Environmental Sciences: Specialisation in Environmental Remote Sensing and Modelling- Environmental Meteorology (M.Sc., Master Degree Programme)

Study plan | Start in winter term

Version: 17.10.2022

Note: The following overview offers a non-binding overview of the structure and composition of the modules. The legally binding criteria is available in the examination regulations.

Module code	*Module title (Compulsory/Elective)*	*Sem.*	*CP*	*Type*	*hours*	*Course title*	*Assessment*	*Module Convenor*	*Comment/ Language*
1. Semester (Wi)									
MA6ES001	Environmental Systems Analysis (P)	Wi	5	V+S	2	Environmental Systems Analysis		Bierl, Schütz	English
				Ü	2	Environmental Systems Modelling			
							Exam (120 min.)		
MA6ES002	Multivariate Statistics (P)	Wi	5	V	2	Multivariate Statistics		Udelhoven	English
				S	2	Multivariate Statistics			
							Exam (120 min.)		
	Optional Modules (WP)	Wi	20	*A total of 20 CP from the Optional Modules I are to be chosen.*					
2. Semester (Su)									
MA6ES044	Time Series Analysis (P)	Su	5	V	2	Pattern Recognition in long-term global satellite archives		Udelhoven	English
				Ü	2	Pattern Recognition in long-term global satellite archives			
							Term paper		
MA6ES021	Monitoring and Remote Sensing in Meteorology (P)	Su	5	V	2	Systems and Algorithms		Drüe, Willmes	English
				Ü	2	Practical Applications			
							Term paper		

■ MA6ES022	Landsurface Atmosphere Interactions (P)	Su	5	V	2	Introduction to Land-Surface-Atmosphere Interactions		Drüe, Thomas	English
				Ü	4	Micro-meteorlogical and ecophysiological measurements			
				Presentation (30 min.)					
■ MA6ES020	Numerical Modelling in Meteorology – Part 1 (P)	Su	5	V	2	Dynamics		Heinemann	English
				Ü	2	Dynamics – Computer course			
■	Optional Modules II (WP)	Su	10	*A total of 10 CP from the Optional Modules II are to be chosen.*					
3. Semester (Wi)									
■ MA6ES003	Research Project (P)	Wi	10	S	1	Advanced Aspects in Environmental Sciences		Thiele-Bruhn	English
				Ü	3	Research methods in Environmental Sciences			
				Term paper *and* presentation					
■ MA6ES023	SVAT-Models and Integration of RS Data (P)	Wi	5	Ü	2	Remote Sensing of SVAT-Model Parameters		Heinemann, Willmes	English
				Ü	2	Theory and Practical Use of SVAT-Models			
				Oral exam (20 min.)					
■ MA6ES020	Numerical Modelling in Meteorology – Part 2 (P)	Wi	5	V	2	Applications		Heinemann	English
				Ü	2	Applications – Computer course			
				Oral exam (30 min.)					
■	Optional Modules III (WP)	Wi	10	*A total of 10 CP from the Optional Modules III are to be chosen.*					
4. Semester (Su)									
■ MA6ES004	Master's Thesis (P)	Su	30	KOL	2	Master's colloquium			
						Master's Thesis			
				Master's Thesis					

Optional Modules I (20 CP to be chosen)									
■ MA6ES013	Introduction to Geoinformatics (WP)	Wi	5	Ü	3	Computer course Introduction to Geoinformatics		Udelhoven	English
				Exam (60 min.)					
■ MA6ES006	Fundamentals of Environmental Remote Sensing (WP)	Wi	5	V	2	Fundamentals of Environmental Remote Sensing		Udelhoven, Röder	English
				Ü	2	Fundamentals of Environmental Remote Sensing			
				Exam (60 min)					
■ MA6ES007	Atmospheric Boundary Layer (WP)	Wi	5	V	2	Atmospheric Boundary Layer		Heinemann, Drüe	English
				Ü	2	Atmospheric Boundary Layer			
				Exam (120 min.)					
■ MA6ES008	Geological Hazards, Risk Assessment and Management (WP)	Wi	5	V	2	Lecture		Wagner	English
				S	1	Seminar			
				Ü	1	Exercise			
				Exam (90 min.) *or* portfolio examination					
■ MA6ES009	Advanced Aspects of Environmental Soil Science (WP)	Wi	5	V	2	Environmental Soil Science		Thiele-Bruhn, Schneider	English
				Ü	2	Advanced Methods in Soil Science			
				Oral exam (30 min.)					

Optional Modules II (10 CP to be chosen)									
■ MA6ES031	Vegetation Ecology (WP)	Su	5	S	1	Research concept and data analysis		Werner	English
				GK +LAB	3	Field and Laboratory Course			
							Term paper		
■ MA6ES036	Global Climate Change and Energy Resources (WP)	Su	5	V	2	Global Climate Change		Bruns	English
				V	2	Energy Resources and renewable Energy			
							Term paper		
■ MA6ES029	Interdisciplinary Excursion or Field Project (WP)	Su	5	S	2	Seminar		Werner	English
				EX	5,5	10-day-Field-Trip			
							Term paper		
■ MA6ES024	Nature Conservation, Restoration and Protection (WP)	Su	5	S	2	Soil Protection Concepts		Thiele-Bruhn, Schneider	English
				S	2	Nature Conservation			
							Term paper		
■ MA6ES026	Environmental Management and Resource Economics – Part 1 (WP)	Su	5	V	2	Environmental Economics		Müller-Fürstenberger	English
■ MA6ES037	Numerik für Geowissenschaftler (WP)	Su	5	V	2	Lecture „Numeric for Geoscientists“		Vollmann	English
				K	1	Numeric for Geoscientists			
							Exam (60 min.)		
■ MA6ES046	Advanced Methods in GIS and Applications (WP)	Su	5	Ü	2	Advanced Methods in GIS and Applications		Udelhoven, Röder	English
				Ü	1	E-Learning: Advanced Methods in GIS and Applications			
							Term paper		

■ **MA6ES016**	Advanced RS Data Processing & Analysis (WP)	Su	5	Ü	3	Practical course “Advanced RS Data Processing & Analysis”		Udelhoven, Röder	English
				GK	1	Field course “Advanced RS Data Processing & Analysis”			
							Term paper		
■ **MA6ES046**	Geospatial Data Analysis: Advanced GIS	Su	5	Ü		Practical course “Geospatial Data Analysis: Advanced GIS”		Udelhoven	English
				GK		Field course “Geospatial Data Analysis: Advanced GIS”			
							Term paper		
■ **MA6ES018**	Ecosystem Remote Sensing & Modelling Concepts (WP)	Su	5	S	2	Ecosystem Inventory Strategies		Udelhoven, Röder	English
				GK	2	Field course			
							Term paper		

Optional Modules III (10 CP to be chosen)									
■ MA6ES033	Geostatistics (WP)	Wi	5	V	2	Geostatistics		Udelhoven	English
				Ü	2	Geostatistics			
				Portfolio examination					
■ MA6ES027	Soil Use and Sustainable Management (WP)	Wi	5	V	2	Soil Use in Agriculture		Emmerling, Schüler	English
				S	1	Forest Site Assessment			
				S	1	Waste Management			
				Exam (90 min.)					
■ MA6ES005	Environmental Monitoring Strategies (WP)	Wi	5	V+S	2	Monitoring in ecological research		Bierl, Werner	English
				S	2	Advanced environmental monitoring			
				Oral exam (20 min.)					
■ MA6ES035	Paleoclimate and Paleoenvironmental Changes (WP)	Wi	5	V	1	Geological time scales, age determinations, climate archives		Klaes	English
				Ü	2	Climate archives, data processing and presentation			
				S	2	Seminar			
				Exam (90 min.)					
■ MA6ES038	Populations Ecology (WP)	Wi	5	V	2	Lecture „Populationsökologie“		Schmitt, Veith	German
				Ü	0,5	Practical course „Populationsökologie“			
				Exam (60 min.)					
■ MA6ES026	Environmental Management & Resource Economics – Part 2 (WP)	Wi	5	S	2	Resource Economics		Müller-Fürstenberger	English
				Exam (60 min.) and term paper and presentation					
■ MA6ES041	Socio Hydrology (WP)	Wi	5	V	2	Lecture „Socio Hydrology“		Bruns	English
				S	2	Seminar „Socio Hydrology“			
				Term paper					

■ MA6ES017	Remote Sensing of Global Change Processes (WP)	Wi	5	S	3	Remote Sensing of Global Change Processes		Röder, Stoffels	English
				Ü	1	Computer course: Remote Sensing of Global Change Processes			
							Term paper		
■ MA6ES018	Ecosystem Remote Sensing & Modelling Concepts (WP)	Wi	5	Ü	3	Practical course "Ecosystem Remote Sensing & Modelling Concepts"		Udelhoven, Röder	English
							Term paper		

List of abbreviations

Compulsory attendance courses

EX	Field trip/Day Field trip	LAB	Lab/lab course	PRS	Practice-oriented seminar
GÜ	Field exercise	PRA	Internship	PRÜ	Practical course
KOS	Colloquium seminar	PRO	Project seminar	SPÜ	Language course

Non-compulsory attendance courses

EL	E-Learning-Course	LK	Reading course	TUT	Tutorium
FK	Specialized Course	OS	Advanced seminar	Ü	Practical course
HS	Master's-level seminar	PRP	Preparatory course	V	Lecture
KOL	Colloquium	PS	Bachelor's-level seminar	V+Ü	Lecture with practical course
K	Course	S	Seminar		

Other abbreviations

LP	Credit Points	SWS	Hours	WP	Elective module or course
P	Compulsory module	So	Summer term		
Sem	Semester	Wi	Winter term		