

# Master's degree in Earth System Science

## with 30 ECTS credits Master's thesis

ECTS	7. Semester (HS)	8. Semester (FS)	9. Semester (HS)	ECTS
1	ESS 401		ESS 511	1
2	Current Themes in Earth System Science		Master's Thesis	2
3				3
4	ESS 416			4
5	Earth System Modelling			5
6				6
7				7
8	ESS 417			8
9	Earth System Observations and Analyses			9
10				10
11				11
12				12
13	Core elective modules			13
14	At least two Systems with a minimum of 12 ECTS in each System			14
15				15
16				16
17				17
18				18
19				19
20				20
21				21
22				22
23				23
24				24
25	Skills			25
26				26
27				27
28	Elective modules			28
29				29
30				30
31			ESS 512	31
32			Master's Exam	2 ECTS

## with 60 ECTS credits Master's thesis

ECTS	7. Semester (HS)	8. Semester (FS)	9. Semester (HS)	ECTS
1	ESS 401	ESS 510		1
2	Current Themes in Earth System Science	Master's Thesis		2
3				3
4	ESS 416			4
5	Earth System Modelling			5
6				6
7				7
8	ESS 417			8
9	Earth System Observations and Analyses			9
10				10
11				11
12				12
13	Core elective modules			13
14	Two Systems with 8 ECTS in each System			14
15				15
16				16
17				17
18				18
19				19
20				20
21				21
22				22
23				23
24				24
25				25
26				26
27				27
28				28
29				29
30				30
31				31
32				32
33			ESS 512	33
34			Master's Exam	2 ECTS

Mandatory	
<span style="background-color: #002060; color: white;"> </span>	Compulsory Modules
<span style="background-color: #00AEEF; color: white;"> </span>	Core elective modules
<span style="background-color: #C0392B; color: white;"> </span>	Skills

Elective section	
<span style="background-color: #90EE90; color: white;"> </span>	Elective modules from UZH or ETH

ECTS	ECTS credits
HS	Fall semester
FS	Spring semester
ir	Irregular course
b	Block course
2	Course over two semesters
UZH	Lecture codes starting with: ESS, GEO, BIO, STA, EEE
ETH	Lecture codes starting with: 102, 651, 701, 751, 851

**Contact:**  
<https://www.geo.uzh.ch/en/studying.html>  
[teaching-support@geo.uzh.ch](mailto:teaching-support@geo.uzh.ch)

## Core elective and Skills module list

Geo-Biosphere System (Core elective)			
Code	ECTS	Sem.	Module title
ESS 841	3	HS	Analyzing the plant-soil system: Theory
ESS 842	6	FS,b	Analyzing the plant-soil system: Practice
GEO 417	3	HS	Environmental archives and age determination I (must be taken with GEO 418)
GEO 418	3	FS	Environmental archives and age determination II (must be taken with GEO 417)
GEO 463	6	HS	Currents Challenges in plant-soil systems
GEO 820	3	FS	Stable isotopes in ecosystem science
BIO 148	3	FS	Introduction to Paleontology (if not available: BIO 274 (1CP) as alternative)
EEE 311	6	FS	Remotely Sensing the Basis of Biodiversity
EEE 321	6	FS	Ecological Networks
EEE 330	6	HS,b	Population Ecology
EEE 334	2	HS,b	Biodiversity from Species to Landscape Scale (Remote Sensing)
651-4041	3	HS	Sedimentology I: physical processes and sedimentary systems
651-4044	3	FS	Micropalaeontology and Molecular Palaeontology
651-4070	5	FS,ir	Landslide analysis
751-5118	2	FS	Global Change Biology

Hydro-Atmosphere System (Core elective)			
Code	ECTS	Sem.	Module title
GEO 411	6	FS,ir	Modelling of Cryosphere
GEO 471	6	FS	Hydrological field measurements and calculations
GEO 475	6	HS	Hydrological Modelling
GEO 815	3	HS	Quantification and modelling of the Cryosphere
GEO 851	3	HS	Glacier Mass Balance Measurements and Analysis
GEO 856	3	FS	The high-mountain cryosphere: processes and risks
102-0468	3	HS	Watershed Modelling
651-4023	4	HS	Groundwater
651-4057	3	HS	Climate history and paleoclimatology
701-0412	3	FS	Klimasysteme (German)
701-1228	4	FS	Cloud Dynamics
701-1232	3	FS	Radiation and climate change
701-1252	3	FS	Climate Change Uncertainty and Risk

Skills			
Code	ECTS	Sem.	Module title
GEO 877	3	FS	Spatial algorithms
STA 120	5	FS	Introduction to Statistics
STA 433	2	FS	R programming (if not available: BIO 369 (3CP) as alternative)
EEE 352	4	HS	Contemporary analysis for ecology (R)

**Explanation**  
**30 ECTS credits Master's thesis:** 36 ECTS credits for Core elective modules (at least two systems with a minimum of 12 ECTS credits in each chosen system) and 6 ECTS credits for Skills

**60 ECTS credits Master's thesis:** 16 ECTS credits for Core elective modules (two systems with a minimum of 8 ECTS credits in each chosen system)

Human-Environment System (Core elective)			
Code	ECTS	Sem.	Module title
GEO 423	6	HS	Political Geography
GEO 425	6	FS	Political Ecology: From Critique to Transformation
GEO 433	6	FS	Global Economic Geographies of Agriculture and Food Systems
GEO 805	3	HS,b	Natural hazard and risk assessment in high-mountain areas
GEO 835	3	FS	Geography of Sustainability Transitions
GEO 837	3	HS	Geographies of Environmental Governance
GEO 856	3	FS	The high-mountain cryosphere: processes and risks
GEO 857	3	FS	Snow and Avalanches: Processes and Risk Management
EEE 330	6	HS,b	Population Ecology
EEE 333	6	FS	Conservation Science and Practice of Swiss Amphibians
EEE 351	3	FS	Conservation Biology
701-1317	3	FS	Global Biogeochemical Cycles and Climate
701-1651	3	HS	Environmental Governance
860-0023	3	HS	International environmental politics