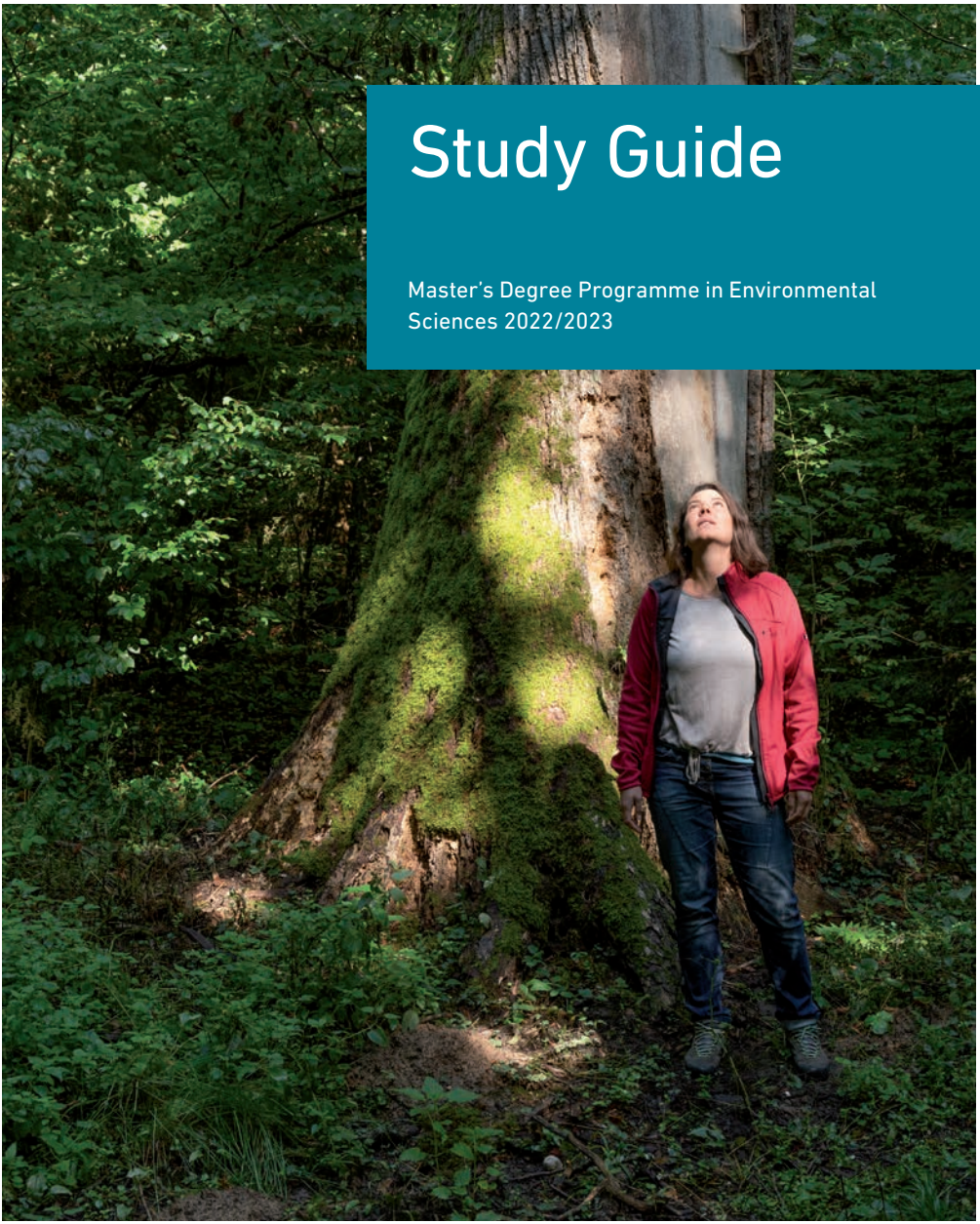
ETH zürich

Department of Environmental Systems Science



Study Guide

Master's Degree Programme in Environmental Sciences 2022/2023

D USYS

This study guide provides practical information on the Master's Degree Programme in Environmental Sciences. Further sources of information are given in the text and specifically in section 11. The information about lectures in this guide is as accurate as the publishing date. The most up-to-date and additional information is given in the course catalogue.

The legally binding document for the Master's degree programme in Environmental Sciences is the German version of the Programme Regulations for the Master of Science ETH in Environmental Sciences (Studienreglement 2013 für den Master-Studiengang Umweltnaturwissenschaften, Ausgabe 15.05.2020 – 5[1]). This English translation is for information purposes only.

Students are requested to visit the departmental website for further information www.usys.ethz.ch/en/studies/environmental-sciences.

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1 www.rechtssammlung.sp.ethz.ch/Dokumente/324.1.1002.11.pdf

Welcome!

Dear MSc Students in Environmental Sciences:
Welcome to the Department of Environmental Systems Science!

The programme in Environmental Sciences is multifaceted and diverse. It is devoted to the latest developments in science, society and policy with respect to environmental issues, and it opens a broad range of professional perspectives. Given all the pressing environmental problems from local to global scales, now is a very good time to study Environmental Sciences. This booklet aims to guide you through our diverse Master's programme. Choosing one of the six Majors allows you to dig deeper in your preferred field of environmental sciences. Different course formats will motivate you to explore the scientific opportunities in your field.

In addition to our specialized Majors, we offer a broad range of Minors and elective courses, which will help you shape your personal profile. A Minor can offer a second disciplinary specialization, but you can also choose to expand the perspective of your Major. Alternatively, you may wish to explore a broad range of topics in environmental sciences based on a suite of individual elective subjects. The following pages will assist you in this choice. Note that the study advisors listed in section 11 will be happy to answer your questions.

The professional internship is an opportunity to leave the ivory tower and gain practical experience or apply your knowledge in a company or in public service. It is your responsibility to use the available resources for finding your internship. There will be an information event to support you. And of course you will learn more about the job market as soon as you start your search. By the way, many students start their MSc programme with the professional internship[2]. I think this option is preferable over doing the internship only at the very end of your studies (i.e., even after the MSc thesis), as the experiences gained during the internship may shape the choice of subjects during your MSc studies.

Lastly, the MSc thesis comprises half a year of full-time work. Finding a suitable topic may take some time. Therefore I recommend that you start looking around for a thesis topic about at the beginning of the second semester of your course work.

Best wishes for your Master's studies in Environmental Sciences at ETH Zurich!

Harald Bugmann
Director of Studies, study programme Environmental Sciences

2 only possible for consecutive students

Explanations and acronyms

The course lists in sections 2 to 5 show course number, course title, semester (HS = autumn semester, FS = spring semester), number of hours, course type and credits available.

Additional remark: the language of instruction is mainly English for the Master's degree programme in Environmental Sciences. A few lectures are offered in German. Please refer to the course catalogue where the language of instruction is given for each lecture.

Explanations
(Abbreviations as used in the course catalogue)

A	=	independent project (Selbstständige Arbeit)
BSc	=	Bachelor
cf.	=	confer (lat.), compare
CP	=	credit points, equivilant to ECTS
D	=	Master's Thesis (Master-Arbeit)
D-USYS	=	Department of Environmental Systems Science
ECTS	=	European Credit Transfer System
ESP	=	Environmental Systems and Policy (Major)
FLM	=	Forest and Landscape Management
FS	=	spring semester (Frühjahrssemester)
G	=	lecture with exercise (Vorlesung mit Übung)
HS	=	autumn semester (Herbstsemester)
h	=	e.g. 180 h: total number of contact hours (before, during or after the semester)
K	=	colloquium (Kolloquium)
max.	=	maximum
MSc	=	Master
P	=	practical course (Praktikum)
S	=	seminar (Seminar)
Sem.	=	semester
U	=	exercise (Übung)
UNIBE-...	=	courses at the University of Bern
V	=	lecture (Vorlesung)
1,2,..	=	contact hour(s) a week (Semesterwochenstunde/n) e.g. 2 V, 3 G + 2 A

1 Environmental Sciences at ETH Zurich

Today's society is confronted by large scale environmental problems: the excessive use of natural resources, destruction and degradation of wildlife habitats, climate change and others. Almost all of these problems result from the fact that human activities are degrading the earth's natural capital at an inordinate rate. In addition to direct effects, environmental degradation also has a major impact on social issues such as health, economy, poverty and national security.

During the Master programme in Environmental Sciences students will be provided with knowledge and understanding of the functioning of the environment. Another focus is to explore the interaction between human beings and the environment. Students learn to analyse environmental problems with scientific methods and develop approaches. They also learn to evaluate these approaches and how to implement them. Working interdisciplinary is very important. It includes natural sciences, social and humanity sciences as well as environmental technologies. The practise of written and oral communication is a particular focus of the study programme.

1.1 Education in Environmental Sciences – Professional Opportunities

The Department of Environmental Systems Science, D-USYS, provides an environment for conducting high-quality research covering a wide range of topics. Teaching is conducted by in-house researchers and external professionals to guarantee a high standard.
The Master's degree in Environmental Sciences is both a recognised and valued qualification in the employment market. The department systematically surveys the careers of the graduates. The results show that they have a high success rate in the employment market. Within only a few months after graduation the majority secure a professional position which matches both their personal goals and their educational background.
Graduates work in all societal sectors: Based on the findings of the biennial graduate survey by the Federal Statistical Office (2021) almost half of the actual professional activities can be found in a very broad range of the service sector (cf. Graph 1). Most prominent fields are architecture, engineering, environmental and planning offices as well as banking, insurance companies, management consultancy and energy sector. Slightly more than 30% found an appointment in the science sector and 18% of the graduates work in public administration and teaching. 4% are employed by the manufacturing industry and 1% work in the field of agriculture and forestry. Detailed information about job opportunities are described in "Environmental Sciences: From Studies to Profession" (in German only).

Graph 1: What do ETH Environmental Sciences graduates do after a year?
Surveys 2011, 2013, 2015, 2017, 2019 persons in employment only, n = 240

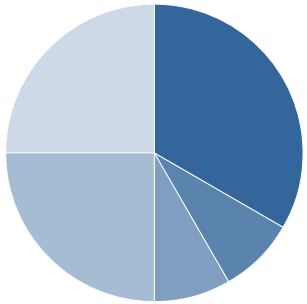
1.2 Structure of the Programme

The Master's degree programme (120 credits) can be completed within two years and has to be completed within four years. It uses a credit system based on the European Credit Transfer System (ECTS).
The primary language of instruction is English, although some lectures – the ones in this study guide listed with German titles – may be held in German. The language of instruction of each individual course is stated in the online course catalogue of ETH: www.vvz.ethz.ch.

The Master's degree programme in Environmental Sciences offers several specialisation subjects, majors and minors, allowing a programme to be chosen to match individual needs. The graphic below provides an overview of the categories of the Master's degree programme.

Categories of the Master (120 CP)

Major	**40 CP**
Minor or Electives	**10 CP**
Electives	**10 CP**
Internship	**30 CP**
Master`s Thesis	**30 CP**



Graph 2: Overview of the categories and credits of the Master's degree programme.

For two semesters, students focus on scientific topics related to their chosen major. The categories major, minor and elective courses require to reach 60 credits.

- A minimum of 40 credits must be completed in one of the six majors (cf. section 2).
- A minimum of 10 credits must either be completed in a minor or elective courses.
- The major in Environmental Systems and Policy is the only major which requires a minor (cf. section 2.4).
- The remaining 10 credits can be chosen from the course catalogues of ETH Zurich or University of Zurich. For restrictions, see section 3.7 (blue box). It is possible to select more courses of the chosen major, single courses from one or more minors, elective courses or a combination of all. It is also possible to complete a second minor. Minors and/or elective courses (cf. section 3) complement the core courses of the selected major.

One semester is spent outside the ETH Zurich, gaining practical work experience during the professional internship with 30 credits (cf. section 4). Finally, a Master's thesis (30 CP, cf. section 5) is completed on a topic selected from the subject range of the major.

Prerequisites for individual major courses are stated in the online ETH course catalogue:
www.vvz.ethz.ch

For further documents and information on the master's programme see:
www.usys.ethz.ch/en/studies/environmental-sciences/master

1.3 Admission and Application

The two-year Master's degree programme is open to students with a Bachelor's degree with an emphasis on environmental sciences, or an equivalent degree. Students who meet the admittance criteria stated in the programme regulations for the Master in Environmental Sciences can apply to the ETH Admission Office to enter the Master's degree programme in Environmental Sciences.

Information for prosepctive students is available online:
www.ethz.ch/en/studies/master/application

2 Major Programmes

The choice of the major programme "Vertiefung" involves individual specialisation. However, the guidelines of each programme guarantee a selection of course units which form a coherent programme of study, encompassing an appropriate combination of knowledge, general methods, tools and techniques. In order to ensure that the individual study programme fits the individual needs, the students are encouraged to contact the responsible study advisor at the beginning of the Master's degree programme.
Students are also advised to discuss prerequisites for their chosen major with the study advisor before starting their Master's degree studies and to clarify which courses from the Bachelor's degree programme should be chosen as elective courses to ensure prerequisites are met.

Students can choose one of the following six major programmes:
- Atmosphere and Climate
- Biogeochemistry and Pollutant Dynamics
- Ecology and Evolution
- Environmental Systems and Policy
- Forest and Landscape Management
- Human Health, Nutrition and Environment

2.1 Major in Atmosphere and Climate

For advice regarding this major, students may contact Prof. Dr. Reto Knutti, reto.knutti@env.ethz.ch.

Students in the Major in Atmosphere and Climate gain in-depth understanding of climate processes and their interactions – ranging from the molecular to the global scale and from short-lived phenomena to changes over millions of years. The programme offers quantitative knowledge on atmospheric dynamics, climate processes and feedbacks, biogeochemical cycles, paleoclimatology and an in-depth training in numerical modelling of weather and climate.

More details about research topics, courses, requirements, learning objectives and possible positions please visit the website www.usys.ethz.ch/en/studies/environmental-sciences/master/majors/atmosphere-climate.html

The curriculum of the major programme comprises the following categories with the minimum number of credit points to be acquired indicated in table 1.

A minimum of 40 credits points must be obtained in the following categories:

Module	Credit points
Introduction Course	2
Colloquia	3
Seminars	6
Lab and Field Work	5
Choose three modules out of five: · Weather Systems and Atmospheric Dynamics* · Climate Processes and Feedback* · Atmospheric Composition and Cycles* · Climate History and Paleoclimatology* · Hydrology and Water Cycle*	24

Table 1: Structure of the major in Atmospere and Climate

* You have to obtain in each module at least 6 credit points. The total of all three modules must be at least 24 credit points.

Well suited minors for the major in A&C are:
- Minor in Sustainable Energy Use
- Minor in Physical Glaciology

Compulsory courses (16 CP)[3]

Introduction Course (2 CP)				
Course Number	Title	Sem.	Type	CP
701-1213-00	Introduction Course to Master Studies Atmosphere and Climate	HS	2 G	2

Colloquia (3 CP)				
Course Number	Title	Sem.	Type	CP
651-4095-01	Colloquium Atmosphere and Climate 1	HS/FS	1 K	1
651-4095-02	Colloquium Atmosphere and Climate 2	HS/FS	1 K	1
651-4095-03	Colloquium Atmosphere and Climate 3	HS/FS	1 K	1

Seminars (6 CP)				
Course Number	Title	Sem.	Type	CP
701-1211-01	Master's Seminar: Atmosphere and Climate 1	HS/FS	2 S	3
701-1211-02	Master's Seminar: Atmosphere and Climate 2	HS/FS	2 S	3

Lab and Field Work (5 CP)				
Course Number	Title	Sem.	Type	CP
701-1260-00	Climatological and Hydrological Field Work	FS	5 P	2.5
701-1262-00	Atmospheric Chemistry Lab Work	FS	5 P	2.5
701-1264-00	Atmospheric Physics Lab Work	FS	5 P	2.5
701-1266-00	Weather Discussion	FS	2 P	2.5
701-1270-00	High Performance Computing for Weather and Climate (Block Course)	FS	3 G	3

3 The courses listed in the following sections refer to the ETH Zurich course catalogue valid on the press date of this brochure. The order of listing in each section follows these rules: all courses of study programme Environmental Science (numbers starting with 701) which take place in the autumn semester are listed first. Followed by courses of other study programmes in autumn semester with increasing numbers. The same rules apply for the spring semester. Detailed information for each course is given in the ETH Zurich online course catalogue: www.vvz.ethz.ch.

Module Courses (24 CP, choose 3 out of 5 modules with at least 6 CP per module)

Module: Weather Systems and Atmospheric Dynamics				
Course Number	Title	Sem.	Type	CP
701-1221-00	Dynamics of Large-Scale Atmospheric Flow	HS	2 V + 1 U	4
651-4053-05	Boundary Layer Meteorology	HS	3 G	4
701-1216-00	Weather and Climate Models	FS	3 G	4
701-1224-00	Mesoscale Atmospheric Systems – Observation and Modelling	FS	2 V	2
701-1226-00	Inter-Annual Phenomena and Their Prediction	FS	2 G	2

Module: Climate Processes and Feedback				
Course Number	Title	Sem.	Type	CP
701-1235-00	Cloud Microphysics	HS/FS	2 V + 1 U	4
701-1251-00	Land-Climate Dynamics	HS	2 G	3
701-1216-00	Weather and Climate Models	FS	3 G	4
701-1228-00	Cloud Dynamics: Hurricanes	FS	3 G	4
701-1232-00	Radiation and Climate Change	FS	2 G	3
701-1252-00	Climate Change Uncertainty and Risk: From Probabilistic Forecasts to Economics of Climate Adaptation	FS	2 V + 1 U	3

Module: Atmospheric Composition and Cycles				
Course Number	Title	Sem.	Type	CP
701-1233-00	Stratospheric Chemistry	HS	2 V + 1 U	4
701-1239-00	Aerosols I: Physical and Chemical Principles	HS	2 V + 1 U	4
701-1234-00	Tropospheric Chemistry	FS	2 G	3
701-1238-00	Advanced Field and Lab Studies in Atmospheric Chemistry and Climate	FS	2 P	3
701-1317-00	Global Biogeochemical Cycles and Climate	FS	3 G	3

Module: Climate History and Paleoclimatology				
Course Number	Title	Sem.	Type	CP
651-4057-00	Climate History and Palaeoclimatology	HS	2 G	4
701-1317-00	Global Biogeochemical Cycles and Climate	FS	3 G	3
651-4004-00	The Global Carbon Cycle - Reduced	FS	2 G	3
651-4044-04	Micropalaeontology and Molecular Palaeontology	FS	2 G	3
651-4226-00	Geochemical and Isotopic Tracers of the Earth System	FS	2 V	3
651-xxxx-xx[4]	Past Droughts, Floods and Rainfall Variability	FS		2

Module: Hydrology and Water Cycle				
Course Number	Title	Sem.	Type	CP
701-1251-00	Land-Climate Dynamics	HS	2 G	3
701-1253-00[5]	Analysis of Climate and Weather Data	HS	2 G	3
102-0468-10	Watershed Modelling	HS	4 G	6
651-4053-05	Boundary Layer Meteorology	HS	3 G	4

Electives

Electives courses listed below are a selection of courses to deepen your knowledge in the chosen Major. This list is not complete. The following Elective Courses are especially recommended to supplement the corresponding modules.

The lecture "Self-learning Course on Advanced Topics in Atmospheric and Climate Science" will be offered in spring semester (701-1280-00) and autumn semester (701-1281-00) for each of the following modules. It is possible to enroll in both lectures (spring and autumn semester) but you have to choose a different field of specialization.

Electives				
Course Number	Title	Sem.	Type	CP
701-1281-00	Self-learning Course on Advanced Topics in Atmospheric and Climate Science	HS	6 A	3
701-1280-00	Self-Learning Course on Advanced Topics in Atmospheric and Climate Science	FS	6 A	3

4 will be offered every second year (first time in FS2023)

5 does not take place in autumn semester 2021. Lecture will be offered in autumn semester 2022 next time.

Electives: Weather Systems and Atmospheric Dynamics				
Course Number	Title	Sem.	Type	CP
701-1236-00	Messmethoden in der Meteorologie und Klimaforschung	FS	1 V	1
701-1258-00[6]	The Global Atmospheric Circulation	FS	1 G	2
701-1266-00	Weather Discussion	FS	2 P	2.5

Electives: Climate Processes and Feedback				
Course Number	Title	Sem.	Type	CP
701-1221-00	Dynamics of Large-Scale Atmospheric Flow	HS	2 V + 1 U	4
701-1257-00	European Climate Change	HS	2 G	3
651-4057-00	Climate History and Palaeoclimatology	HS	2 G	4
UNIBE-6414[7]	Climatology III (climate variability and change)	HS	2 V	3
UNIBE-7716[7/8]	Specialist Course – Climate and Environmental Physic	HS	2 V + 2 U	4
701-1226-00	Inter-Annual Phenomena and Their Prediction	FS	2 G	2
701-1317-00	Global Biogeochemical Cycles and Climate	FS	3 G	3

Electives: Atmospheric Composition and Cycles				
Course Number	Title	Sem.	Type	CP
701-1235-00	Cloud Microphysics	HS/FS	2 V + 1 U	4
102-0635-01	Luftreinhaltung	HS	4 G	6
651-4053-05	Boundary Layer Meteorology	HS	3 G	4
701-0234-00	Messmethoden in der Atmosphärenchemie	FS	1 V	1
701-1244-00	Aerosols II: Applications in Environment and Technology	FS	2 V + 1 U	4
651-4004-00	The Global Carbon Cycle – Reduced	FS	2 G	3

6 uncertain if offered in autumn semester 2021

7 UNIBE-.... = courses at the University of Bern

8 takes places as block course (7 days), next time probably in June 2024

Electives: Climate History and Paleoclimatology				
Course Number	Title	Sem.	Type	CP
651-4041-00	Sedimentology I: Physical Processes and Sedimentary Systems	HS	2 G	3
651-4043-00	Sedimentology II: Biological and Chemical Processes in Lacustrine and Marine Systems	HS	2 G	3
651-4901-00	Quaternary Dating Methods	HS	2 G	3
UNIBE-103709 [7/9]	Methods of Climate Reconstruction (every 2nd year)	FS	Block	2
UNIBE-26396[7]	Quaternary Climate Change and Terrestrial Ecosystems	FS	2 V	3

Electives: Hydrology and Water Cycle				
Course Number	Title	Sem.	Type	CP
701-0535-00	Environmental Soil Physics/ Vadose Zone Hydrology	HS	2 V + 1 U	3
102-0287-00	River Basin Erosion	HS	2 G	3
651-2915-00	Seminar in Hydrology	HS	1 S	0
651-4023-00	Groundwater	HS	4 G	4
860-0012-00	Cooperation and Conflict Over International Water Resources	HS	2 S	3
701-1216-00	Weather and Climate Models	FS	3 G	4
701-1224-00	Mesoscale Atmospheric Systems – Observation and Modelling	FS	2 V	2
102-0448-00	Groundwater II	FS	4 G	6
102-0488-00	Water Resources Management	FS	2 G	3

7 UNIBE-.... = courses at the University of Bern
9 takes places as block course (7 days), next time probably June 2023 or 2024

Electives: Recommended as additional elective courses				
Course Number	Title	Sem.	Type	CP
701-1241-00	Atmospheric Remote Sensing	HS	2G	3
701-1271-00	Statistical Learning for Atmospheric and Climate Science	HS	2 G	3
701-3001-00	Environmental Systems Data Science: Data Processing	HS	2 G	2
701-3003-00	Environmental Systems Data Science: Machine Learning	HS	2 G	3
651-4273-00	Numerical Modelling in Fortran	HS	2 V	3
651-4273-01	Numerical Modelling in Fortran (Project)	HS	1 U	1
701-1270-00	High Performance Computing for Weather and Climate	FS	3 G	3

2.2 Major in Biogeochemistry and Pollutant Dynamics

For advice regarding this major, students may contact Dr. Anouk N'Guyen van Chinh, anouk.nguyen@usys.ethz.ch.

Human activities influence the natural cycles of many elements on a regional to global scale and lead to emissions of numerous substances, with significant consequences for the environment. The major in Biogeochemistry & Pollutant Dynamics focuses on biogeochemical cycles in ecosystems and the behavior of relevant pollutants in the environment. Biogeochemical cycles are influenced by a complex interplay of physical, chemical, and biological processes. Thus, this major is highly interdisciplinary.
For more details please visit the website for the Major Biogeochemistry and Pollutant Dynamics www.usys.ethz.ch/en/studies/environmental-sciences/master/majors/biogeochemistry-pollutant-dynamics.html

The curriculum of the major programme comprises four modules, Term Paper and Seminar. The minimum number of credit points to be acquired for each category is indicated in table 2 below.

A minimum of 40 credits points must be obtained in the following categories:

Module	Credit points
Biogeochemical Processes	15
Applications	6
Methods and Tools: Modelling Courses	3
Methods and Tools: Field and Lab Courses	9
Term Paper and Seminar	7

Table 2: Structure of the major in Biogeochemistry and Pollutant Dynamics

Well-suited minors for the major in Biogeochemistry and Pollutant Dynamics are:
- Agricultural Plant Production and Environment
- Catchment Management and Natural Hazards

Biogeochemical Processes (15 CP)[10]				
Course Number	Title	Sem.	Type	CP
701-1313-00	Isotopes and Biomarkers in Biogeochemistry	HS	2 G	3
701-1315-00	Biogeochemistry of Trace Elements	HS	2 G	3
701-1316-00	Physical Transport Processes in the Natural Environment	HS	2 G	3
701-1310-00	Environmental Microbiology	FS	2 V	3
701-1312-00	Advanced Ecotoxicology	FS	2 V	3
701-1314-00	Environmental Organic Chemistry	FS	2 V	3
701-1317-00	Global Biogeochemical Cycles and Climate	FS	3 G	3

Applications (6 CP)				
Course Number	Title	Sem.	Type	CP
701-1346-00	Carbon Mitigation	HS	2 G	3
701-1351-00	Anthropogenic Particles in the Environment	HS	2 G	3
860-0012-00	Cooperation and Conflict Over International Water Resources	HS	2 S	3
701-0998-00	Environmental and Human Health Risk Assessment of Chemicals	FS	2 G	3
701-1342-00	Agriculture and Water Quality	FS	3 G	3
860-0015-00	Supply and Responsible Use of Mineral Resources I	FS	2 G	3

Methods and Tools: Modelling Courses (3 CP)				
Course Number	Title	Sem.	Type	CP
701-0426-00	Modelling Aquatic Ecosystems	FS	2 G	3
701-1240-00	Modelling Environmental Pollutants	FS	2 G	3
701-1338-00	Biogeochemical Modelling of Sediments, Lakes and Oceans	FS	2 G	3

10 The courses listed in the following sections refer to the ETH Zurich course catalogue valid on the press date of this brochure. The order of listing in each section follows these rules: all courses of study programme Environmental Science (numbers starting with 701) which take place in the autumn semester are listed first. Followed by courses of other study programmes in autumn semester with increasing numbers. The same rules apply for the spring semester. Detailed information for each course is given in the ETH Zurich online course catalogue: www.vvz.ethz.ch.

Methods and Tools: Field and Lab Courses (9 CP)				
Course Number	Title	Sem.	Type	CP
701-1331-00	Biogeochemistry of Trace Elements Laboratory	HS	4 P	3
701-1333-00	Isotopes and Biomarkers in Biogeochemistry Laboratory	HS	4 P	3
701-1337-00	Forest Soils in a Changing Environment	HS	6 P	3
701-1339-00	Soil Solids Laboratory	HS	4 G	3
701-1673-00	Environmental Measurement Laboratory	HS	2 V + 1 U	5
701-0230-00	Field Course Biogeochemistry of Alpine Habitats	FS	3 P	2
701-1330-00	Advanced Ecotoxicology Laboratory	FS	6 P	3
701-1332-00	Analysis of Organic Pollutants Laboratory	FS	6 P	3
701-1336-00	Cook and Look: Synchroton Techniques	FS	6 P	3

Term Paper and Seminar (compulsory, 7 CP)				
Course Number	Title	Sem.	Type	CP
701-1302-00	Term Paper 2: Seminar	HS/FS	1 S	2
701-1303-00	Term Paper 1: Writing	HS/FS	6 A	5

Electives

Electives courses listed below are a selection of courses to deepen your knowledge in the chosen Major. This list is not complete. The following "Elective Courses" are especially recommended:

Electives				
Course Number	Title	Sem.	Type	CP
701-3001-00	Environmental Systems Data Science: Data Processing	HS	2 G	2
701-3003-00	Environmental Systems Data Science: Machine Learning	HS	2G	3
701-1646-00	Carbon and Nutrient Cycling under Global Change	FS	3 G	5
102-0338-01	Waste Management and Circular Economy	FS	2 G	3
651-4004-00	The Global Carbon Cycle - Reduced	FS	2 G	3
651-4056-00	Limnogeology	FS	2 G	3
751-4902-00	Modern Pesticides – Mode of Action, Residues and Environmental Fate	FS	2 V	2

2.3 Major in Ecology and Evolution

For advice regarding this major, students may contact Dr. Sébastien Wielgoss, sebastien.wielgoss@env.ethz.ch.

The expertise of ecologists and evolutionary biologists is increasingly needed to address many of the world's most pressing scientific and social problems. These include the spread of invasive species, the risk of emerging diseases, the undesirable impacts of novel technologies, and the limits to ecosystem stability.
The major in Ecology and Evolution aims to provide students with the skills and expertise to tackle these issues through a highly flexible teaching program.
For more details please visit the website for the Major Ecology and Evolution www.usys.ethz.ch/en/studies/environmental-sciences/master/majors/ecology-evolution.html

The curriculum of the major programme comprises the following categories with the minimum number of credit points to be acquired indicated in table 3.

A minimum of 40 credits points must be obtained in the following categories:

Module	**Credit points**
Foundations	8
Advanced Concepts & Applications	12
Scientific Skills	
· Term Paper and Seminar	8
· Quantitative and Computational Expertise · Laboratory and Field Expertise · Expertise in Biological Diversity	6
Students choose from the above mentioned categories.	6

Table 3: Structure of the major in Ecology and Evolution

Foundations (at least 8 CP)[11]				
Course Number	Title	Sem.	Type	CP
701-0328-00L	Advanced Ecological Processes	HS	2 V	4
701-1427-00L	Experimental Evolution	FS	2 S	4
701-1708-00L	Infectious Disease Dynamics	FS	2 V	4

Advanced Concepts and Applications courses must sum to **at least 12 CP**.
Students select from a range of courses building in depth knowledge of specific areas of ecology and evolution.

Advanced Concepts				
Course Number	Title	Sem.	Type	CP
701-0263-01	Seminar in Evolutionary Ecology of Infectious Diseases	HS	2 G	3
701-1409-00	Research Seminar: Ecological Genetics	HS	1 S	2
701-1471-00	Ecological Parasitology	HS	1 V + 1 P	3
701-1676-01	Genomics of Environmental Adaptation	HS	3 G	2
701-1703-00	Evolutionary Medicine for Infectious Diseases	HS	2 G	3
636-0017-00	Computational Biology	HS	3 G + 2 A	6
751-5101-00	Biogeochemistry and Sustainable Management	HS	2 G	2
701-1424-00	Guarda-Workshop in Evolutionary Biology (Block Course)	FS	4 P	3
701-1450-00	Conservation Genetics	FS	4 G	3
701-1462-00	Evolution of Social Behavior and Biological Communication	FS	2 V	3
262-0200-00	Bayesian Phylodynamics	FS	2 G + 2 A	4
751-4805-00	Recent Advances in Biocommunication	FS	2 S	3

Students explore the management, conservation, and restoration of diverse biological systems, building an appreciation for the relevance of ecological and evolutionary principles to the informed management of natural areas.

11 The courses listed in the following sections refer to the ETH Zurich course catalogue valid on the press date of this brochure. The order of listing in each section follows these rules: all courses of study programme Environmental Science (numbers starting with 701) which take place in the autumn semester are listed first. Followed by courses of other study programmes in autumn semester with increasing numbers. The same rules apply for the spring semester. Detailed information for each course is given in the ETH Zurich online course catalogue: www.vvz.ethz.ch.

Applications				
Course Number	Title	Sem.	Type	CP
701-1453-00	Ecological Assessment and Evaluation	HS	3 G	3
701-1613-01	Advanced Landscape Research	HS	3 G	5
701-1631-00	Foundations of Ecosystem Management	HS	3 G	5
701-1446-00[12]	Forest and Landscape Conservation and Management (Field Course to Scotland)	FS	120 P	4
701-1456-00[12]	Applied Ecosystem Management (Field Course in Serbia)	FS	60 h	3
701-1646-00	Carbon and Nutrient Cycling in a Changing Climate and Land-Use	FS	3 G	5

Scientific Skills (at least 14 CP)
A major in ecology and evolution leads to a range of careers requiring technical expertise. Students have the opportunity to build strength in: Quantitative and Computational Expertise, Laboratory and Field Expertise, and Expertise in Biological Diversity.

Term Paper and Seminar (compulsory, 8 CP)
Mentored by a senior scientist, students engage with a topic of their choosing in a semester long term paper, followed by a seminar to the same topic in the consecutive spring semester.

Term Paper and Seminar (compulsory, 8 CP)				
Course Number	Title	Sem.	Type	CP
701-1460-00	Ecology and Evolution: Term Paper	HS	11 A	5
701-1461-00	Ecology and Evolution: Seminar	FS	6 S	3

12 Takes places every other year: FS23: Forest and Landscape Conservation and Management and FS24: Applied Ecosystem Management (Field Course in Serbia)

Quantative and Computational Expertise				
Course Number	Title	Sem.	Type	CP
701-1677-00	Quantitative Vegetation Dynamics: Models from Tree to Globe	HS	3 G	3
701-1679-00	Landscape Modelling of Biodiversity: From Global Changes to Conservation	HS	3 G	5
701-1410-01	Quantitative Approaches to Plant Population and Community Ecology	FS	2 V	2
701-1418-00	Modelling Course in Population and Evolutionary Biology (Block Course)	FS	6 P	4

Laboratory and Field Expertise				
Course Number	Title	Sem.	Type	CP
701-1425-01	Genetic Diversity: Techniques	HS	4 P	2
701-1437-00	Aquatic Ecology I	HS	3 V	3
701-1437-03	Aquatic Ecology II	HS	6 U	5
701-0362-00	Böden und Vegetation der Alpen (Exkursion)	FS	2 P	2
701-0364-00	Flora und Vegetation der Alpen	FS	1 V	1
701-1425-00	Genetic Diversity: Analysis (Practical, Block Course)	FS	2 G	2
701-1428-00	Animal Migration and Research in Field Ornithology (Excursion)	FS	3 P	2
701-1432-00	Ecology Lab: Field Course	FS	3 G	2

Expertise in Biological Diversity				
Course Number	Title	Sem.	Type	CP
701-1437-01	Bestimmungskurs aquatische Makroinvertebraten	HS	2 P	2
701-1437-02	Bestimmungskurs Süsswasseralgen und aquatische Mikroinvertebraten	HS	2 P	2
551-0216-00	Mykologischer Feldkurs	FS	5 P	3

Electives

Electives courses listed below are a selection of courses to deepen your knowledge in the chosen Major. This list is not complete. The following Elective Courses are especially recommended.

Electives				
Course Number	Title	Sem.	Type	CP
701-3001-00	Environmental Systems Data Science: Data Processing	HS	2 G	2
701-3003-00	Environmental Systems Data Science: Machine Learning	HS	2 G	3
551-0205-00	Challenges in Plant Sciences	HS	2 K	2
751-4504-00	Plant Pathology I	HS	2 G	2
701-1414-00	Evolutionary Biology: Field Course	FS	3 P	3
701-1480-00	Evolutionary Developmental Biology	FS	1 S	3
701-xxxx-xx	Advanced Forest Entomology and Pathology	FS	3 G	5
701-1604-00	Wildtierökologie und -management	FS	2 G	3
751-5110-00	Insects in Agroecosystems	FS	2 V	2
751-5118-00	Global Change Biology	FS	2 G	2

2.4 Major in Environmental Systems and Policy

For advice regarding this major, students may contact
Prof. Dr. Michael Stauffacher, michael.stauffacher@usys.ethz.ch.

Contributing effectively to environmental policy- and decision-making requires an understanding not only of environmental systems, but also of the main environmental policy instruments, political systems, as well as skills at policy modelling and appraisal. The major in Environmental Systems and Policy conveys an understanding of political systems, environmental policy approaches, as well as practical experience at policy analysis and decision support.
For more details please visit the website for the Major Environmental Systems and Policy www.usys.ethz.ch/en/studies/environmental-sciences/master/majors/environmental-systems-policy.html

The curriculum of the major programme is structured in three modules, each with a minimum of 9 and a maximum of 22 CP indicated in table 4. Within each module, there is one compulsory subject (required course). The total amount of CP has to sum up to 40.

A minimum of 40 credits points must be obtained in the following categories:

Module	Credit points (Minimum)	Credit points (Maximum)	Compulsory Course
Module 1: Theoretical foundations for environmental policy	9	22	Climate Policy OR Environmental Governance
Module 2: Modelling and Statistical Analysis	9	22	Quantitative Policy Analysis and Modeling
Module 3: Policy Engagement	9	22	Principles of Management for Sustainability

Table 4: Structure of the major in Environmental Systems and Policy

Students have to choose one minor focusing on environmental or technological systems. Appropriate minors for the major in ESP are:
- Sustainable energy use
- Catchment management and natural hazards
- Forest engineering and wood products
- Agricultural plant production and environment
- Physical Glaciology

Students also have the flexibility to propose a set of courses from an area of environmental systems science for which no minor currently exists (e.g. concerning climate systems) to satisfy this requirement. The proposal has to be discussed with and to be approved by Prof. Dr. Michael Stauffacher (michael.stauffacher@usys.ethz.ch). For a word document to prepare the proposal go to www.usys.ethz.ch/en/studies/environmental-sciences/master/majors/environmental-systems-policy.

Module 1: Theoretical foundations for environmental policy (at least 9 CP)[13]

One of these two courses is required (6 CP)				
Course Number	Title	Sem.	Type	CP
701-1563-00	Climate Policy	HS	3 G	6
701-1651-00	Environmental Governance	HS	3 G	6

And at least the remaining 3 CP from the following courses				
Course Number	Title	Sem.	Type	CP
701-1563-00	Climate Policy	HS	3 G	6
701-1651-00	Environmental Governance	HS	3 G	6
851-0609-06	Governing the Energy Transition	HS	2 V	2
860-0023-00	International Environmental Politics	HS	2 V	3
701-0758-00	Ökologische Ökonomik: Grundlagen und Wachstumskritik	FS	2 V	2
701-0764-00	Kritische Auseinandersetzung mit dem ökonomischen Wachstumsparadigma	FS	1 S	1
363-1076-00	Diffusion of Clean Technologies	FS	2 G	3
364-0576-00	Advanced Sustainability Economics	FS	3 G	3
752-2121-00	Consumer Behaviour II	FS	2 G	2
752-2123-00	Risk Awareness, Risk Acceptance and Trust	FS	2 V	3
860-0015-00	Supply and Responsible Use of Mineral Resources I	FS	2 G	3

13 The courses listed in the following sections refer to the ETH Zurich course catalogue valid on the press date of this brochure. The order of listing in each section follows these rules: all courses of study programme Environmental Science (numbers starting with 701) which take place in the autumn semester are listed first. Followed by courses of other study programmes in autumn semester with increasing numbers. The same rules apply for the spring semester. Detailed information for each course is given in the ETH Zurich online course catalogue: www.vvz.ethz.ch.

860-0016-00	Supply and Responsible Use of Mineral Resources II	FS	2 U	3
860-0022-00	Complexity and Global Systems Science	FS	2 S	3

Module 2: Modelling and Statistical Analysis (at least 9 CP)

Required Course (6 CP)				
Course Number	Title	Sem.	Type	CP
701-1565-00	Quantitative Policy Analysis and Modeling	HS	4 G	6

And at least the remaining 3 CP from the following courses				
Course Number	Title	Sem.	Type	CP
701-1453-00	Ecological Assessment and Evaluation	HS	3 G	3
101-0491-00	Agent Based Modeling in Transportation	HS	4 G	6
363-0541-00	Systems Dynamics and Complexity	HS	3 G	3
701-1252-00	Climate Change Uncertainty and Risk: From Probabilistic Forecasts to Economics of Climate Adaptation	FS	2 V + 1 U	3
701-1522-00[14]	Multi-Criteria Decision Analysis	FS	2 G	3
701-1674-00	Spatial Analysis, Modelling and Optimisation	FS	4 G	5
752-2110-00	Multivariate Statistical Analysis	FS	2 V	3

Module 3: Policy Engagement (at least 9 CP)

Required Course (6 CP)				
Course Number	Title	Sem.	Type	CP
701-1562-00	Principles of Management for Sustainability	FS	4 P	6

14 will not be offered in Srping Semester 2022; lecture will be offered next time Spring Semester 2023

And at least the remaining 3 CP from the following courses				
Course Number	Title	Sem.	Type	CP
701-1551-00[15]	Sustainability Assessment	HS	2 G	3
701-1563-00	Climate Policy	HS	3 G	6
860-0012-00	Cooperation and Conflict Over International Water Resources	HS	2 S	3
701-1350-00	Case Studies in Environment and Health	FS	2 V	4
701-1502-00	Transdisciplinary Case Study	FS	15 P	7
701-1653-00	Policy and Economics of Ecosystem Services	FS	2 G	3
751-1652-00	Food Security – From the Global to the Local Dimension	FS	2 G	2
751-2700-00	Bodenmarkt und Bodenpolitik	FS	2 G	2

Electives

Students must complete a total of 60 CP in the categories Major and Minor/Elective Courses. A minimum of 40 credits is required for the major. In the ESP major programme at least 10 CP have to focus on a particular environmental or technological system, for instance by choosing a respective minor (see blue box on page 21). The remaining 10 credits can be completed either in the major, in the minor, in the electives or a combination of these categories.
Electives courses listed below are a selection of courses to deepen your knowledge in the chosen Major. This list is not complete. The following Elective Courses are especially recommended.

Electives				
Course Number	Title	Sem.	Type	CP
701-3001-00	Environmental Systems Data Science: Data Processing	HS	2 G	2
701-3003-00	Environmental Systems Data Science: Machine Learning	HS	2 G	3
701-1446-00[16]	Forest and Landscape Conservation and Management (Field Course to Scotland)	FS	120 P	4
701-1456-00[16]	Applied Ecosystem Management (Field Course in Serbia)	FS	4 P	3

15 Does not take place in autumn semester 2022.
16 Takes places every other year: FS23: Forest and Landscape Conservation and Management and FS24: Applied Ecosystem Management (Field Course in Serbia)

2.5 Major in Forest and Landscape Management

For advice regarding this major, students may contact
Prof. Dr. Verena Griess, verena.griess@env.ethz.ch.

Forests and landscapes develop dynamically due to changes in climate, human population, social values, technology, and policy. These changes directly affect biodiversity and multiple ecosystem services. The major in Forest and Landscape Management (FLM) conveys an in-depth understanding of these strongly interconnected systems from a natural and a social science perspective. Also, the Major emphasizes management approaches that positively influence system dynamics and hence safeguard biodiversity, ecosystem services and future human well-being.
For more details please visit the website for the Major Forest and Landscape Management www.usys.ethz.ch/en/studies/environmental-sciences/master/majors/forest-landscape-management.html

The core part of this major is composed of four modules. Additionally, there is a project-related compulsory course (5 CP). Including the project-related work, a total of at least 40 CP have to be acquired from the core part of the major. The minimum number of CP required for every module is 5 as indicated in table 5.

A minimum of 40 credits points must be obtained in the following categories:

Module	Credit points
Natural Science Foundations	5
Ecosystem Management	5
Decision Making, Policy and Planing	5
Methods and Tools	5
Students choose from the above mentioned categories	15
Project related work	5

Table 5: Structure of the major in Forest and Landscape Management

Well suited minors for the major in FLM are:
- Forest Engineering and Wood Products
- Catchment Management and Natural Hazards

Natural Science Foundations (at least 5 CP)[17]				
Course Number	Title	Sem.	Type	CP
701-1613-01[18]	Advanced Landscape Research	HS	3 G	5
701-1644-00	Mountain Forest Hydrology	HS	3 G	5
701-1646-00	Carbon and Nutrient Cycling under Global Change	FS	3 G	5

Ecosystem Management (at least 5 CP)				
Course Number	Title	Sem.	Type	CP
701-1631-00	Foundations of Ecosystem Management	HS	3 G	5
701-1635-00	Multifunctional Forest Management	HS	2 G	5
701-1616-00	Growth of Trees and Forests – from Germination to Tree Death	FS	2 G	5
701-1636-01	Ökologie und Management von Gebirgswäldern	FS	3 G	5
701-xxxx-xx	Advanced Forest Entomology and Pathology	FS	3 G	5

Decision Making, Policy and Planning (at least 5 CP)				
Course Number	Title	Sem.	Type	CP
701-1651-00	Environmental Governance	HS	3 G	6
701-1653-00	Policy and Economics of Ecosystem Services	FS	2 G	3
701-1654-00	Forest Economics and Environmental Valuation	FS	2 V	2
103-0338-00[19]	Projektwoche Landschaftsentwicklung	FS	9 P	5

Methods and Tools (at least 5 CP)				
Course Number	Title	Sem.	Type	CP
701-1673-00	Environmental Measurement Laboratory	HS	4 G	5
701-1679-00	Landscape Modelling of Biodiversity: From Global Changes to Conservation	HS	3 G	5
701-1674-00	Spatial Analysis, Modelling and Optimisation	FS	4 G	5

17 The courses listed in the following sections refer to the ETH Zurich course catalogue valid on the press date of this brochure. The order of listing in each section follows these rules: all courses of study programme Environmental Science (numbers starting with 701) which take place in the autumn semester are listed first. Followed by courses of other study programmes in autumn semester with increasing numbers. The same rules apply for the spring semester. Detailed information for each course is given in the ETH Zurich online course catalogue: www.vvz.ethz.ch.
18 does not take place in Autumn Semester 2022; will be offered for the next time in Autumn Semester 2023
19 This course has a limited capacity. The timing of the field week is coordinated with other FLM field courses.

Project-related Work (compulsory, 5 CP)				
Course Number	Title	Sem.	Type	CP
701-1692-00	Applied Forest and Landscape Management Lab (Block Course)	FS	8 P	5

Electives

Additonally to the compulsory 40 credit points (CP) in the major Forest and Landscape Management students choose up to 20 CP in the category Electives/Minors.
Electives courses listed below are a selection of courses to deepen your knowledge in the chosen Major. This list is not complete. The following Elective Courses are especially recommended.

Electives: Natural Science Foundations				
Course Number	Title	Sem.	Type	CP
701-1620-00[20]	Tree Genetics – Concepts and Applications	HS	2 G	3
751-5125-00	Stable Isotope Ecology of Terrestrial Ecosystems	HS	2 G	2
701-1600-00	Summer School on Forest Research and Global Change	FS	3 G	3
701-1602-00	Long-term Dynamics in Swiss Forest Reserves	FS	3 P	2
751-5118-00	Global Change Biology	FS	2 G	2

Electives: Ecosystem Management				
Course Number	Title	Sem.	Type	CP
701-1453-00	Ecological Assessment and Evaluation	HS	3 G	3
701-1645-00	Forest Operations	HS	2 G	3
701-1446-00[21]	Forest and Landscape Conservation and Management (Field Course to Scotland)	FS	120 P	4
701-1456-00[21]	Applied Ecosystem Management (Field Course in Serbia)	FS	4 P	3
701-1544-00	Forest Access and Transportation	FS	2 G	3
701-1604-00	Wildtierökologie und -management	FS	2 G	3
701-1640-00	Selected Topics of Multifunctional Forest Management	FS	6 P	3

20 does not take place in Autumn Semester 2022; will be offered for the next time in Autumn Semester 2023
21 Takes places every other year: FS23: Forest and Landscape Conservation and Management and FS24: Applied Ecosystem Management (Field Course in Serbia)

Electives: Decision Making, Policy and Planning				
Course Number	Title	Sem.	Type	CP
103-0468-00	Participatory Modeling in Integrated Landscape Development	HS	2 G	3
701-0743-01	Rechtlicher Umgang mit natürlichen Ressourcen	FS	2 V	2
103-0330-00	Landscape Aesthetics	FS	2 G	2
751-2700-00	Bodenmarkt und Bodenpolitik	FS	2 G	2

Electives: Methods and Tools				
Course Number	Title	Sem.	Type	CP
701-1316-00	Physical Transport Processes in the Natural Environment	HS	2 G	3
701-1677-00	Quantitative Vegetation Dynamics: Models from Tree to Globe	HS	3 G	3
701-1682-00	Dendroecology	HS	3 G	3
701-1776-00	Geographic Data Processing with Python and ArcGIS	HS	2 U	1
701-3001-00	Environmental Systems Data Science: Data Processing	HS	2 G	2
701-3003-00	Environmental Systems Data Science: Machine Learning	HS	2 G	3
401-0627-00	Smoothing and Nonparametric Regression with Examples	HS	2 G	4

2.6 Major in Human Health, Nutrition and Environment

For advice regarding this major, students may contact Prof. Dr. Roland Regös, roland.regoes@env.ethz.ch.

Human health is determined by complex interactions between individual lifestyles (nutrition, behaviour), environmental factors (climate, pollutants, infectious diseases, radiation), and societal aspects (medical infrastructure, information, prevention, regulation). The major in Human Health, Nutrition and Environment (HNE) conveys an in-depth understanding of the interaction between human populations, pollutants, infectious diseases and diet.
For more details please visit the website for the Major Human Health, Nutrition and Environment www.usys.ethz.ch/en/studies/environmental-sciences/master/majors/human-health-nutrition-environment.html

The curriculum of the major programme comprises the following categories with the minimum number of credit points to be acquired indicated in table 1. The curriculum of the major programme comprises the four modules listed below and a term paper. The module Public Health is compulsory for all students of this major. Two further modules have to be chosen.
While within the module Public Health and each of the two other modules a minimum of 10 credit points must be acquired, the total minimum number of credit points to be earned in three modules is 34 (34 CP + 6 CP from the Term Paper add up to a minimum of 40 CP for the major).

A minimum of 40 credits points must be obtained in the following categories:

Module	**Credit points**
Module: Public Health (PH)	10
Choose two modules out of three: · Nutrition and Health* · Environment and Health* · Infectious Diseases*	20
Students choose from the above mentioned modules (including PH).	4
Term Paper	6

Table 6: Structure of the major in Human Health, Nutrition and Environment

* In each module you have to achieve at least 10 credits points

Public Health (compulsory for all students of this major programme)[22]				
Course Number	Title	Sem.	Type	CP
401-0629-00[23]	Applied Biostatistics	HS	3 G	4
752-6105-00	Epidemiology and Prevention	HS	2 V	3
752-6151-00[23]	Public Health Concepts	HS	2 V	3
363-1066-00	Designing Effective Projects for Promoting Health@Work	FS	2 G	3
752-6104-00	Nutrition for Health and Development	FS	2 V	2

Nutrition and Health				
Course Number	Title	Sem.	Type	CP
752-2122-00	Food and Consumer Behaviour	HS	2 V	2
752-5103-00	Functional Microorganisms in Foods	HS	2 G	3
752-6101-00	Dietary Etiologies of Chronic Disease	HS	2 V	3
752-1300-01	Food Toxicology	FS	1 G	3
752-6102-00	The Role of Food and Nutrition for Disease Prevention	FS	2 V	3
752-6303-00	Neurobiology of Eating and Drinking	FS	2 G	3
752-6402-00	Nutrigenomics	FS	2 V	3

Environment and Health				
Course Number	Title	Sem.	Type	CP
376-1353-00	Nanostructured Materials Safety	HS	1 V	2
701-0662-00	Environmental Exposures (Air Pollution and Noise) and Health Effects	FS	2 V	3
701-1312-00	Advanced Ecotoxicology	FS	2 V	3
701-1350-00	Case Studies in Environment and Health	FS	2 V	4
701-1704-01	Health Impact Assessment: Concepts and Case Studies	FS	2 V	3

22 The courses listed in the following sections refer to the ETH Zurich course catalogue valid on the press date of this brochure. The order of listing in each section follows these rules: all courses of study programme Environmental Science (numbers starting with 701) which take place in the autumn semester are listed first. Followed by courses of other study programmes in autumn semester with increasing numbers. The same rules apply for the spring semester. Detailed information for each course is given in the ETH Zurich online course catalogue: www.vvz.ethz.ch.
23 Key lecture of the module

Infectious Diseases				
Course Number	Title	Sem.	Type	CP
701-0263-01	Seminar in Evolutionary Ecology of Infectious Diseases	HS	2 G	3
701-1471-00	Ecological Parasitology	HS	1 V + 1 P	3
701-1703-00	Evolutionary Medicine for Infectious Diseases	HS	2 G	3
551-0223-00	Immunology III	HS	2 V	4
752-4009-00	Molecular Biology of Foodborne Pathogens	HS	2 V	3
701-1708-00	Infectious Disease Dynamics	FS	2 V	4

Term Paper (compulsory)				
Course Number	Title	Sem.	Type	CP
701-1701-00	Human Health, Nutrition and Environment: Term Paper	HS	13 A	6

Electives
Electives courses listed below are a selection of courses to deepen your knowledge in the chosen Major. This list is not complete. The following Elective Courses are especially recommended.

Electives				
Course Number	Title	Sem.	Type	CP
701-3001-00	Environmental Systems Data Science: Data Processing	HS	2 G	3
701-3003-00	Environmental Systems Data Science: Machine Learning	HS	2 G	3

3 Minor Programmes and Elective Courses

Minors (Ergänzungsfächer) are units of several lectures, which focus on a specific subject and are awarded with at least 10 CP. It is compulsory to complete one Minor if you have chosen the Major in Environmental Systems and Policy (please see 2.4 Major in Environmental Systems and Policy). If you have chosen another Major you can take one or two Minors or electives only.

Elective courses can be taken from the entire ETH course catalogue and a number of courses at the University of Zurich[24] (cf. section 3.7). Courses listed under the section Major (even the chosen Major) count also as elective courses.

The description of the different minors are on the following website:
www.usys.ethz.ch/en/studies/environmental-sciences/master/electives-minors.html

3.1 Minor in Sustainable Energy Use

For advice regarding this minor, students may contact Prof. Dr. Christian Pohl, christian.pohl@usys.ethz.ch.

Sustainable Energy Use				
Course Number	Title	Sem.	Type	CP
701-0967-00[25]	Projektentwicklung im Bereich erneuerbarer Energien	HS	2 G	2
701-1346-00	Carbon Mitigation	HS	2 G	3
052-0609-00	Energie- und Klimadesign I	HS	2 G	2
227-0731-00	Power Market I – Portfolio and Risk Management	HS	4 G	6
052-0610-00	Energie- und Klimasysteme II	FS	2 G	2
151-0206-00	Energy Systems and Power Engineering	FS	2 V + 2 U	4
151-0928-00	CO_2 Capture and Storage and the Industry of Carbon-Based Resources	FS	3 G	4

24 This does not apply to language courses please see section 3.7 blue box Language Courses.
25 Very good German skills required

227-0664-00	Technology and Policy of Electrical Energy Storage	FS	2 G	3
227-0730-00	Power Market II – Modeling and Strategic Positioning	FS	4 G	6
363-0514-00	Energy Economics and Policy	FS	2 G	3
529-0191-01	Electrochemical Energy Conversion and Storage Technologies	FS	3 G	4

3.2 Minor in Physical Glaciology

For advice regarding this minor, students may contact Dr. Hanna Joos, hanna.joos@env.ethz.ch.

Physical Glaciology				
Course Number	Title	Sem.	Type	CP
101-0289-00	Applied Glaciology	HS	2 G	4
651-1581-00	Seminar in Glaciology	HS	2 S	3
651-4077-00[26]	Quantification and Modeling of the Cryosphere: Dynamic Processes (University of Zurich)	HS	1 V	3
651-4101-00	Physics of Glaciers	HS	3 G	3
101-0288-00	Snow and Avalanches: Processes and Risk Management	FS	2 G	3
651-1504-00	Snowcover: Physics and Modelling	FS	3 G	4
651-4162-00	Field Course Glaciology	FS	6 P	3

26 Courses at the University of Zurich (UZH), details may be subject to changes.

3.3 Minor in Catchment Management and Natural Hazards

For advice regarding this minor, students may contact Prof. Dr. Harald Bugmann, harald.bugmann@env.ethz.ch.

The lectures in this minor are predominantly given in German.

Catchment Management				
Course Number	Title	Sem.	Type	CP
701-0565-00	Grundzüge des Naturgefahrenmanagements	HS	3 G	3
101-1250-00	Wildbach- und Hangverbau	HS	2 V	3
102-0293-00	Hydrology	HS	2 G	3
651-3525-00	Ingenieurgeologie	HS	2 V + 1 U	4
651-4088-03[27]	Physische Geographie III (Geomorphologie und Glaziologie) (Universität Zürich)	HS	1 V + 1 U	5
101-0288-00	Snow and Avalanches: Processes and Risk Management	FS	2 G	3

3.4 Minor in Forest Engineering and Wood Products

For advice regarding this minor, students may contact Prof. Dr. Ingo Burgert, iburgert@ethz.ch.

Students must obtain 12 credit points. The courses in "Forest Operations (Autumn semester)" and "Forest Access and Transportation (Spring semester)" are mandatory.

Minor in Forest Engineering and Wood Products				
Course Number	Title	Sem.	Type	CP
701-1645-00	Forest Operations	HS	2 G	3
101-0637-10	Wood Structure and Function	HS	2 G	3
101-0637-20	Holzbearbeitung und -verarbeitung	HS	2 G	3
701-1544-00	Forest Access and Transportation	FS	2 G	3
101-0678-00	Wood Physics & Wood Materials	FS	2 G	3

27 Courses at the University of Zurich (UZH), details may be subject to changes.

3.5 Minor in Agricultural Plant Production and Environment

For advice regarding this minor, students may contact Prof. Dr. Achim Walter, achim.walter@usys.ethz.ch.

At least 6 credit points have to be gained from the list of Advanced Courses.
All courses with German titles are taught in German.

Basic Courses				
Course Number	Title	Sem.	Type	CP
751-3700-00	Ökophysiologie	HS	2 V	2
751-0280-00	Kulturpflanzen im World Food System	FS	2 V	2
751-4002-00	Graslandsysteme	FS	2 G	2
751-4107-01	Einführung in den Acker- und Futterbau	FS	2 V	2
751-5000-00	Sustainable Agroecosystems I	FS	2 G	2

Advanced Courses				
Course Number	Title	Sem.	Type	CP
701-1343-00	Soil-Plant Water Relations	HS	2 V	3
751-2105-00	Political Ecology of Food and Agriculture	HS	2 G	3
751-4003-01	Current Topics in Grassland Sciences (HS)	HS	2 S	2
751-4104-00	Alternative Crops	HS	2 V	2
751-4704-00	Weed Science	HS	2 G	3
751-5003-00	Sustainable Agroecosystems II	HS	2 V	2
751-4003-02	Current Topics in Grassland Sciences (FS)	FS	2 S	2
751-4902-00	Modern Pesticides – Mode of Action, Residues and Environmental Fate	FS	2 V	2
751-5001-00	Agroecologists without Borders	FS	2 S	2

3.6 Minor in Environmental, Resource and Food Economics

For advice regarding this minor, students may contact Dr. Robert Huber, rhuber@ethz.ch.

At least 6 credit points have to be gained from the list of Block I.
All courses with German titles are taught in German.

Block I				
Course Number	Title	Sem.	Type	CP
363-0537-00	Resource and Environmental Economics	HS	2 G	3
751-0423-00	Risk Analysis and Risk Management in Agriculture	HS	2 G	3
751-0903-00	Mikroökonomie des Agrar- und Lebensmittelsektors	HS	2 V	3
751-1500-00	Entwicklungsökonomik	FS	2 V	3
751-1555-00	Empirical Agricultural Economics	FS	2 G	3
751-1575-00	Applied Optimization in Agricultural Economics	FS	2 G	3

Block II				
Course Number	Title	Sem.	Type	CP
751-1311-00	Einführung in das Agrarmanagement	HS	2 V	2
751-1573-00	Dynamic Simulation in Agricultural and Regional Economics	HS	2 V	2
751-2103-00	Socioeconomics of Agriculture	HS	2 V	2
751-2105-00	Political Ecology of Food and Agriculture	HS	2 G	3
751-2903-00	Evaluation of Agricultural Policies	HS	2 G	3
751-1552-00	Agrarische Ressourcen- und Umweltökonomie	FS	2 V	2
751-2102-00	History of Food and Agriculture	FS	2 V	3
751-2312-00	Agrarpolitik	FS	2 V	3
751-2700-00	Bodenmarkt und Bodenpolitik	FS	2 G	2

3.7 Elective Courses

Courses from the entire ETH course catalogue and a number of courses at the University of Zurich can be taken as elective courses. Special agreements apply to language courses, please see blue box Language Courses.

Each major and minor course can be individually chosen as an elective course. By taking elective courses recommended in the list of the chosen major programme the knowledge gained in the major may be deepened and expanded; by choosing complementary or interdisciplinary courses it may be broadened.

Courses at other universities (e.g. University of Zurich, University of Bern, EPFL), which cannot be selected through myStudies, must be taken as "exchange courses/Mobilitätsfächer[28]" (recognition in the Master's degree programme only upon approval by the Director of Studies beforehand). Students must provide evidence of passing the required performance assessment issued by the university which offers the respective course (title of the course, CP, result/grade of the performance assessment). Students not taking any minors but choosing elective courses instead have various possibilities of gaining credit points.

Students who have to fulfil **additional requirements** are not allowed to count these courses towards the category Elective Courses.

Cf. section 8.2 and 8.3: It is also possible to gain the 20 credit points required in the category elective courses in view of the prerequisites for the Teaching Diploma ("Lehrdiplom") in Biology, Chemistry and Physics or the Teaching Certificate ("Didaktik-Zertifikat in Umweltlehre". Some of the lectures for the Teaching Diploma or Certificate can be count for both the Master`s Degree Programme and Teaching Diploma or Certificate.
For details see www.usys.ethz.ch/en/studies/teacher-training.

Especially Recommended Elective Courses				
Course Number	Title	Sem.	Type	CP
701-0019-00	Readings in Environmental Thinking	HS	2 S	3
701-3001-00	Environmental Systems Data Science: Data Processing	HS	2 G	2
701-3003-00	Environmental Systems Data Science: Machine Learning	HS	2 G	3
751-5510-00	Introduction to Agricultural Robotics	HS	2 G	3
701-1502-00	Transdisciplinary Case Study	FS	15 P	7
701-1504-00	ETH Sustainability Summer School	FS	6 G	3
363-1065-00	Design Thinking: Human-Centred Solutions to Real World Challenges	FS	5 G	5
751-5127-00	Microbiomics I: The Microbiome of the Plant-Soil System	FS	2 G	2
751-5127-01	Microbiomics II: Metabarcoding – from Bioinformatics to Statistics	FS	2 P	1

28 Only students who have a BSc Degree from ETH Zurich are allowed to take exchange courses.

Language Courses
A maximum of 4 CP can be accredited as elective courses and count towards the Master Degree. Those Master students who want to improve their English take one or two courses listed below, offered by the Language Center of the University and ETH Zurich:

Course Number	Title	Sem.	Type	CP
0114	Academic speaking and vocabulary B2	HS/FS	2 G	2
0115	Academic speaking and vocabulary B2-C1	HS/FS	2 U	2
851-0832-10	Advanced English for Academic Purposes C1-C2	HS/FS	2 U	2
3238	Presentation skills B2.2-C1 (semester weeks 1-7)	HS/FS	1 U	1
4243	Writing your master's thesis: Natural science and engineering C1-C2	HS/FS	2 U	2

It is important that students register at the Language Center of UZH and ETH Zurich: www.sprachenzentrum.uzh.ch/en. This course/These courses (max. 4 CP) can be accredited as elective course/s and is/are listed on the current transcript (Leistungsüberblick) and the Academic Record.

The following restrictions apply: courses in English, French, Italian, German and Spanish are only accredited from level B2 (advanced) onwards.

4 Professional Internship

The professional internship (Berufspraxis) is a compulsory part of the Master's degree programme and should last for at least 18 weeks (full-time workload). During the internship, students will learn how to professionally handle environmental issues outside of ETH through their own practical experiences. They should apply the knowledge acquired from their studies and work on a (partial) project or a defined task in the field of environmental sciences. The internship can be completed in Switzerland or abroad, which broadens experience of how environmental problems are addressed in other countries. Students must find the internship themselves.

Finding an internship position

The following resources are available to aid in the search for an internship:

- a platform with current open internship positions www.intranet.usys.ethz.ch/UMNW/Stellen
- an internship application www.usys.ethz.ch/pa-internship-envsc (nethz-login) with a company directory with contacts of Swiss companies offering internships and companies from around the world where internships have already taken place including reports
- tips, further links and templates on https://moodle-app2.let.ethz.ch/course/view.php?id=15228

Further the Internship Coordinator may be consulted to discuss any ideas and questions (cf. section 11).

Remark: Students who obtained additional requirements have to fulfil these before starting their internship.

Agreement on the content of the internship

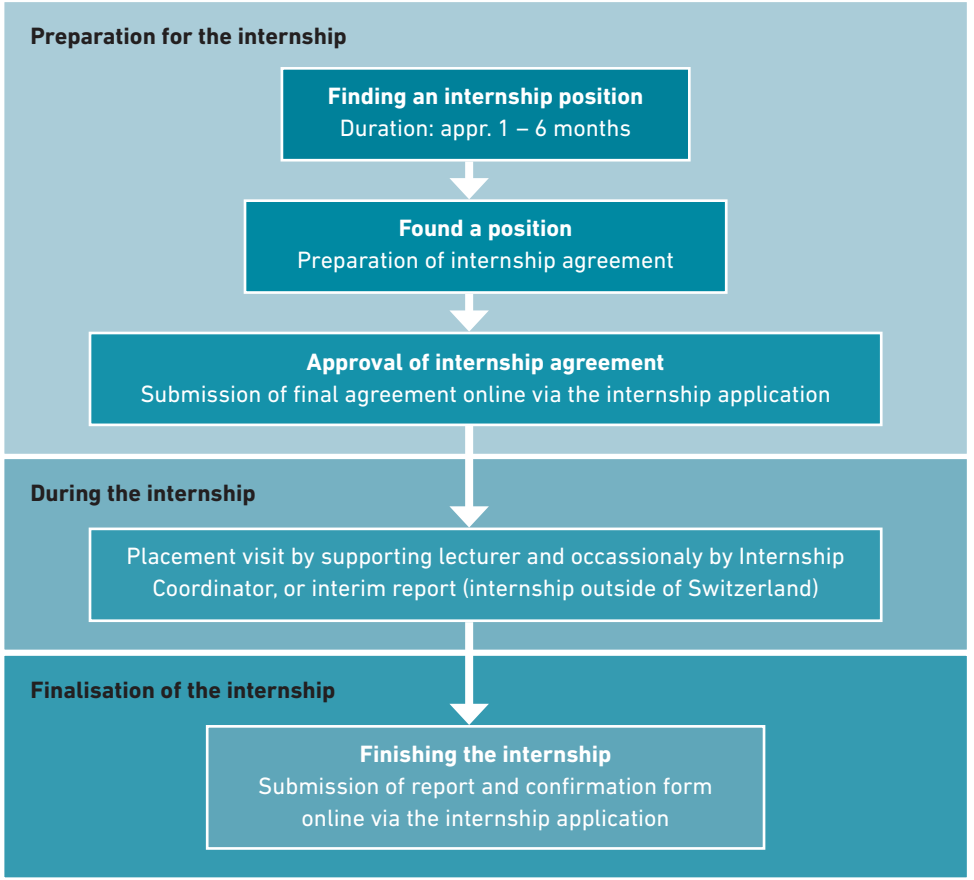
An internship agreement must be approved in advance for an internship to be recognized as a compulsory professional internship. The student and the company where the internship will take place prepare and sign an internship agreement. This agreement is about the nature of the internship, especially the intern's tasks. Students should submit their internship agreement to the Internship Coordinator as early as possible. A lecturer within the D-USYS / ETH faculty gives functional support for the internship. The Internship Coordinator and the supporting lecturer have to approve the final agreement which the students submit via the online internship application: www.usys.ethz.ch/pa-internship-envsc (nethz-login).

During the internship, students must register in the Master of Environmental Sciences and apply for a leave of absence, reason for absence: Compulsory Practical Experience. No further registration in myStudies required.

By the end, students have to document their internship in a personal report and optionally enclose a professional dossier from their tasks.

Professional Internship				
Course Number	Title	Sem.	Type	CP
701-1001-00	Professional Internship	HS/FS	0 P	30

The following diagram gives an overview of the process and required elements of the professional internship:



Graph 3: Procedure for compulsory professional internship.

Please consult the corresponding Moodle course for more detailed information about the different aspects of the compulsory internship: https://moodle-app2.let.ethz.ch/course/view.php?id=15228

5 Master's Thesis

The Master's thesis is a scientific thesis written independently by the student and shall closely reference to the scientific field of the chosen Major programme.

Permission to write the Master's thesis is only granted to students who
- have successfully completed their Bachelor's studies,
- have fulfilled all additional requirements for admission to the programme,
- have completed at least 32 of the required 40 CP in the core subjects of their specialisation.

The Master's thesis is evaluated by the supervisor and at least one other expert.
The duration of the Master's thesis is set to maximum 28 weeks (6 months plus 2 weeks). The supervisor sets the starting and submission dates. On request the Director of Studies can extend the deadline if cogent grounds are given.

For projects offered, authorised advisors and further information go to
www.usys.ethz.ch/en/studies/environmental-sciences/master/thesis.

Master's Thesis				
Course Number	Title	Sem.	Type	CP
701-1002-00	Master's Thesis	HS/FS	64 D	30

6 Student Exchange

Studying at another university for one semester brings both personal and professional enrichment. In many cases, it is possible to learn a new foreign language and/or improve existing language skills. Immersion in another culture leads to unforgettable experiences.

Prerequisite and organization for an exchange in the Master's programme
- a Bachelor's degree from ETH Zurich with a minimum grade of 4.5.
- the majority of the credits earned abroad must be recognized for the studies at ETH Zurich.
- a maximum of 20 CP from another university will be credited towards electives
- it is not possible to have CP recognized in the major
- Students also must obtain approval in advance from the departmental exchange coordinator (cf. section 11)
- The organization of a semester abroad requires some commitment and must be started a year in advance.

An exchange semester can be carried out within Switzerland or Europe or outside Europe. Further information is published on the following websites:

- Environmental Sciences Programme and
- Student Exchange Office

It is possible to do the Master thesis and/or the professional internship abroad. Students without a Bachelor's degree from ETH can also take advantage of this option, as these courses are taken and administered at ETH. Therefore, they do not count as semesters abroad.

Students intending to complete their Master's thesis at another university are to identify an advisor at D-USYS ("supervisor") and a tutor at their host university in advance. The regulations are given in the Programme Regulations under
www.usys.ethz.ch/en/studies/environmental-sciences/documents/master.

7 Performance Assessments and Master's Degree

7.1 General

All regulations concerning studies at the ETH are available in the "Rechtssammlung der ETH Zürich"[29].

The credit system used is based on the European Credit Transfer System (ECTS). Credits are a standard measure for the students' working time required to reach the educational goals. Calculations are based on a total of 1500 to 1800 working hours per year, equivalent to 60 credits. Thus, 1 credit corresponds to 25 to 30 hours of total work.

7.2 Types of examinations

Assessments are in the form of written or oral examinations, written reports, oral presentations and active participation (e.g. in field courses, colloquia, seminars). A distinction is made between session examinations, end-of-semester examinations, and graded and ungraded semester performances:

Session examinations
- written or oral
- graded
- Registration via myStudies at the Examination Office required
- Exact date and time will be announced by the Examination Office. The examinations are listed in the personal examination schedule in myStudies.
- at the end of semester holidays

End-of-semester examinations
- written or oral
- graded
- Registration via myStudies at the Examination Office required
- The dates will be announced by the lecturers or the department offering the course (Study Secretariat).
- Takes place within the last two weeks of the semester or in the two weeks following the end of the semester.

29 www.ethz.ch/en/studies/legal-principles-degrees/legal-basis

Semester performance
- graded or ungraded
- The lecturer informs the students at the beginning of the course about the form of performance assessment, the examination material, the mode of examination (e.g. active participation in practicals and excursions, written work, a presentation, duration, language).
- Registration/cancellation with the lecturer may be required.
- any time: before, during, at the end or after the semester
- Master's Thesis: The supervisor as well as at least one co-supervisor (an expert in the topic) will grade the Master's thesis. The Master's thesis evaluation form states which criteria of the thesis will be evaluated.
- Professional Internship: The performance will be assessed on the basis of the report(s) by the supervising lecturer and the Internship Coordinator with passed/failed and if approved, 30 credit points will be awarded.

More information about the different types of performance assessments is given on the student portal.
The category "Performance assessment" for each lecture in the Course Catalogue or Ordinance on Course Units and Performance Assessments at ETH Zurich contains detailed information about the course performance assessment.

7.3 Mode and duration

The mode and duration (session and end-of-semester examinations) of the examinations are listed in the course catalogue. The lecturers are obliged to inform the students in writing at the beginning of a course about the exact examination material, the exact form and the permitted aids.

7.4 Language

The instruction language at the Master's level is English, however written and oral assessments may be offered in English and/or German. Students must inform the responsible examiner in writing at the time they register for an examination that they will complete the performance in the language of their choice.
The language of instruction is governed by the relevant directives of the Rector[30].

30 www.ethz.ch/content/dam/ethz/common/docs/weisungssammlung/files-en/languages-of-instruction.pdf

7.5 Grading and Repetition

Session and end-of-semester-examinations as well as the Master's thesis are evaluated with a grade between one (lowest) and six (highest). Other assessments may also be rated with passed/failed. The assessment of a in semester performance can be evaluated either with grades or with pass/fail. Study performances are considered satisfactory if they receive a grade of at least 4.0 or passed.
A failed performance assessment may be repeated once.

7.6 Credit received

Credits are only issued, and always allocated in their full amount, for satisfactory performance according to the requirements stated in the ETH course catalogue. It is not possible to divide the CP into different categories.
The results of an examination or other performance assessment can be viewed by students via myStudies. The students receive notifications by mail about the assessed academic performance and the acquired CP (interim certificates). This also indicates how to proceed in the event of any discrepancies. After each examination session in spring and autumn students have to make sure that their interim academic record in myStudies is complete.
For further information see the Programme Regulations for the Master of Science ETH in Environmental Sciences (Studienreglement 2013 für den Master-Studiengang Umweltnaturwissenschaften, Ausgabe 15.05.2020 – 5[31]).

Master's Degree Graduation Ceremony
The next Master`s Degree Graduation Ceremony is planned for May 26th, 2023. Further information can be found on the website: Master's degree and Graduation Ceremony

31 www.rechtssammlung.sp.ethz.ch/Dokumente/324.1.1002.11.pdf

7.7 Master's Degree

Before requesting your Master's diploma, you must have obtained a minimum of 120 credits, as described in the Programme Regulation. All graduates are given a final academic record. The final academic record lists your major and any minors by name. The overall average grade is calculated as the weighted mean of the individual grades on the academic record. The weight attached to each individual grade is based on the number of credits assigned to the course to which it relates. Your ranking in your year of graduation (in comparison with other graduates who have received their final academic record over the last 11 months) is based on your overall average grade.

Graduates receive a degree certificate (optionally in German, French or Italian) and a Diploma Supplement. Your degree certificate will only mention your major.

The Master's degree entitles students to use the following academic title:
Master of Science ETH in Environmental Sciences (for short: MSc ETH Environmental Sc.)

The academic title in German:
Master of Science ETH in Umweltnaturwissenschaften (for short: MSc ETH Umwelt-Natw.)

More Information:
Master's degree – Department of Environmental Systems Science | ETH Zurich

8 Educational opportunities during or after the Master's programme

8.1 Doctorate

The Department of Environmental Systems Science and its research institutions offer outstanding conditions for a doctorate: an innovative atmosphere, state-of-the-art equipment and laboratories, and an environment inspiring young scientific talents to be successful. The doctorate involves independent scientific research work supervised by a professor.

Doctoral studies at the ETH Zurich generally take three to four years. On successful completion, candidates are awarded the title "Doctor of Sciences (Dr. sc. ETH Zürich)". For details and regulations for doctoral studies at the Department of Environmental Systems Science see www.usys.ethz.ch/en/doctorate.

8.2 Teaching Certificate in Environmental Studies / Didaktik-Zertifikat in Umweltlehre

The Department of Environmental Systems Science offers a Teaching Certificate (Didaktik-Zertifikat) in Environmental Studies, which provides graduates with a basic didactic qualification for a broad range of professional activities in the field of education. The language of instruction is German. Therefore the following information is given in German.

Die didaktische Ausbildung kann nach dem Erwerb des Bachelor-Diploms begonnen werden. Die Ausbildung zum Didaktik-Zertifikat (DZ) in Umweltlehre bescheinigt den erfolgreichen Abschluss einer didaktischen Grundausbildung in Umweltnaturwissenschaften und qualifiziert für die Lehrtätigkeit in Ökologie und Umweltlehre an Berufsschulen, Höheren Fachschulen, und Fachhochschulen sowie in der ausserschulischen Aus- und Weiterbildung von Jugendlichen und Erwachsenen. Sie befähigt dazu, umweltspezifisches Wissen an ein breites Publikum zu vermitteln. Voraussetzung für den Erhalt des Zertifikats ist ein universitärer Master- oder Diplom-Abschluss in Umweltnaturwissenschaften oder eine gleichwertige Ausbildung. Die Ausbildung zum DZ umfasst 24 Kreditpunkte. Das Didaktik-Zertifikat Umweltlehre der ETH Zürich ist schweizweit anerkannt. Das Staatssekretariat für Bildung, Forschung und Innovation (SBFI) hat am 14. November 2014 die Anerkennung verfügt.

Es ist möglich, Lehrveranstaltungen aus dem Bereich Erziehungswissenschaften (max. 8 KP) sowohl für das Master-Studium als auch für das Didaktik-Zertifikat Umweltlehre anzurechnen. Auf den Webseiten des Departements und der ETH Zürich sind weitere Informationen erhältlich: www.usys.ethz.ch/weiterbildung/didaktische-ausbildung

8.3 Teaching Diploma for Grammar Schools / Lehrdiplom für Maturitätsschulen

A Teaching Diploma in Biology, Chemistry or Physics depending on the chosen major can be completed at ETH Departments of Biology, Chemistry or Physics. However candidates might be requested to fulfil extensive additional requirements. These Teaching Diplomas provide accreditation to teach at a grammar school (Gymnasium). The language of instruction is German. Therefore the following information is given in German.

Die Ausbildung zum Lehrdiplom kann nach dem Erwerb des Bachelor-Diploms begonnen werden. Mit einem Master-Abschluss in Umweltnaturwissenschaften ist es möglich, ein Lehrdiplom für Maturitätsschulen in Biologie, Chemie oder Physik zu erwerben. Das Lehrdiplom bescheinigt den erfolgreichen Abschluss einer pädagogisch-didaktischen Ausbildung für die Lehrtätigkeit an Maturitätsschulen (Kurz- und Langgymnasien). Der Ausbildungsumfang beträgt 60 Kreditpunkte.

Die Zulassung zu dieser Ausbildung ist mit einer fachwissenschaftlichen Zusatzausbildung im Umfang von einem halben bis anderthalb Jahren (je nach Fach und individuellem Studienplan) verbunden. Die Zusatzausbildung kann jedoch während der Master-Ausbildung teilweise im Rahmen der Wahlfächer abgeschlossen werden.

Auf den Webseiten der ETH Zürich sind für Maturitätsschulen genauere Informationen zu finden, insbesondere auch die Zusatzausbildung betreffend:
www.ethz.ch/de/studium/didaktische-ausbildung/studienangebot/lehrdiplom-fuer-maturitaetsschulen

9 Things to know about the department

The Department of Environmental Systems Sciences (D-USYS) offers the two degree programs in agricultural and environmental sciences (each with a bachelor's and a consecutive master's degree program). The D-USYS organizes the teaching and examinations of its bachelor's and master's degree programs, monitors compliance with the regulations, and adapts the programs to new developments and findings.

The D-USYS is lead by the head of the department. He represents the D-USYS externally and presides over the Department Conference. This conference is the most important decision-making body of the department and is formed by all professors of the department, representatives of the assistants, the technical and administrative staff and the students. The Departmental Conference elects the Directors of Studies, who are responsible for educational matters in the respective degree programs.

All matters of instruction are handled by the two instructional committees. These committees continuously review the quality of the study programs, are concerned that the education is constantly adapted to new developments, and are also places of discussion for the major and minor difficulties in daily teaching. In the teaching commission, students are equally represented as assistants and lecturers. The great weight of the students expresses the conviction that a strong co-responsibility helps to improve the success of the education.

The study secretariats are the contact points for administrative questions regarding the study program.

10 General information and tips

10.1 Websites relevant to studies

Recommended sources of information for general information about studying at ETH Zurich and for curriculum planning:

Study Environmental Sciences
Information on studies, study operations, contact persons, office hours, etc.:
www.usys.ethz.ch/en/studies/environmental-sciences

Regulations, templates, forms for the Environmental Sciences program
www.usys.ethz.ch/en/studies/environmental-sciences/documents

myStudies
Students use "myStudies" to manage their studies.
www.lehrbetrieb.ethz.ch/myStudies/login.view?lang=en

Academic calendar
All important semester and examination information:
www.usys.ethz.ch/en/news-events/academic-calendar

Course Catalogue
Up-to-date information on content, objectives, performance assessments, etc. of all courses offered at ETH Zurich.
www.vvz.ethz.ch

Important addresses in connection with the infrastructure

Information on the services offered at the ETH campus locations
www.ethz.ch/en/campus/getting-to-know

Building and situation plans
www.ethz.ch/services/en/service/rooms-and-buildings/building-orientation

Print orders, online print shop
www.print.ethz.ch

Data transfer Polybox
www.polybox.ethz.ch

10.2 Communication

Communication takes place only to the personal ETH student e-mail address. The Academic Services and the Office of Student Affairs will inform you by e-mail about the necessary activities regarding enrollment and exam registration as well as about available exam results. Lecturers also provide information by e-mail. Lecture notes are usually available for download on a learning platform and are not sent out. Often, access to these documents is only possible if the corresponding subject has been taken.

10.3 Academic calendar

Lectures are held during the fall semester (HS; mid-September to late December) and the spring semester (FS; mid-February to late May/early June). Session exams are held at the end of lecture-free period. In the winter session from mid/end January to mid-February, in the summer session from early August to early September. End-of-semester examinations are held at the end of the semester or following the lecture period. There are special deadlines for all exam registrations. This information is available on myStudies and is also communicated to all students on time by Academic Services. www.usys.ethz.ch/en/news-events/academic-calendar

Lecture duration and start
A lesson lasts 45 min, followed by a 15 min break. The start of the lecture varies:
- Lecture start ETH Zentrum: always xx:15 (i.e. 08 = 08:15).
- Lecture start ETH Hönggerberg: always xx:45 (i.e. 08 = 07:45 !) except HIL area
- Start of lectures UZH Irchel: 08/09 and 13/14/15 always xx:00; otherwise: xx:15

www.ethz.ch/students/en/studies/academic-support/course-catalogue/lectures-times

Semester enrollment, lecture enrollment, exam enrollment
All administrative activities of the students are done via the web application "myStudies". The semester enrollment as well as the registration of the course units should be done as early as possible, at the latest by the end of the second week of the semester. No examinations can be registered without lecture enrollment. **For session examinations and end-of-semester examinations, registration takes place via myStudies.** As a rule, no special registration is required for courses with semester performances (the type of examination can be found in the course catalogue) – unless the lecturer requests it.

Examinations and examination results, deregistration from examinations
The type of examination, duration and permitted aids are listed in the course catalogue. The results of session examinations are announced as soon as the lecturers forwarded the results to the study administration. The examination results are listed in myStudies in the performance overview. Withdrawals for session examinations can be made via myStudies up to one week before the start of the examination session. In case of later cancellations due to illness, accident, etc., the Examination Office must be contacted immediately.

10.4 Financing of studies

Tuition and mandatory semester fees (ASVZ, scholarship fund, VSETH) amount to 730.– per semester at ETH Zurich. In addition, the cost of living is of particular importance. According to the student advisory service, an annual amount of CHF 16,000 to 26,000 can be expected for study and living costs.
For further information please see www.ethz.ch/students/en/studies/financial.

Special merit-based scholarship programmes exist for the Master's programme: Excellence Scholarship & Opportunity Programme (ESOP). Likewise, there is a contribution possibility for study-related travel expenses (e.g. external project or master thesis).

10.5 Military Service

The military will accept requests for deferments of service if the military service falls during the examination or test preparation period. During the semester, requests will only be approved if exam-related material is missed and this would result in an extension of study. The application must be submitted at least 14 weeks prior to the start of the service to the office offering the service (visa from the study secretariat required). The military requires the indication of a time frame for the pre- or post-service. Service may not be postponed for more than one year. Further requests for postponement will be reconsidered.

10.6 Code of Conduct

At ETH, people of different genders, from diverse cultural backgrounds and with a variety of responsibilities conduct research, study and work. This diversity is one of our strengths – and at the same time a challenge. Wherever many people meet, mutual respect is required. The Code of Conduct Respect serves as a guideline for how we want to treat each other at our university, and it clarifies the values we stand for. www.respekt.ethz.ch/en/code-of-conduct

11 Advice and contact points

General Information on studies at the ETH Zurich:
www.ethz.ch/students/en

Director of Studies

Director of Studies

Special requests in connection with academic studies, Permits for deviations from the established regulations and requests for prolongations of Master's theses

Prof. Dr. Harald Bugmann
Institute of Terrestrial Ecosystems, CHN G 76.1,
Phone 044 632 32 39
E-Mail: harald.bugmann@env.ethz.ch

Study programme coordinator

Study programme coordinator

Advice and scheduling regarding individual curricula and admission, Teaching Certificate or Teaching Diploma, Curriculum planning

Dr. Susanne Lambrecht, CHN H 42.1, Phone: 044 633 60 82
E-Mail: env_science@ethz.ch

Study administration

Study administration

Administration (processing of e.g. Master's thesis, Master's degree certificates, and performance assessments, Advice on military and civil service deferrals)

Diana Haller and Arbenita Sacipi, CHN H 41, Phone: 044 632 53 75
E-Mail: env_science@ethz.ch

Coordinator for Professional Internship

Coordinator for professional internships

Advisory service for students regarding the professional internship e.g. evaluation and approval of internships

vacant, CHN H 42.2, Phone: 044 632 25 64
E-Mail: berufspraxis@usys.ethz.ch

Exchange studies

Departmental exchange coordinator

Advice for student exchange (incoming and outgoing)

Dr. Susanne Lambrecht, CHN H 42.1, Phone: 044 633 60 82
E-Mail: studentexchange.umnw@usys.ethz.ch

Doctorate

Advisor and administration regarding a Doctorate

Madlaina Gartmann, CHN H 47, Phone: 044 632 25 23
E-Mail: phd@usys.ethz.ch
www.usys.ethz.ch/en/doctorate

Study advisor

Study advisor for Majors and Social and Humanities Sciences

They give advice for teaching fields, courses and education referring to their major specifically

Atmosphere and Climate
Prof. Dr. Reto Knutti, CHN N 12.1, Phone: 044 632 35 40
E-Mail: reto.knutti@env.ethz.ch

Biogeochemistry and Pollutant Dynamics
Dr. Anouk N'Guyen van Chinh, CHN E 21.2, Phone: 044 632 75 24
E-Mail: anouk.nguyen@usys.ethz.ch

Ecology and Evolution
Dr. Sebastien Wielgoss, CHN J11, Phone: 044 632 76 23
E-Mail: sebastien.wielgoss@env.ethz.ch

Environmental Systems and Policy
Prof. Dr. Michael Stauffacher, CHN K 78, Phone: 044 632 49 07
E-Mail: michael.stauffacher@usys.ethz.ch

Forest and Landscape Management
Prof. Dr. Verena Griess, CHN K 72.2, Phone 044 632 32 10
E-Mail: verena.griess@usys.ethz.ch

Human Health, Nutrition and Environment
Prof. Dr. Roland Regös, CHN H 76.2, Phone: 044 632 69 35
E-Mail: roland.regoes@env.ethz.ch

Social and Humanities Sciences
Dr. Eva Lieberherr, SOL G 2, Phone: 044 632 93 36
E-Mail: eva.lieberherr@usys.ethz.ch

Academic Services

Registrar's Office ETH Zurich

ETH Zurich, Campus Center, HG F 19, Phone: 044 632 30 00
E-Mail: registrar@ethz.ch

Examinations Office ETH Zurich

ETH Zurich, Campus Center, HG F 18, Phone: 044 632 20 68
E-Mail: exams@ethz.ch

Student Exchange Office ETH Zurich

ETH Zurich, Campus Center, HG F 23.1, Phone: 044 632 61 61
E-Mail: exchange@ethz.ch
www.ethz.ch/en/the-eth-zurich/organisation/departments/academic-services/student-exchange-office

Telephone hours desk for Registrar's and Examinations Office
Office: Mon – Fri, 11:00 – 13:00[32]

Student Services

Study programme Advisor

Rebecca Ridolfi, ETH Zurich, Campus Center, HG F 69.2,
Phone: 044 633 49 02
E-Mail: rebecca.ridolfi@sts.ethz.ch
www.ethz.ch/students/en/advice/student-advisory-service-coaching

Psychological Counseling Services University/ETH Zurich

ETH Zurich, Campus Center, Plattenstrasse 28, 8032 Zurich
Phone: 044 634 22 80,
E-Mail: pbs@sib.uzh.ch
www.pbs.uzh.ch/en

32 Please check websites. Telephone hours and office hours may change.

Student Services

Financial Aid Office ETH Zurich

ETH Zurich, Campus Center, HG F 22.1, Phone: 044 632 20 40/20 88
E-Mail: studienfinanzierung@sts.ethz.ch
www.ethz.ch/students/en/studies/financial

Disability Advisory Service

For students with mental health disabilities:
Karin Züst Santschi, ETH Zurich, Campus Center, HG F 68.3,
Phone: 044 632 35 92
E-Mail: karin.zuest@sts.ethz.ch

For students with physical disabilities:
Sibilla Flury,ETH Zurich, Campus Center, HG F 68.1,
Phone +41 44 632 27 71
E-Mail: sibilla.flury@sts.ethz.ch

www.ethz.ch/en/the-eth-zurich/organisation/departments/student-services/organisation-of-the-unit-orientation-and-coaching-for-students/disability-advisory-service.html

Association of students at ETH

VSETH

The VSETH represents all students of ETH. It organizes a numerous forms of relief and support regarding the study at ETH Zurich.

E-Mail: vseth@vseth.ethz.ch
www.vseth.ethz.ch/en

Student Association

UFO

UFO stands for the German abbreviation Environment and Forestry Student Association (Umwelt- und Forstfachverein). It is one section of VSETH.

E-Mail: info@ufo.ethz.ch
www.ufo.ethz.ch (only German Website)

Sport Association

Academic Sport Association Zurich (ASVZ)

The ASVZ offers all university members an attractive and varied sports programme.

E-Mail: info@asvz.ch
www.asvz.ch/en/634-welcome-asvz

Advisory Service of students for students

Nightline – We listen to you

You can contact us if you have problems or worries. Conversations and messages are confidential.

Phone 044 633 7777
www.nightline.ch/public/en/home

Information

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