



Masterstudium/Master's programme Environmental Systems Sciences/ Climate and Environmental Monitoring (ESS/CEM)

ab 01.10.2023 (Neu) – Plan nach ECTS

Matrikel-Nr.

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 Familienname, Vorname(n)

Kennzeichnung des Studiums

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Name des Vorstudiums/Previous study programme:		Auflagen/Additional mandatory courses: <input type="checkbox"/> Ja <input type="checkbox"/> Nein Überprüfung: <input type="checkbox"/> Ja <input type="checkbox"/> Nein				
Lehrveranstaltung/Course	Typ	SWS	Datum/Date	Note/Grade	ECTS	
Modul A: Interdisziplinäres Praktikum					10	
IP – Interdisziplinäres Praktikum	AG	06			10	A.1
Modul B: Systemwissenschaften					10	
Data in System Sciences	VO	02			03	B.1
Systems-Modelling and Systems-Analysis	VO	02			03	B.2
Data in System Sciences	SE	02			04	B.3
B.3 oder/ or B.4						
Systems-Modelling and Systems-Analysis	SE	02			04	B.4
Modul C: Climate Change and Geo-Systems					10	
Earth's Climate System and Climate Change	VO	02			03	C.1
C.1 oder/ or C.2						
Climate Dynamics	VO	02			03	C.2
Dynamic Geosystems	VO	02			03	C.3
Raw Material Sciences	VO	1,33			02	C.4
Environmental Records from Past to Present	VO	1,33			02	C.5

Lehrveranstaltung/Course	Typ	SWS	Datum/Date	Note/Grade	ECTS	
Modul D: Environmental Monitoring					14	
Environmental Monitoring	VO	02			03	D.1
Environmental Analytics	VO	1,33			02	D.2
Environmental Physics & Energy	VO	02			02	D.3
Subsurface Flow and Transport Processes	VU	02			03	D.4
Monitoring of Geomorphological Processes	VU	02			04	D.5
Modul E: Practise in Clean Technology and Sustainable Energy					08	
Lab course on Clean Technology and Sustainable Energy	LU	06			06	E.1
Workshop / Seminar to Lab course on Clean Technology and Sustainable Energy	SE	01			01	E.2
Field Trip Clean Technology and Sustainable Energy	EX	01			01	E.3
Modul F: Legal Basics for Environmental Management					13	
Environmental Management	VO	02			03	F.1
International Environmental Law	KS	02			05	F.2
REACH – Registration, Evaluation, Authorisation and restriction of Chemical substances	VO	02			03	F.3
Workshop / Seminar REACH	SE	02			02	F.4
Modul G: Environmentally oriented Elective Subject G acc. § 9 Eines der Module G.1 – G.4 muss absolviert werden./One of the modules G.1 - G.4 must be selected.						
Module G.1: Individually composed Module					18	Supplemental sheet
Die Genehmigung des "Individual composed Module" ist durch das USW-Koordinationsbüro erforderlich. Der Titel des Moduls wird am Zeugnis angeführt. Bitte fügen Sie die Genehmigung diesem Protokoll hinzu! The „Individual composed Module“ has to be confirmed by the office of Environmental System Science. The title of the module will be printed on the certificate. Please add the „Individual composed Module“ to this form!						
Module G.2: Environmental Screening Wählen Sie aus nachfolgenden LVen 18 ECTS. G.2.1 + G.2.2 muss verpflichtend absolviert werden. 18 ECTS must be selected. G.2.1 + G.2.2 is compulsory.					18	
Hydrological Monitoring / Climatological Monitoring	VU	02			04	G.2.1 Compulsory
Chemical Reactions and Kinetics in the Atmosphere	VO	1,33			02	G.2.2 Compulsory

Lehrveranstaltung/Course	Typ	SWS	Datum/Date	Note/Grade	ECTS	
Environmental Chemistry and Toxicology	SE	1,33			02	G.2.3
Analytical Strategy, Method Development & Data Interpretation 1	VU	1,33			02	G.2.4
Water Analyses and Characterization	LU	02			02	G.2.5
Advanced Inorganic Analytical Chemistry	VO	1,33			02	G.2.6
Low-Temperature Geochemistry	VO	02			03	G.2.7
Environmental Isotope Proxies	VU	1,5			02	G.2.8
Geotechnical Monitoring	VU	2,75			3,5	G.2.9
Structural Health Monitoring	VO	02			03	G.2.10
Structural Health Monitoring	FU	02			03	G.2.11
Aqueous Geochemistry Practical Field Course	EX	02			02	G.2.12
Special Topics in ESS/CEM	VO/ SE/ UE					G.2.13 1 SWS = 1,5 ECTS
Subtitle						
Subtitle						
Subtitle						
Module G.3: Environmental Cycles in Hydro- and Lithosphere					18	
Wählen Sie aus nachfolgenden LVen 18 ECTS. G.3.1 + G.3.2 + G.3.3 + G.3.4 müssen verpflichtend absolviert werden. 18 ECTS must be selected. G.3.1 + G.3.2 + G.3.3 + G.3.4 are compulsory.						
Geodynamics of the Lithosphere	VO	02			03	G.3.1 Compulsory
Mineralogy and Aqueous Geochemistry	VO	02			03	G.3.2 Compulsory
Clay Mineralogy	VO	1,33			02	G.3.3 Compulsory
Biosphere's Role in Earth Systems	VO	02			03	G.3.4 Compulsory
Geothermal Energy	VO	1,33			02	G.3.5
Environmental Isotope Proxies	VU	1,50			02	G.3.6
Tectonics	VO	02			03	G.3.7
Hydrogeochemical Modelling	UE	02			02	G.3.8
Groundwater Modelling	KS	02			02	G.3.9
Aqueous Geochemistry Practical Field Course	EX	02			02	G.3.10
Industrial Minerals	EX	02			02	G.3.11

Lehrveranstaltung/Course	Typ	SWS	Datum/Date	Note/Grade	ECTS	
Special Topics in ESS/CEM	VO/ SE/ UE					G.3.12 1 SWS= 1,5 ECTS
Subtitle						
Subtitle						
Subtitle						
Module G.4: Clean Technology and Sustainable Energy					18	
Wählen Sie aus nachfolgenden LVen 18 ECTS. G.4.1 + G.4.2 + G.4.3 müssen verpflichtend absolviert werden. 18 ECTS must be selected. G.4.1 + G.4.2 + G.4.3 are compulsory.						
Environmental Technologies	VO	03			04	G.4.1 Compulsory
Energy Storage and Conversion	VO	1,33			02	G.4.2 Compulsory
Special Topics of Technical Physics: Physics of Sustainable Energy	VO	02			03	G.4.3 Compulsory
Project Laboratory [MAS.190_x, CHE.600 (RenRes), CHE.601(MacroMol), CHE.603 (Inorg MatElChem)]	LU	08			06	G.4.4
Functional Materials I	VO	02			03	G.4.5
Introduction to Material Science	VO	02			03	G.4.6
Batteries and Supercapacitors	VO	03			04	G.4.7
Fuel Cells and Energy Storage	VO	02			03	G.4.8
Liquid Biofuels	SE	01			01	G.4.9
Energy Systems Analysis	VO	02			03	G.4.10
Hydrogen Production and Storage	VO	02			03	G.4.11
Advanced Studies of Polymer Electrolyte Fuel Cells	VU	03			04	G.4.12
Optical Measurements	VO	02			03	G.4.13
Applied Radiation Physics	VO	02			03	G.4.14
Special Topics in ESS/CEM	VO/ SE/ UE					G.4.15 1 SWS= 1,5 ECTS
Subtitle						
Subtitle						
Subtitle						

Lehrveranstaltung/Course	Typ	SWS	Datum/Date	Note/Grade	ECTS	
Freie Wahlfächer (Free Electives) Max. 5 ECTS an Auflagen-LVen dürfen hier verwendet werden. Only for students with conditions: A maximum of 5 ECTS can be credited for the Free Electives.				E	06	N _{FWF} = 1:1 VO = 1:1,5
Master's Examination					01	
Master's Thesis					30	

Das Masterstudium ESS/CEM umfasst 4 Semester und 120 ECTS.