Environmental Sciences: Specialisation in Environmental Remote Sensing and Modelling - Environmental Remote Sensing (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 I (WP)	Wi	20	*A total of 20 CP from the Optional Modules I are to be chosen*					

					2. Semester (Su)			
■ MA6ES046	Geospatial Data Analysis: Advanced GIS & Time Series Analysis (P)	Su	10	V	2	Pattern Recognition in long-term global satellite archives		Udelhoven, Röder	English
				Ü	2	Pattern Recognition in long-term global satellite archives			
				Ü	2	Advanced Methods in GIS and Applications			
				Ü	1	E-Learning: Advanced Methods in GIS and Applications			
						Term paper			
■ MA6ES016	Advanced Remote Sensing Data Processing and Analysis (P)	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			
■ MA6ES018	Ecosystem Remote Sensing and Modelling Concepts – Part 1 (P)	Su	5	S	2	Ecosystem Inventory Strategies		Udelhoven, Röder	English
				GK	2	Field course			
■	Optional Modules II (WP)	Su	10	*A total of 10 CP 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			
■ **MA6ES017**	Remote Sensing of Global Change Processes (P)	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 and Modelling Concepts – Part 2 (P)	Wi	5	Ü	3	Practical course "Ecosystem Remote Sensing & Modelling Concepts"		Udelhoven, Röders	English
						Term paper			
■	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			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 +LA B	3	Field and Laboratory Course			
							Term paper		
■ MA6ES036	Global Climate Change & 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	5,3	10-day-Field-Trip			
							Term paper		
■ MA6ES024	Nature Conservation, Restoration & Protection (WP)	Su	5	S	2	Soil Protection Concepts		Thiele-Bruhn, Emmerling	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.)		
■ 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 (WP)	Su	5	V	2	Dynamics		Heinemann	English
				Ü	2	Dynamics – Computer course			
							Oral exam (30 min.)		
■ MA6ES021	Monitoring and Remote Sensing in Meteorology (WP)	Su	5	V	2	Systems and Algorithms		Drüe, Willmes	English
				Ü	2	Practical Applications			
							Graded tern 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 & 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	Population Ecology (WP)	Wi	5	V	2	Lecture „Populationsökologie"		Schmitt, Veith	German
				Ü	0,5	Practical course „Populationsökologie"			
							Exam (60 min.)		

■ MA6ES026	Environmental Management and 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					
■ MA6ES023	SVAT Models and Integration of Remote Sensing Data (WP)	Wi	5	Ü	2	Remote sensing of SVAT-Model Parameters		Heinemann	English
				Ü	2	Theory and practical use of SVAT models			
				Oral exam (20 Min.)					
■ MA6ES020	Numerical Modelling in Meteorology – Part 2 (WP)	Wi	5	V	2	Applications		Heinemann	English
				Ü	2	Applications – Computer course			
				Oral exam (30 min.)					

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		