Master's thesis (20 weeks)

The Bachelor's degree in Chemical Engineering entitles graduates to progress to the Master's degree programme in Process Engineering without any additional requirements.

Interdisciplinary Sciences

Many rapidly developing research areas, such as physical chemistry, biophysics, biochemistry and nanotechnology, fall somewhere between the classical subjects of chemistry, physics and biology. This is why today more and more specialists with solid basic training in several sciences are in demand.

Educational objective and career profile

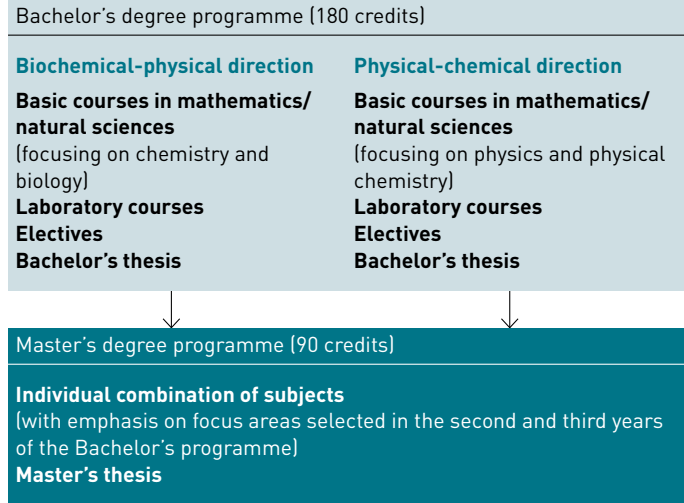
This programme provides interdisciplinary knowledge in different sciences and mathematics. It is mainly suited to students with a broad range of interests. Features of the programme are great freedom in selecting subjects and the fact that all lectures are attended together with the students of the particular course unit discipline. The programme is very demanding, but opens up the way to a host of activities in research, teaching, industry, business and public services. In particular, graduates find challenging jobs in research, the pharmaceutical and chemical industries, instrument companies, the manufacturing industry and consulting agencies.

Bachelor's degree programme

At the start of the Bachelor's degree programme, students select either a physical-chemical or biochemical-physical direction. The first two years cover the fundamentals of natural sciences, mathematics and computer science. From the second year onwards, students compile their own individual curricula from a wide range of electives in physics, chemistry, biology, materials science, computer science, earth sciences and environmental sciences. Lectures are supplemented by laboratory courses. Students write a Bachelor's thesis on a current area of research to further develop their independent research skills.

Master's degree programme

The Master's degree programme, which is usually three semesters long, is the key to specialisation. Subjects are chosen to adequately supplement the main focus areas of the second and third years of the Bachelor's programme. The programme concludes with a Master's thesis on a current research topic.



Pharmaceutical Sciences

The development of every drug draws on an extensive body of knowledge concerning the chemical, physical and biological properties of its active ingredients and excipients, the technology of its production and its effect on the human body.

Educational objective and career profile

Pharmacists acquire fundamental knowledge about drugs. They are specialists in this field and work in a very diverse range of areas for the benefit of society. They perform research on new therapeutic and diagnostic approaches in industry, address pharmaceutical questions in complex health-related and socio-political contexts, work in consulting and knowledge transfer, hold positions in the public sector or manage public or hospital pharmacies.

Bachelor's degree programme

In the first two years, the course focuses on the fundamentals of science. In addition to theoretical knowledge, practical skills for experimental work in the laboratory are also acquired. Students are introduced to the research and activities that are undertaken in the field of pharmaceutical sciences. The third year is dedicated to

subjects specifically related to the pharmaceutical sciences, supplemented by practicals on medicines which have an interdisciplinary orientation. The programme is completed by a three-week internship in a pharmacy and a first-aid course.

Master's degree programme in Pharmacy

This is a two-year programme leading to a Master's degree and a Swiss Federal Diploma for pharmacists, entitling holders to run a public or hospital pharmacy. In the first year, students attend compulsory lectures and choose electives, while workshops with clinical case studies run in parallel with the Master's thesis. The second year, which includes a practical internship of several months, prepares the student for pharmacy work.

Master's degree programme in Pharmaceutical Sciences

The fundamentals required for a career in pharmaceutical research and development are provided over three semesters and include a series of lectures, optional industrial placements, project work and a Master's thesis.



Bachelor's degree programme (180 credits)

General basic courses:
 Mathematics, Chemistry, Biology, Physics, Anatomy, Physiology and Histology

Laboratory courses in Chemistry and Biology

Pharmaceutical subjects and practicals:
 Pharmaceutical Analysis, Medicinal Chemistry and Microbiology, Toxicology, Immunology, etc.

↓

Master's degree programme
 in Pharmacy
 (90 credits)

**Compulsory subjects and
 electives**
Master's thesis (23 weeks) and
 assistance year
**Practical and patient-oriented
 training**

↓

Master's degree programme
 in Pharmaceutical Sciences
 (90 credits)

**Compulsory subjects and
 electives, project work**
Master's thesis (26 weeks)

Biology

In recent decades, biology has moved away from its focus on natural history and has developed into a strongly experimental discipline. Its aim is to examine the structures, functions and interaction of life at molecular and cellular level.

Educational objective and career profile

The study programme for biology is a course in fundamental principles which encompasses an enormously wide range of specialist areas. After the solid grounding of the Bachelor's course, in the Master's degree programme students opt for one of nine specialisation, in which they learn about the specific methods of working and research that are applied in biology. About two thirds of all Master's graduates continue their education with a doctorate.

With their broad scientific training, Biology graduates find that a wide range of careers is open to them. The main employment opportunities include research posts at universities and in private industry, secondary school teaching and applied work in fields such as medicine, pharmacy, agricultural sciences, environmental protection and other areas.

Bachelor's degree programme

The first year of the programme provides an in-depth education in the fundamental natural sciences.

The second year is divided into core subjects (to be taken by all students) and elective modules (three areas to choose from, see box).

In the third year, students are free to choose from a range of block and concept courses, which they select in view of their intended Master's degree programme specialisation.

Master's degree programme

In the Master's degree programme, the focus is on experimental research (two twelve-week research projects and one six-month Master's thesis). Students choose one of the following areas for specialisation:

- Ecology and Evolution
- Microbiology and Immunology
- Cell Biology
- Molecular Health Sciences
- Biochemistry
- Plant Biology
- Systems Biology
- Molecular and Structural Biology
- Biological Chemistry



Bachelor's degree programme (180 credits)

Basic courses in the first year:

Biology, Chemistry, Mathematics, Computer Science, Physics, Statistics

Courses in the second year:

Core courses: Cell Biology, Biochemistry and Molecular Biology, Systems Biology, Microbiology/Plant Biology, Bioinformatics/Genetics/Genomics, Methods of Biological Analytics, etc.

Elective modules:

- Biodiversity: Population and Evolutionary Biology, Mycology, Systematic Biology, Anatomy/Physiology, etc.
- Cellular and Molecular Biology: Population and Evolutionary Biology, Systems Biology, Anatomy/Physiology, Organic or Physical Chemistry
- Biological Chemistry: Inorganic Chemistry, Organic Chemistry, Systems Biology or Anatomy/Physiology, etc.

Third year: Concept and block courses
(free choice)



Master's degree programme (90 credits)

Choice of specialisation (see text)

Lectures, two research projects

Master's thesis (6 months)

SYSTEM-ORIENTED NATURAL SCIENCES

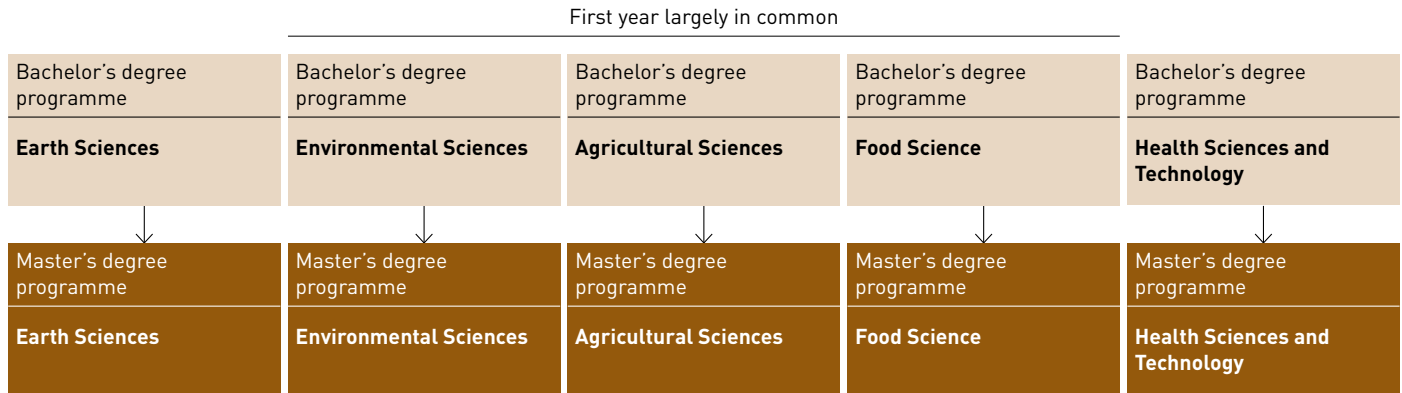


System-oriented Natural Sciences

The system-oriented natural sciences deal with the fundamentals of human life and health on an interdisciplinary basis, from the natural resources of our Earth to the human body at molecular level.

Earth sciences investigate the Earth and its present state and development. Using methods from all areas of science, they study the processes which cause constant change in our continents, oceans, biosphere and atmosphere.

Environmental sciences analyse the biological, chemical and physical properties of environmental systems, the processes involved and the way humans influence them.



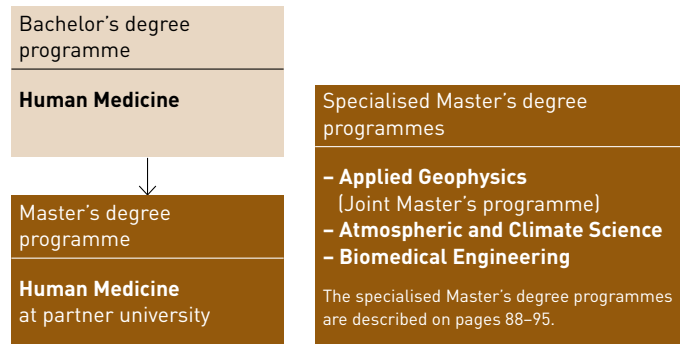
Agricultural sciences and food science work from the perspective of world nutrition and address the pivotal issue of how current and future human nutritional needs can be met optimally with scarce resources.

In health sciences, on the other hand, the education and research focus on how to maintain and improve human health. This subject is at the interface between biology, medicine and engineering sciences. It looks at people from the whole organism down to molecular level.

These degree programmes offer a broad scientific education of the highest quality. Great importance is attached to the subsequent practical application of the knowledge gained.

Detailed information about all the System-oriented Natural Sciences degree programmes can be found (in German only) at:

www.ethz.ch → [Studium](#) → [Bachelor](#) → [Studienangebot](#) →



Earth Sciences

Our Earth is a complex system which undergoes change as a result of all kinds of different processes. In order to understand those processes, earth scientists use laboratory experiments, field campaigns, computer simulations and remote sensing.

Career profile

Earth scientists make a vital contribution to the exploration of all parts of planet Earth. They study the Earth's materials from the atomic to the planetary scale and try to understand the evolution of the planet in the past as well as its present and future development. Their work is practice-based:

- searching for water, mineral resources and energy sources
- predicting and controlling natural disasters
- solving hydrogeological problems in major technical projects
- developing long-term solutions for the disposal of all types of waste
- understanding the causes and consequences of climatic and other environmental change.

Potential employers include engineering offices, international companies, public and private organisations and consulting agencies.

Bachelor's degree programme

In addition to getting to grips with the basics of mathematics and the natural sciences, students will also tackle specific issues relating to Earth sciences in the first two years of the degree programme, including from an interdisciplinary perspective. In the third year, students choose between the two majors in Geology and Geophysics or Climate and Water, and write a Bachelor's thesis in this area. Excursions and field trips are an important supplement to the lectures and practicals throughout the period of study.

Master's degree programme

Students define the focus of their Master's degree through their choice of specialisation.

The Geology specialisation is concerned with the interaction between the Earth's mantle, the Earth's crust, the hydrosphere and atmosphere, as well as the development of rocks from sedimentation to deformation at all scales.

Mineralogy and Geochemistry examines the Earth's materials in the field and in the laboratory to better understand the origins and composition of the planets, conditions in the Earth's core, volcanic activity and the development of valuable raw materials.



Engineering Geology takes a practical approach to addressing the interdependence of our society and the geological substratum, e.g. in the context of construction projects, slumps and rockslides.

Geophysics seeks quantitative answers to global issues, e.g. relating to plate tectonics, the Earth's magnetic field and the occurrence and risk of earthquakes.

Bachelor's degree programme (180 credits)

General basic courses:

Mathematics, Chemistry, Physics, Introduction to Earth Sciences

General and advanced Earth science subjects

Integrated Earth Systems

Excursions and field trips

Majors:

Geology and Geophysics, Climate and Water



Master's degree programme (120 credits)

Choice of specialisation:

- Geology
- Mineralogy and Geochemistry
- Engineering Geology
- Geophysics

Compulsory subjects, modules and electives

Master's thesis

Environmental Sciences

Protecting the environment, making sustainable use of resources and conserving them for future generations are some of the biggest challenges facing mankind today. These are precisely the topics which form the focus of environmental sciences, with researchers investigating the impact of global warming, shedding light on how we can protect ecosystems and testing out methods of preventing the spread of pollutants.

Career profile

Environmental scientists work in a range of professional fields, their interdisciplinary training makes them highly sought-after experts. Nowadays, environmental and planning offices, public administration, insurance providers, financial institutions and other service companies all need the expertise of highly qualified environmental specialists, as do political bodies and organisations involved in international cooperation. Environmental scientists are typically employed as, for example, project managers for environmental organisations, specialists in sustainable investment products, risk experts for dealing with natural disasters, environmental consultants for building projects, forest rangers for Swiss cantons, research scientists or lecturers at universities of applied sciences and other educational institutions.

Bachelor's degree programme

During the first two years of the Bachelor's degree programme, students develop fundamental knowledge of the basic principles of mathematics and the natural sciences, complemented by a grounding in environmental law and economics. Building on this disciplinary knowledge, students are then familiarised with environmental systems (atmosphere, hydrosphere and pedosphere) through lectures, exercises, practical sessions and excursions. A range of courses in humanities and social sciences are also offered, providing knowledge in these areas and fostering critical thought and reflection. In the third year, students may choose from five specialisation subjects (see box). The scientific Bachelor's thesis, which students complete independently, is another focus of the third year.

Master's degree programme

The Master's degree programme imparts the ability to address complex and interdisciplinary issues at a high scientific level and thus provides the basis for an academic career. Holders of this Master's degree also acquire the skills necessary to offer innovative solutions for society, science and the economy.

The Master's degree programme offers six specialisations (see box). A traineeship in Switzerland or abroad enables students to



address environmental questions in a non-academic setting. In the Master's thesis, students apply what they have learned to a specific scientific problem.

Bachelor's degree programme (180 credits)

General basic courses:
 Mathematics, Chemistry, Biology, Physics, Environmental Systems, Environmental Problem-solving

Courses in Humanities and Social Sciences:
 Environmental Law, Swiss Environmental Policy, Economics, etc.

Specialisation subjects:

- Atmosphere and Climate
- Biogeochemistry
- Human-environment Systems
- Environmental Biology
- Forest and Landscape

Scientific and technical electives



Master's degree programme (120 credits)

A specialisation in:

- Atmosphere and Climate
- Biogeochemistry and Pollutant Dynamics
- Human Health, Nutrition and Environment
- Ecology and Evolution
- Environmental Systems and Policy
- Forest and Landscape Management

Additional subjects and/or electives, work experience (18 weeks)

Master's thesis (6 months)

The Bachelor's degree in Environmental Sciences entitles graduates to progress to the Master's degree programme in Environmental Engineering without any additional requirements.

Agricultural Sciences

Agricultural scientists make a valuable contribution to ensuring reliable, ecological, economical and socially sustainable human nutrition. Here they strive to optimise the use of limited natural resources.

Career profile

Agricultural Sciences graduates are in great demand in the global food system. They play a significant role in the search for solutions to problems such as:

- how the growing world population can be sustainably fed without damaging soil, water and air resources
- how the raw materials for producing food and their processing quality can be continuously adapted to market requirements.

Agricultural scientists occupy management positions in commerce and industry, public administration, private organisations and research. Those working at universities and research centres in Switzerland and abroad deliver new insights and deduce methods, processes or procedures. They apply their knowledge in consulting services or in the field of development cooperation. Their expertise enables them to help shape the political and economic conditions underlying global nutrition working in public administration or on international committees.

Bachelor's degree programme

The first two years cover scientific and subject-specific fundamentals. Practical experience is gained through excursions and a ten-week internship with an agricultural farm after the fourth semester. In the third year, students build on these experiences through scientific learning, while gaining methodological skills. The Bachelor's degree programme concludes with a Bachelor's thesis.

Master's degree programme

There are three specialisations (majors) to choose from in the Master's degree programme:

- *Plant Sciences* deals with issues relating to producing, cultivating and protecting plants.
- *Animal Sciences* covers basic knowledge in subjects such as genetics, nutrition, physiology and animal husbandry.
- *Agricultural Economics* takes an in-depth look at economic and social aspects in the use of natural resources.

The specialisation is enhanced by specific supplementary subjects and general electives. Students cement their specialist knowledge during a professional internship (16 weeks, in Switzerland or abroad), while refining the social, methodological and communication skills



they will need for their area of work. The Master's thesis completes the programme.

Bachelor's degree programme (180 credits)

General basic courses:
Mathematics, Chemistry, Biology, Physics, etc.

Social science subjects: Law, Economics

General Agricultural Science subjects

Basics of Agricultural Sciences

Specialist areas in Agricultural Sciences: Plant Sciences, Animal Sciences, Agricultural Economics, methodological subjects

Agricultural Economics, methodological subjects

Excursions, agricultural internship, Bachelor's thesis



Master's degree programme (120 credits)

A specialisation (major) selected from:

- Plant Sciences
- Animal Sciences

Supplementary area (minor I), second supplementary area (minor II) or electives

Professional internship (30 credits)

Master's thesis (6 months)

Food Science

Food scientists work in the fields of production, processing, storage and distribution of safe, high-quality and healthy foods.

Career profile

Graduates of the Food Science programme deal with processing, refining and preserving foodstuffs. Thanks to broad, interdisciplinary training in scientific and technical subjects, they are able to work in various fields. As well as being specialists in their discipline, they are able to communicate and coordinate with experts from other areas too.

They work in the national and international food industry, administration, national and international organisations, commerce, the service sector and development cooperation.

Bachelor's degree programme

The programme starts with a grounding in natural and social sciences. From the second year onwards, a variety of food science courses are offered, ranging from human nutrition, food chemistry, food processing and toxicology to subjects relating to business and economics. The programme is supplemented with excursions and a Bachelor's thesis.

Master's degree programme

There are four specialisations (majors) to choose from in the Master's degree programme:

- *Food Processing* deals with food production and transformation and the optimisation of these processes.
- *Food Quality and Safety* focuses on quality management, food composition and quality maintenance during manufacturing, storage and transportation.
- *Nutrition and Health* addresses foodstuffs and their influence on health.
- *Human Health, Nutrition and Environment* examines the effect of nutrition, disease and the environment on human beings and society.

The specialisation is enhanced by specific supplementary subjects and electives.

The six-month Master's thesis completes the programme. A period of work experience is not compulsory, but is recommended.



Bachelor's degree programme (180 credits)

General basic courses:

Mathematics, Chemistry, Biology, Physics, etc.

Social science subjects: Law, Economics

Food science basic subjects, practicals and advanced courses:

Food Chemistry, Analysis, Microbiology, Biotechnology, Human Nutrition, etc.

Excursions

Bachelor's thesis

Electives



Master's degree programme (90 credits)

A specialisation (major) selected from:

- Food Processing
- Food Quality and Safety
- Nutrition and Health
- Human Health, Nutrition and Environment

Supplementary area (minor I)

Second supplementary area (minor II) or electives

Master's thesis (6 months)

Health Sciences and Technology

In an era of ever-changing lifestyles and an ageing population, maintaining and improving people's health is assuming a central role. This requires experts who understand the human organism from the whole body perspective to the cellular and molecular levels.

Educational objective and career profile

This study programme offers innovative training at the interface between the human being, health and technology. Graduates will be able to build bridges between engineers and doctors/therapists and between the macro and micro worlds. They work as experts in the biomedical, medical technology and pharmaceutical sectors, in research, development, production and marketing, as well as in health policy, administration and insurance. Other career options can be found in medical research and consultancy.

Bachelor's degree programme

The Bachelor's degree programme begins with the fundamentals of mathematics, the natural sciences and the technical sciences. Then the course focuses on the four main areas of Human Movement Science and Sport, Neurosciences, Molecular Health Sciences and Medical Technology. Central subjects include the effects of stress,

nutrition, ageing and medication on human systems and health, the molecular mechanisms of diseases and the properties and adaptability of biological tissue.

The programme also covers the basics of modern technologies and their application in maintaining and improving people's health.

Master's degree programme

In the Master's degree programme, students select one of five areas for specialisation: Human Movement Science and Sport, Neurosciences, Molecular Health Sciences, Medical Technology, and Human Health, Nutrition and Environment. The main focus is on providing an introduction to independent (experimental) scientific work which begins with theory and project work and culminates in the six-month Master's thesis.

Teaching Diploma for Secondary Education (Matura Schools) in Sports

(Supplementary qualification comprising 60 credits + practical sports training) Additional studies in the practice of sports and didactic training which proceed parallel to or follow the Bachelor's or Master's degree programme and qualify graduates to teach sports at secondary school level.



Bachelor's degree programme (180 credits)

Basic natural science and technical subjects:

Mathematics, Physics, Chemistry, Biology, Anatomy and Physiology, Biomaterials, Product Development, etc.

Transdisciplinary and specialised subjects:

Human Movement Science and Sport, Neurosciences, Molecular Health Sciences, Medical Technology

Electives, laboratory courses, humanities and social sciences



Master's degree programme (90 credits)

Specialisation subjects:

- Human Movement Science and Sport
- Neurosciences
- Molecular Health Sciences
- Medical Technology
- Human Health, Nutrition and Environment

Compulsory subjects, electives, humanities and social sciences, project work, practicals

Master's thesis

Teaching Diploma for Secondary Education (Matura Schools) in Sports (supplementary qualification comprising 60 credits + practical sports training)

Courses:

Practice-oriented sports training, pedagogy, specialist teaching methods, practice-oriented training, compulsory elective, specialisation

Human Medicine

in cooperation with partner universities

www.ethz.ch/humanmedizin →

The study of medicine enables practitioners to prevent, identify and cure health problems in humans, relieve pain and promote health.

Educational objective and career profile

The path via ETH Zurich (for the Bachelor's degree) and one of its partner universities (for the Master's degree) lays the foundations for an education in human medicine that will go on to open up opportunities for exchange with the world of science and pave the way towards new developments and technologies. Tackling methods used in the world today, for instance in the areas of personalised medicine and medical engineering, provides a greater understanding of the opportunities and limitations of future treatment methods.

Once the six-year study programme is complete, graduates must then obtain the Swiss federal diploma in human medicine, as well as completing a term of employment as an assistant doctor, before they are qualified for clinical activities. A direct move into different professional fields (research, consultancy) is also possible.

Application and aptitude test

Applications to study medicine are coordinated by swissuniversities and must be submitted by 15 February of the respective year of study.

In German-speaking Switzerland, it is currently also necessary to pass the aptitude test for medical studies, as the number of applicants is significantly higher than the number of available places. Furthermore, students must provide evidence that they have completed a four-week healthcare placement by the end of the Bachelor's degree programme.

Bachelor's degree programme

The Bachelor's degree programme introduces students to the fields of anatomy, physiology and pathophysiology of the organs and organ systems, linking these subject areas to specific clinical and scientific issues. The programme also covers the natural sciences, with students being taught the fundamental principles of biology, chemistry, physics, mathematics and statistics. These essential foundations then enable students to tackle the various focus areas of medical science – digital medicine, medical engineering and medical imaging. This knowledge is continuously applied in a clinical setting, with a focus on doctor-patient interactions and examination methods, taking into consideration the psychosocial, ethical and legal aspects. The Bachelor's degree programme concludes with a translational research internship.



Master's degree programme

During the Master's degree programme, students deepen their medical knowledge at one of the partner universities, as well as practising their skills in a clinical setting during an elective year. The specific structure of the Master's degree programme differs from university to university. However, all universities prepare students for the Swiss federal examination in human medicine.

Bachelor's degree programme (180 credits)

Medical modules:

Organ systems such as the locomotor system, nerve system, cardiovascular system, etc.

Clinical modules:

Conducting consultations, physical examinations, diagnostic procedures, etc.

Natural sciences:

Mathematics, Statistics, Physics, Chemistry, Biology

Medical sciences:

Digital Medicine, Medical Engineering, Medical Imaging



Master's degree programme (180 credits)

Partner universities:

- University of Basel
- Università della Svizzera italiana (Lugano)
- University of Zurich

Medical and clinical modules (including elective year and preparation for federal examination)

Scientific modules (including Master's thesis)

Which Degree Programme is Right for Me?

Whichever programme you choose, motivation and staying power are key deciding factors. It is also important to check whether the basic combination of subject areas appeals to you (see the diagrams on the following pages).

Architecture and Civil Engineering

The Architecture and Civil Engineering degree programmes are characterised by being highly structured at Bachelor's level, with more choice available at Master's level.

In the Civil Engineering, Geospatial Engineering and Environmental Engineering degree programmes, basic subjects such as mathematics, physics, computer science and, in some cases, chemistry are taught in the first year, and then from the second year there is a greater concentration on more programme-specific technical subjects. For Architecture, on the other hand, the basic principles focus far more on creative design and the humanities.

The following questions might help you to choose a study programme. Do I like solving puzzles? Can I imagine using mathematics, mechanics or computer science to build or develop something? Or do I have an instinctive feel for shape? Are my creative skills more suited to designing buildings?

Engineering Sciences

The degree programmes in this area are characterised by two highly structured years at the beginning, followed, with the exception of Materials Science, by a third Bachelor's year which allows considerable freedom of choice within the framework of the specialist courses that are available.

In the first year, the basic subjects of mathematics, physics and computer science are taught, with varying weightings, and then later the foundations are laid for the specific field of study.

You should ask yourself questions such as: Do I enjoy using mechanics to build things? Or do I have more of a flair for computer science and IT? Or am I more interested in chemical questions relating to industrial development and production?

The Bachelor's Degree Programmes at ETH Zurich

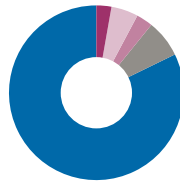
The Basics of the First Two Years of Study

Visit www.ethz.ch → [Studies](#) → [Bachelor](#) → [Advice](#) → [Which degree programme?](#) →

to find more criteria for comparing all the Bachelor's degree programmes.

Architecture and Civil Engineering

Architecture



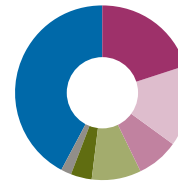
Distribution of subjects:

- Mathematics (3%)
- Physics (5%)
- Computer Science (3%)
- Chemistry (0%)
- Biology (0%)
- Humanities, Law, Social Sciences, Economics (7%)
- Course-specific subjects (82%)

Course-specific subjects:

Architecture and Art, History and Theory of Architecture, Building Materials, Introduction to Monument Preservation, Design and Construction, Drafting, History of Urban Development, Urban Development, Structural Design

Environmental Engineering



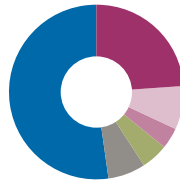
Distribution of subjects:

- Mathematics and Statistics (20%)
- Physics (15%)
- Computer Science (8%)
- Chemistry (9%)
- Biology (4%)
- Humanities, Law, Social Sciences, Economics (2%)
- Course-specific subjects (42%)

Course-specific subjects:

Waste Technology, Geographic Information Systems, Geology and Petrography, Hydrology, laboratory work, Ecological System Analysis, project work, Urban Water Management, Systems Engineering, Environmental Impact Assessment, Water Resources Management

Civil Engineering



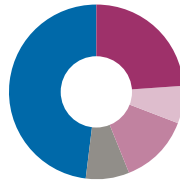
Distribution of subjects:

- Mathematics and Statistics (24%)
- Physics (18%)
- Computer Science (4%)
- Chemistry (5%)
- Biology (0%)
- Humanities, Law, Social Sciences, Economics (7%)
- Course-specific subjects (52%)

Course-specific subjects:

Structural Mechanics, Soil Mechanics, Geodetic Measurement Technology, Geology and Petrography, Hydraulics, Mechanics, Urban Water Management, Steel Construction, Traffic Planning

Geospatial Engineering



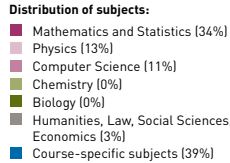
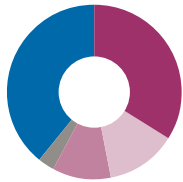
Distribution of subjects:

- Mathematics and Statistics (24%)
- Physics (17%)
- Computer Science (13%)
- Chemistry (0%)
- Biology (0%)
- Humanities, Law, Social Sciences, Economics (8%)
- Course-specific subjects (48%)

Course-specific subjects:

Earth Observation, Geodetic Measurement Technology, Geographic Information Systems, Cartography, Ecology and Soil Science, Parameter Estimation, Project, Spatial and Landscape Development, Space Geodesy, Transport

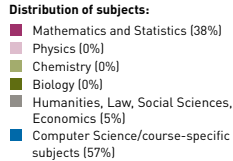
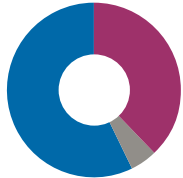
Electrical Engineering and Information Technology



Course-specific subjects:

Digital Circuits, Electronic Circuits, Electromagnetic Fields and Waves, Semiconductor Devices, Networks and Circuits, practicals, projects, Signals and Systems, Computer Engineering

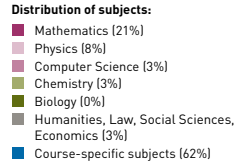
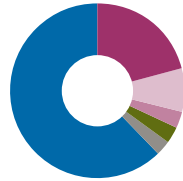
Computer Science



Course-specific subjects:

Computer Networks, Databases and Data Modelling, Digital Circuits, Formal Methods and Functional Programming, Numerical Methods, Parallel Programming, Programming, Systems Programming and Computer Architecture, Theoretical Computer Science

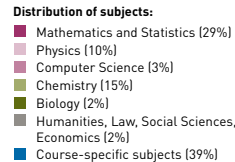
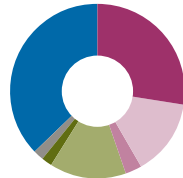
Mechanical Engineering



Course-specific subjects:

Control Systems, Dimensioning, Electrical Engineering, Fluid Dynamics, Engineering Tools, Innovation Project, Innovation Process, Machine Elements, Mechanics, Technical Drawing and CAD, Thermodynamics, Engineering Materials and Production

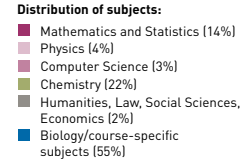
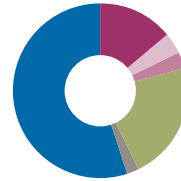
Materials Science



Course-specific subjects:

Introduction to Materials Science, research laboratory and practicals, Crystallography, Materials Physics, Materials Science, Statistical Thermodynamics, scientific methodology

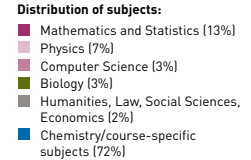
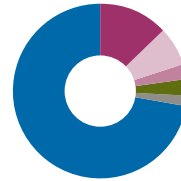
Biology



Course-specific subjects:

Anatomy and Physiology, Biochemistry and Molecular Biology, Bioinformatics, Genetics, Genomics, Foundations of Biology, Methods of Biological Analysis, Microbiology, Plant Biology, System Biology, Cell Biology

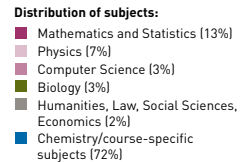
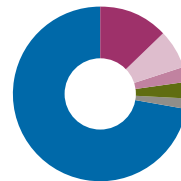
Chemistry



Course-specific subjects:

Analytical Chemistry, Inorganic Chemistry, Chemical Engineering, Organic Chemistry, Physical Chemistry, practicals
The Chemistry and Chemical Engineering degree programmes are identical in the first two years of study.

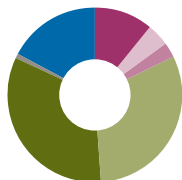
Chemical Engineering



Course-specific subjects:

Analytical Chemistry, Inorganic Chemistry, Chemical Engineering, Organic Chemistry, Physical Chemistry, practicals
The Chemistry and Chemical Engineering degree programmes are identical in the first two years of study.

Pharmaceutical Sciences



Distribution of subjects:

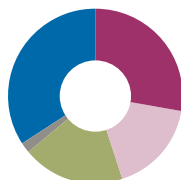
- Mathematics and Statistics (11%)
- Physics (4%)
- Computer Science (3%)
- Chemistry (31%)
- Biology (33%)
- Humanities, Law, Social Sciences, Economics (1%)
- Course-specific subjects (17%)

Course-specific subjects:

Anatomy and Physiology, Introduction to the Pharmaceutical Sciences, Histology, Pharmaceutical Analysis

Interdisciplinary Sciences

Physical-chemical direction



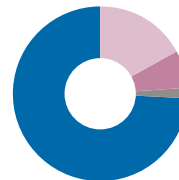
Distribution of subjects:

- Mathematics (28%)
- Physics (17%)
- Computer Science (0%)
- Chemistry (19%)
- Biology (0%)
- Humanities, Law, Social Sciences, Economics (2%)
- Course-specific subjects (34%)

Course-specific subjects:

From the second year of study, students can choose from a range of subject packages, such as: Biophysics and Organic Chemistry, Experimental Physics, Materials and Analysis, Nano and Materials Science, Quantum Chemistry, Theoretical Physics, Environmental Sciences and Physical Chemistry

Mathematics



Distribution of subjects:

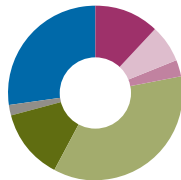
- Physics (17%)
- Computer Science (7%)
- Chemistry (0%)
- Biology (0%)
- Humanities, Law, Social Sciences, Economics (2%)
- Mathematics and statistics/course-specific subjects (74%)

Course-specific subjects:

Algebra, Analysis, Complex Analysis, Geometry, Linear Algebra, Measure and Integration, Methods of Mathematical Physics, Numerical Analysis, Topology, Probability and Statistics

Interdisciplinary Sciences

Biochemical-physical direction



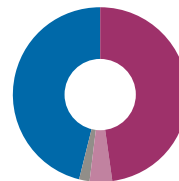
Distribution of subjects:

- Mathematics and Statistics (12%)
- Physics (7%)
- Computer Science (3%)
- Chemistry (36%)
- Biology (13%)
- Humanities, Law, Social Sciences, Economics (2%)
- Course-specific subjects (27%)

Course-specific subjects:

From the second year of study, students can choose from a range of subject packages, such as: Biochemistry, Bioinformatics, Chemistry and Materials Science, Chemistry and Medical Chemistry, Physical Chemistry, Physical and Analytical Chemistry, Environmental Sciences and Physical Chemistry

Physics



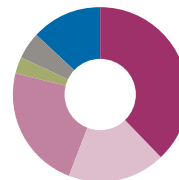
Distribution of subjects:

- Mathematics (48%)
- Computer Science (4%)
- Chemistry (0%)
- Biology (0%)
- Humanities, Law, Social Sciences, Economics (2%)
- Physics/course-specific subjects (46%)

Course-specific subjects:

General Mechanics, Electrodynamics, Physics I-III, physics practicals, Theory of Heat

Computational Science and Engineering



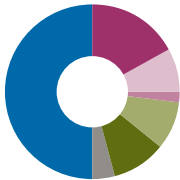
Distribution of subjects:

- Mathematics and Statistics (38%)
- Physics (18%)
- Computer Science (23%)
- Chemistry (3%)
- Biology (0%)
- Humanities, Law, Social Sciences, Economics (5%)
- Course-specific subjects (13%)

Course-specific subjects:

Numerical Methods for CSE, Numerical Methods for Partial Differential Equations

Agricultural Sciences



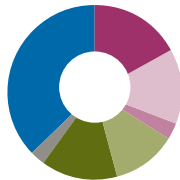
Distribution of subjects:

- Mathematics and Statistics (17%)
- Physics (8%)
- Computer Science (2%)
- Chemistry (9%)
- Biology (10%)
- Humanities, Law, Social Sciences, Economics (4%)
- Course-specific subjects (50%)

Course-specific subjects:

Agricultural Economics, agricultural internship, Basics of Agricultural Sciences, excursions, Plant Sciences, Animal Sciences, Environmental Systems, World Food System

Health Sciences and Technology



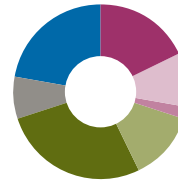
Distribution of subjects:

- Mathematics and Statistics (17%)
- Physics (14%)
- Computer Science (3%)
- Chemistry (12%)
- Biology (14%)
- Humanities, Law, Social Sciences, Economics (3%)
- Course-specific subjects (37%)

Course-specific subjects and practicals:

Anatomy and Physiology, Introduction to Health Sciences and Technology, Medical Technology, electives

Food Science



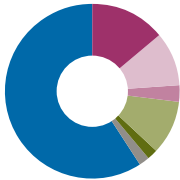
Distribution of subjects:

- Mathematics and Statistics (18%)
- Physics (10%)
- Computer Science (2%)
- Chemistry (13%)
- Biology (27%)
- Humanities, Law, Social Sciences, Economics (8%)
- Course-specific subjects (22%)

Course-specific subjects:

Excursions, Food Analysis, Food Chemistry, Food Technology, Food Processing, Food Science laboratory practicals, World Food System

Earth Sciences



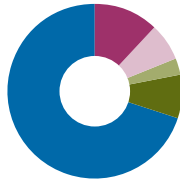
Distribution of subjects:

- Mathematics and Statistics (14%)
- Physics (10%)
- Computer Science (3%)
- Chemistry (10%)
- Biology (2%)
- Humanities, Law, Social Sciences, Economics (2%)
- Course-specific subjects (59%)

Course-specific subjects:

Atmosphere, Dynamic Earth, Earth Sciences excursions, Earth Sciences practical map training, Geochemistry, Geology of Switzerland, geological field trips, Geophysics, Geophysical field practical, Foundations of Rock Microscopy, Integrated Earth Systems, Climate Systems, Crystals and Minerals, Magmatism and Rock Metamorphosis, Oceanography and Hydrogeology, Palaeontology and Biostratigraphy, Sedimentology, Structural Geology

Human Medicine



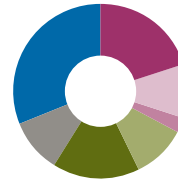
Distribution of subjects:

- Mathematics and Statistics (12%)
- Physics (7%)
- Computer Science (0%)
- Chemistry (3%)
- Biology (8%)
- Humanities, Law, Social Sciences, Economics (0%)
- Course-specific subjects (70%)

Course-specific subjects:

Clinical subjects (doctor-patient relationship, physical examination, dissection), Medical Sciences, Organ Systems (locomotor system, nerve system, cardiovascular system)

Environmental Sciences



Distribution of subjects:

- Mathematics and Statistics (20%)
- Physics (10%)
- Computer Science (3%)
- Chemistry (10%)
- Biology (16%)
- Humanities, Law, Social Sciences, Economics (10%)
- Course-specific subjects (31%)

Course-specific subjects:

Atmosphere, excursions, field trips, Hydrosphere, technical and natural science electives, Pedosphere, practicals, Environmental Problem-solving, Environmental Systems

Natural Sciences and Mathematics

These degree programmes deal with the basic principles of the laws of nature right from the start. The main focus is on research, with less attention being paid during the study programme to specific subsequent career options.

The programmes are structured based on different approaches. While Mathematics and Physics concentrate on the abstract formulae which describe the laws governing our world, lab-based experimentation is more important in the fields of chemistry and biology.

You should ask yourself questions such as: Do I prefer dealing with mathematical formulae and proving them? Or am I more interested in chemistry and biology, and do I want to spend a lot of time working in a laboratory?

System-oriented Natural Sciences

These degree programmes take a broad and varied approach to the interdisciplinary connections between the sciences, always with reference to a particular area of research.

Whether it is the processes on our Earth, the biological, chemical and physical properties of our environmental systems or man as a system, the health of which is held in a precarious balance – the basic principles of biology, chemistry and physics are always linked together and often also interconnected from the point of view of society, politics and the economy.

While all students study a similar and varied combination of basic subjects in their first year, they then focus on one system (Earth, ecosystems, nutrition or humankind) and all its many different facets.

MANAGEMENT AND SOCIAL SCIENCES



Management, Technology and Economics

www.mtec.ethz.ch →

Developing and launching products and services in line with market requirements or using new technology effectively and ecologically requires more than just technical knowledge and skills.

Career profile

Graduates of the Management, Technology and Economics (MTEC) programme serve in companies as the link between the production side and areas such as logistics, marketing, organisation and management.

They play innovative and creative roles in various industrial sectors, in the service sector and in public administration.

Today's companies are high-tech operations which supply far more than "just" machines and products: they offer entire packages of expertise and services. As a result, specialists are required who can work in the areas of project management, product and technology management, innovation, organisation, production management and management consultancy. Not surprisingly, their range of activities is of a versatile, interdisciplinary and demanding nature.

Admission requirements

The consecutive Master's degree in MTEC follows on from the Bachelor's degree in Mechanical Engineering or Electrical Engineering and Information Technology. Admission with a different Bachelor's degree in engineering or a science subject with a technological orientation is subject to an application procedure.

Curriculum structure

In the first three semesters of the Master's degree programme, students take courses in core subjects from all six competence areas on offer (see box), although there is also some degree of choice. The programme is supplemented with electives from the competence areas mentioned and lectures from the discipline of the Bachelor's degree. In the final semester, students write a Master's thesis within a company or at ETH Zurich. Before the Master's thesis project begins, the course is supplemented with an industrial placement lasting at least ten weeks.



Admission requirements are a Bachelor's degree in

Mechanical Engineering or Electrical Engineering and Information Technology

Admission with a different Bachelor's degree in engineering or a science subject with a technological orientation is also possible subject to an application procedure.



Master's degree programme (120 credits)

Core subjects, electives and specialisations from the competence areas:

- General Management and Human Resources Management
- Strategy, Negotiation, Technology and Innovation Management
- Information Management and Operations Management
- Quantitative and Qualitative Methods
- Economics
- Financial Management

Supplementary subjects to enhance the technical and/or scientific knowledge acquired in the Bachelor's degree programme

Industrial work placement of at least 10 weeks

Master's thesis project (six months, at ETH Zurich or in a company)

Public Policy (Professional Officer)

www.berufsoffizier.ethz.ch →

In the Public Policy programme, prospective professional officers of both sexes are trained in the political, social and military sciences in line with the needs of modern armed forces. The programme leads to the internationally recognised title “Bachelor of Arts ETH in Public Policy”.

Educational objective and career profile

Professional officers of the Swiss Army are high-level personnel who are responsible for a wide variety of demanding tasks. They assume leadership functions in Switzerland and abroad, train and educate others, act as experts in military matters and also work as trained managers in non-military contexts. They are prepared for these tasks in the Bachelor's degree programme in Public Policy with military science specialisations at ETH Zurich, which is complemented by practice-oriented military specialist training. The six-semester degree programme is run jointly by the ETH Department of Humanities, Social and Political Sciences and the Military Academy (MILAC) at ETH Zurich. Professional officer candidates employed by the Swiss Army are permitted to enrol in the programme.

Admission requirements

Admission requirements fall into two categories:

- Military requirements: title of Lieutenant, completed practical military service and pass grades in the assessment for future professional officers, etc.
- Academic requirements: Gymnasium (grammar school) Matura or vocational or specialised Matura with pass grades in the supplementary examination for admission to universities recognised by ETH Zurich

Throughout their training, students are employed by the Federal Department of Defence, Civil Protection and Sport (DDPS).

Curriculum structure

Aspects of the humanities and social and political sciences (see box) are studied from the point of view of the political and military sciences and taught at ETH Zurich. Practice-oriented and military training, designed to meet the needs of the army, is undertaken during the sixth semester to supplement the theoretical knowledge acquired. This takes place in the form of “practical modules” and 32 weeks of further training, which is taught at MILAC.



Image: © VBS/DDPS-ZEM

Structure of the Bachelor's degree programme in Public Policy (180 credits)

Training at ETH Zurich

- Economics, Business Administration and Military Economics
- Law
- Security Policy, including cyber-security policy and technological aspects
- Political Science
- Conflict Research
- History and Military History
- Social Psychology, Military Psychology and Military Educational Science
- Military Sociology
- Leadership
- Strategic studies, etc.
- Methods of empirical social research and history

Training at the Military Academy (MILAC) and at ETH Zurich

9 weeks of practical modules (= part of the course)

Military training between semesters and during 32 weeks of supplementary training:

- Military leadership and training
- Tactical leadership
- Military didactics

Humanities, Social and Political Sciences

www.gess.ethz.ch →

ETH students should not just be specialists in their particular subject; they should also be able to put their knowledge and actions into broad historical, ethical, political, economic and social contexts.

Specialising in natural, engineering and technical sciences calls for an overall understanding of science. The “Science in Perspective” programme gives students a chance to develop the essential skills needed for this: firstly by acquiring reflective knowledge, giving them an additional perspective (historical, ethical, economical etc.) on the methods and content of their main subject; secondly by acquiring contextual knowledge, enabling them to apply their specialist knowledge to broader contexts; thirdly by getting to grips with the different methodological approaches taken in the humanities and social sciences; and fourthly by obtaining the language knowledge required to develop their intercultural skills.

The options for the “Science in Perspective” programme include over 100 lectures per semester in various fields of the humanities, social and political sciences – also in French and Italian. Participation is compulsory for all students at ETH Zurich: they usually have to gain six ECTS credits during their Bachelor’s course and two during their Master’s course.



SPECIALISED
MASTER'S DEGREE
PROGRAMMES



Specialised Master's Degree Programmes

Technical and scientific development requires an increasing number of experts with interdisciplinary training. For this reason, ETH offers specialised Master's degree programmes in various technical and scientific areas.

Admission to specialised Master's degree programmes is subject to a special application and selection procedure and participant numbers may be limited. Most of these programmes are taught in English.

For each specialised Master's degree programme, there are qualifying Bachelor's degree programmes. Admission from other degree programmes is possible based on an individual evaluation of the applicant's dossier.

Applied Geophysics (Joint Master's programme – 120 credits)

www.idealeague.org/geophysics →

The Master in Applied Geophysics is an inter-university degree programme which comprises an exchange between ETH Zurich, TU Delft and RWTH Aachen. Students attend lectures at all three universities.

The Master's degree programme combines theoretical elements of geophysics with application-based problem solving and therefore offers a comprehensive education in all aspects of applied geophysics,

particularly in the areas of exploration and the extraction of raw materials (especially hydrocarbons) and in environmental and engineering geophysics (including exploration and extraction of geothermal energy).

Qualifying Bachelor's degree programmes: Earth Sciences, Environmental Sciences, Physics, Engineering Sciences

Atmospheric and Climate Science (90 credits)

www.iac.ethz.ch/education/master →

This degree programme covers weather and climate phenomena in all their dimensions, from the molecular to the global, from rapid developments to changes which take place over millions of years.

Students select three modules from Weather Systems and Atmospheric Dynamics, Climate Processes and Feedbacks, Atmospheric Composition and Cycles, Climate History and Paleoclimatology, and Hydrology and Water Cycle. On one day per week courses/training sessions are held at the University of Bern.

This degree programme requires very good prior knowledge of mathematics, physics and chemistry.

Qualifying Bachelor's degree programmes: Earth Sciences, Environmental Sciences, Agricultural Sciences

Biomedical Engineering (90 credits)

www.master-biomed.ethz.ch →

Biomedical engineering is the interface between engineering, biology and medicine. It investigates and describes biological phenomena to aid the diagnosis and treatment of disease. Students can choose between the following areas of specialisation, also called "tracks": Bioelectronics, Bioimaging, Biomechanics, Medical Physics, and Molecular Bioengineering. Students will be given expert advice by a professor when choosing their subjects. For students without the necessary prior knowledge, the range of courses will be supplemented with lectures and practical sessions on biology, anatomy and physiology.

Qualifying Bachelor's degree programmes: technical and scientific Bachelor's degree programmes as stated in the programme regulations.

Biotechnology (120 credits)

www.master-biotech.ethz.ch →

Biotechnology addresses the technical application of biological systems and living organisms and their metabolic products. Knowledge of molecular chemical and biological activity provides the basis for developing and improving products and processes such as those used in agriculture, environmental protection, food production and – most importantly of all – medicine. Biotechnology graduates are used to working in an interdisciplinary way, combining biology, technology and theory. They are skilled at applying experimental and theoretical methods and offer expert knowledge in the field of biotechnological research. Biotechnologists work in research, development and production in the chemical and pharmaceutical sectors, as well as in the food industry. Their expertise is sought after in all areas of life sciences. The Master's degree programme in Biotechnology is run by the Department of Biosystems Science and Engineering (D-BSSE) and is based exclusively at the ETH site in Basel.

Qualifying Bachelor's degree programmes: scientific and engineering-based Bachelor's degree programmes as stated in the programme regulations.

Comparative and International Studies (120 credits)

www.macis.gess.ethz.ch →

This degree programme combines comparative and international political science. One of the main pillars of the curriculum is the fact that the boundary between international and domestic politics is becoming increasingly blurred. The programme covers key questions of political order and governance in the context of international interdependence. Core courses include Political Conflict, Political Violence, Democracy, Political Economy and Sustainable Development. A second aim of the degree programme is to provide training in qualitative and quantitative research methods and design. This degree programme is offered in cooperation with the University of Zurich.

Qualifying Bachelor's degree programmes: an excellent Bachelor's degree in the field of political science, sociology, business administration, psychology, law or another social science. Programme requirements: at least 8 credits in Methods and Statistics. At least 12 credits in International Relations/Comparative Politics. Selection via application process.

Computational Biology and Bioinformatics (120 credits)

www.cbb.ethz.ch →

Computational biology and bioinformatics is an interdisciplinary domain where procedures and methods from computer science are developed and deployed to address and solve important current problems in biology. The programme includes lectures in biology, computer science and mathematics, as well as laboratory courses where practical experience in research projects may be gathered. With help from a tutor, students draw up their own individual curricula. This degree programme is offered in cooperation with the University of Basel and the University of Zurich; it is possible to study in Basel or Zurich.

Qualifying Bachelor's degree programmes: technical and scientific Bachelor's degree programmes as stated in the programme regulations

Data Science (120 credits)

www.ethz.ch → [Studies](#) → [Master](#) → [Engineering Sciences](#) →

Data science is a driving force in today's information age. Data scientists are called upon to complete a wide range of technical tasks, such as managing and storing huge volumes of data, producing statistical

models of intricately structured data and developing efficient algorithms for data analysis. These techniques are used in a wealth of applications in mechanical engineering and science.

Computers have fundamentally changed the way we produce, manage, prepare and analyse data. As the data boom continues on a global scale, the question of how we can obtain valuable insights from this data to maximise the value we get from it is more important than ever. How can experts investigate enormous data volumes and extract relevant information from them? How can computers learn from experience and use data to make intelligent decisions? These questions form the foundations of the specialised Master's in Data Science.

The programme is offered in cooperation with the Department of Mathematics and the Department of Information Technology and Electrical Engineering.

Qualifying Bachelor's degree programmes: Electrical Engineering, Computer Science, Mechanical Engineering, Mathematics, Physics

Energy Science and Technology (120 credits)

www.master-energy.ethz.ch →

The aim of this Master's degree programme is to acquaint students with the complexity and interdivisional variety of energy issues and teach them methods and approaches from disciplines including elec-

trical engineering, mechanical engineering, environmental sciences and economics. With the help of a tutor, students draw up their own curriculum from over 50 energy-specific courses.

Qualifying Bachelor's degree programmes: Electrical Engineering and Information Technology, Civil Engineering, Environmental Engineering, Geospatial Engineering, Mechanical Engineering, Computer Science, Mathematics, Physics

History and Philosophy of Knowledge (120 credits)

www.magpw.gess.ethz.ch →

This interdisciplinary degree programme equips students with the background and the analytical tools to be able to study today's many forms of knowledge creatively and independently, from a historic and systematic perspective. Students learn how to investigate in a scientific manner the normative, symbolic, social, institutional, political and economic conditions in which knowledge originates, and tackle the question of how developments in knowledge interact with these conditions. This programme is offered in German only.

Qualifying Bachelor's degree programmes: excellent Bachelor's degree in the social, cultural, natural or technical sciences. Selection via application process.

High Energy Physics (120 credits)

<http://hep.polytechnique.edu> →

This Master's degree programme specialising in high energy physics provides thorough training in the experimental and theoretical principles of particle physics. It is organised in partnership with the École Polytechnique in Paris and students spend one year in Paris and one in Zurich. In addition to their compulsory lectures on high energy physics, students also, by arrangement with their tutor, attend lectures of their choice from the wide range of Master's courses on physics and mathematics. Graduates receive a joint Master's degree from both universities.

Qualifying Bachelor's degree programme: Physics

Integrated Building Systems (120 credits)

www.master-buildingsystems.ethz.ch →

This programme provides a science-based education in building systems and technologies in relation to the energy balance of buildings and their impact on the environment. The emphasis of the programme is on the integration of sustainable energy technologies at building level and in the context of urban development. Students learn the methods used to design, operate and maintain complex

building systems. The programme is interdisciplinary, combining methods and practices from the disciplines of architecture, civil, mechanical and electrical engineering and information technology.

Qualifying Bachelor's degree programmes: Architecture, Civil and Environmental Engineering, Geospatial Engineering, Mechanical and Electrical Engineering

Micro and Nanosystems (90 credits)

www.master-micronano.ethz.ch →

Research and development in the area of micro and nanosystems is by its nature interdisciplinary, involving procedures and methods from all of the engineering sciences, physics and mathematics. In this Master's degree programme, new functionalities for integrated systems and the development of innovative products are explored. The programme has a mechanical and electrical engineering basis, augmented by elements from physics, materials science and process engineering. With help from a tutor, students draw up their own individual curricula.

Qualifying Bachelor's degree programmes: Mechanical Engineering, Electrical Engineering and Information Technology

Neural Systems and Computation (90 credits)www.nsc.uzh.ch →

This Master's degree programme provides students with a transdisciplinary background as well as skills in and knowledge of the main issues in brain research, preparing them for research activities in areas of neuroinformatics and system-oriented neurosciences. With help from a tutor, students draw up their own individual curricula. This degree programme is offered in cooperation with the University of Zurich.

Qualifying Bachelor's degree programmes: technical and scientific Bachelor's degree programmes as stated in the programme regulations.

Nuclear Engineering (120 credits)www.master-nuclear.ethz.ch →

This degree programme covers the process and technology of energy conversion in nuclear power plants, including the safety of such plants and the fuel cycle from fissile material extraction to waste disposal. It includes reactor physics, power plant technology, thermo-hydraulics, radiation protection and the study of materials. Elective courses in the use of nuclear fusion for energy purposes and

the non-energy-related applications of radiation in medicine and industry supplement the programme. Because of the multidisciplinary nature of this degree programme, graduates may also be employed in other fields related to energy conversion technology. This degree programme is offered in cooperation with EPF Lausanne.

Qualifying Bachelor's degree programmes: Mechanical Engineering, Electrical Engineering and Information Technology, Materials Science, Mathematics, Physics, Chemistry, Chemical Engineering

Quantitative Finance (90 credits)www.msfinance.ethz.ch →

This Master's degree programme offers a specialisation in the economic bases of finance, and the uses of probability theory, stochastics and numerical analysis in this field. It is offered in cooperation with the University of Zurich. All lectures involve the areas of either economic theory for finance or mathematical methods for finance. Cooperation with external companies is encouraged in the context of the Master's thesis.

Qualifying Bachelor's degree programmes: a Bachelor's degree which reflects good basic knowledge of finance and mathematics (e.g. Economics, Mathematics, Physics or Engineering Sciences).

Robotics, Systems and Control (90 credits)

www.master-robotics.ethz.ch →

Research and development in the area of robotics, systems and control is by its nature interdisciplinary. The Master's degree programme is thus based on knowledge of mechanical engineering, electrical engineering and computer science. This can be supplemented by courses from the areas of mathematics, biology, physics and computational science and engineering. The programme addresses significant issues in the analysis and development of new, complex integrated systems and innovative products. With help from a tutor, students draw up their own individual curricula.

Qualifying Bachelor's degree programmes: Mechanical Engineering, Electrical Engineering and Information Technology, Computer Science

Science, Technology and Policy (90 credits)

www.istp.ethz.ch/education/master →

Science, Technology and Policy (STP) equips students originating from natural sciences and engineering with skills for analysing complex problems at the interface of science, technology and policy.

Specifically, it provides students with a critical understanding of the institutions and decision-making processes at the national and international level and of the analytical approaches policy-makers frequently apply to societal problems. Students learn how to identify the most important factors determining how people perceive and frame policy problems. The programme also introduces students to quantitative methods of political analysis, such as ex-post analysis, ex-ante simulation modelling and decision-analysis tools for identifying robust strategies under conditions of uncertainty. Finally, it provides experience in communication, in order to learn from stakeholders and to be able to explain the results of policy analysis in an effective manner.

Admission requirements: completion of a Master's (MSc) degree from ETH Zurich or ETH Lausanne or of at least 60 credits in a Master's (MSc) programme at ETHZ/EPFL

Statistics (90 credits)

<http://stat.ethz.ch/education/master> →

Statistics is an important tool in many areas of empirical science. This Master's degree programme, which should follow a Bachelor's degree programme with a solid mathematical basis, provides an opportunity to further develop statistical thinking and methods and gain an overview of the most important models and procedures. Students also learn more about the quantitative methods of their own disciplines.

Qualifying Bachelor's degree programmes: all Bachelor's degree programmes with a solid mathematical basis

USEFUL INFORMATION



Campus Life

Studying at ETH Zurich is of course demanding, but it is balanced by a wide variety of sports activities, cultural events and university-political pursuits.

Sport

How about some fitness training at lunchtime? Want to relieve daily stress by playing volleyball in the evening? Or go diving during the semester break? With more than 120 different sports to try, the Academic Sports Association of Zurich (ASVZ) offers the ideal counterbalance to studying.

www.asvz.ch →

Learning a language

In an increasingly international academic environment, languages open up new opportunities for study and work. German and English, as the languages of instruction and research, with English as the lingua franca in science, are essential requirements for your studies and your career. Every additional language improves your prospects of succeeding in multilingual Switzerland and in an international environment.

www.sprachenzentrum.uzh.ch →

VSETH and subject-specific student organisations

The ETH student association VSETH and the individual subject-specific student organisations offer a wide range of services and opportunities for study support and leisure activities. They represent student interests on internal ETH committees, organise the legendary Polyball as well as various other parties and celebratory events, arrange film showings and cultural activities, run a photo laboratory and a leisure workshop, rent out rooms for all kinds of leisure activities and support their members in everyday student life and in preparing for examinations. www.vseth.ethz.ch →

Music

For the musically inclined, there are more than half a dozen student music societies to choose from, ranging from choirs and orchestras to classical ensembles and the jazzy ETH Big Band.

And to still your hunger ...

In virtually every ETH building there are cafeterias or snack bars offering a wide variety of healthy and low-priced snacks and meals. Lunch markets and street food bring even more variety to the table. A popular and relaxed place to spend the evening is the bQm Bar, which is run by students for students.

Living in Zurich

The city is for living in and not just for studying in!

Zurich is regularly awarded prizes for its high quality of life. No wonder: hardly any other city offers so much in so little space. Zurich has virtually everything: it is both a business metropolis and city of culture and partying.

The city's jewel, however, is the lake. People come here to meet up with one another at the many spots available by the lake or take the opportunity to go for a swim.

Thanks to the efficient public transport system in and around Zurich, you can get from A to B in no time.

www.zvv.ch →

You can find further detailed information about the charming, cosmopolitan city of Zurich by visiting www.stadt-zuerich.ch



Orientation and Advisory Services

Orientation for Students

Prospective students can get to know ETH Zurich during a range of orientation events.

Information days: an overview of all the study programmes offered by ETH Zurich and the University of Zurich: students and lecturers give presentations on the individual Bachelor's degree programmes and answer questions about anything to do with studying.

www.ethz.ch → [Studies](#) → [Bachelor](#) → [Information days](#) →

“ETH-Studienwochen” (study weeks): school pupils are given the chance to work on a project alongside scientists for a week, giving them an insight into possible study programmes and how scientific work is carried out at ETH Zurich.

www.studienwochen.ethz.ch →

“ETH unterwegs” (“ETH on the road”): students and lecturers travel around Switzerland, visiting secondary schools and talking about ETH Zurich. This initiative brings to life the various study programmes and areas of research that prospective students can choose from.

www.ethunterwegs.ethz.ch →

A presentation of Matura projects in the areas of mathematics, computer science, natural sciences and technology provides a further opportunity to get to know about ETH Zurich.

www.ethz.ch → [Studium](#) → [Bachelor](#) → [Orientierungsanlässe](#) → [Ausstellung Maturaarbeiten](#) →

Advice on choosing a study programme

Potential students are welcome to come and discuss matters relating to choosing a study programme, the degree programmes on offer and the study environment in a personal consultation, which is free of charge and completely confidential.

ETH Zurich Student Advisory Service

Rämistrasse 101

CH-8092 Zurich

www.ethz.ch → [Studies](#) → [Bachelor](#) → [Advice](#) → [Individual advice](#) →

Introductory events for new students

Prestudy event: this is the ideal way to prepare for studies before the semester starts. The half-day event allows new students to get to know the programme itself as well as their fellow students, while learning about life at ETH Zurich. Details about these prestudy events are sent out to prospective students after they have registered for a

Bachelor's degree programme (see also "Applying for Study Programmes", page 102).

"Erstsemestrigentag" (*event for students embarking on their first semester of studies*): a welcome event is held on the first day of the first semester, which provides useful information to help students make a successful start to their studies.

Further events, workshops and courses are provided for students throughout their study programme to make it easier for them to settle in to student life.

Coaching and advisory services

Coaching and advisory services are available to all students free of charge during their studies. In confidential, one-to-one consultations, the consulting and coaching team provides support to students in areas such as organisation, concentration and motivation, study techniques, coping with pressure and stress, making decisions, coping with exam failure or personal problems.

www.ethz.ch/advisory-coaching →

Disability advisory service

Studying with a disability or chronic medical condition often requires planning ahead with a more long-term view. The disability advisory service offers support to help with this.

www.ethz.ch/disability →

Studies and top-level sports

ETH Zurich is committed to offering top-class athletes feasible ways to combine academic studies and sport. For further information, visit

www.ethz.ch → [Studies](#) → [Bachelor](#) → [Studies and top-level sports](#) →

Applying for Study Programmes

Applications for the first semester of a Bachelor's degree programme should be undertaken online at

www.ethz.ch → [Studies](#) → [Registration/Application](#) → [Admission Bachelor](#) →

Application period: 1 November – 30 April

Prospective students receive an e-mail with an invitation for an orientation event. This half-day prestudy event (in German) is specific to the study programme they have applied for.

www.ethz.ch → [Studium](#) → [Anmeldung/Bewerbung](#) → [Bachelor-Studium](#) → [Prestudy Events](#) →

Details on applying to a Master's degree programme can be found at

www.ethz.ch → [Studies](#) → [Registration/Application](#) → [Admission Master](#) →

For further information please contact:

Registrar's Office

Admission with a Matura recognised in Switzerland. Enrolment, study programme documentation and general information on degree programmes: ETH Zurich, Registrar's Office, Rämistrasse 101, CH-8092 Zurich
Tel. +41 44 632 30 00

Telephone opening hours (Mon. to Fri.): 9–11 a.m. and 2–4 p.m.

Information desk opening hours (Mon. to Fri.): 11 a.m.–1 p.m.
kanzlei@ethz.ch

www.ethz.ch → [Studies](#) → [Registration/Application](#) → [Admission Bachelor](#) → [1st semester Swiss Matura](#) →

Admissions Office

Admission without a Matura recognised in Switzerland or with other qualifications from abroad:

ETH Zurich Admissions Office, Rämistrasse 101, CH-8092 Zurich

Telephone opening hours (Mon. to Fri.): 9–11 a.m. and 2–4 p.m.

Information desk opening hours (Mon. to Fri.): 11 a.m.–1 p.m.

Bachelor's degree programme: zulassung@ethz.ch, tel. +41 44 633 82 00

Master's degree programme: master@ethz.ch, tel. +41 44 632 81 00

www.ethz.ch → [Studies](#) → [Registration/Application](#) → [1st semester other certificates](#) →

Useful Internet Addresses

ETH Zurich website

www.ethz.ch →

At www.ethz.ch/studies →

you will find all the information you need about studying at ETH Zurich:

- details about the structure and course of Bachelor's and Master's degree programmes
- detailed descriptions of each individual study programme
- career profiles (in German)
- details about orientation events and help with choosing study programmes
- comprehensive information about registering/applying for Bachelor's and Master's degree programmes
- accommodation
- plus various brochures (available to download) on a range of topics.

The Course Catalogue can be found at:

www.course-catalogue.ethz.ch →

Financial matters

If you find yourself in a difficult financial situation, we advise you to enquire about grants from the relevant authorities in your parents' canton of residence. You can also apply for a scholarship from ETH Zurich.

www.ethz.ch/scholarships →

Accommodation

The Housing Office of the University and ETH Zurich will always provide you with up-to-date information on available rooms and flats. It is worth enquiring in good time, as there is a limited supply of accommodation available in and around Zurich.

www.wohnen.ethz.ch/en →

Campus

Information about catering facilities, sports and cultural activities, the city of Zurich and many other details can be found at

www.ethz.ch → [Campus](#) →

Student portal

The portal contains information about everything to do with studying.

www.ethz.ch/students →

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Contact

ETH Zurich
Student Services
Rämistrasse 101
CH-8092 Zurich

www.ethz.ch

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