B.Sc. Marine Geosciences (BMG)

Principles	Evolutionary Processes of Earth and Ocean	Materials and Structures of the Earth	Chemical Principles of Geosciences	Physical Principles of Geosciences	Mathematical Principles of Geosciences
Language	English/German	English/German	English/German	English/German	English/German

Modules Sem. 1	Introduction to Earth Dynamics		From Atoms to Minerals - Mineralogy and Crystallography		Chemical Principles of Geosciences I		Physical Principles of Geosciences I		Mathematical Principles of Geosciences I	
Title, Form, CP Lect. 1	Earth Dynamics	L 2	From Atoms to Minerals	L+E 6	General Chemistry for Geoscientists	L 4	Physics f. Natural Science I	L+E+P 4	Fundamentals of Mathematical for Geosciences I	L+E 6
Title, Form, CP Lect. 2	Identification of Rocks	E 2			General Chemistry for Geoscientists Exercise	E 2	Physics of the Solid Earth I	L 2		
Title, Form, CP Lect. 3	Introduction to Geoscientific Fieldwork	F 2								
		6 SWS		4 SWS		6 SWS		5 SWS		4 SWS

Modules Sem. 2	Evolution of Earth and Life		Structural Geology and Tectonics		Chemical Principles of Geosciences II		Physical Principles of Geosciences II		Mathematical Principles of Geosciences II	
Title, Form, CP Lect. 1	Earth and Life History	L 2	Structural Geology	L+F 3	Introduction to Geochemistry	L 4	Physics for Natural Science II	L+E+P 4	Fundamentals of Mathematics for Geosciences II	L+E 6
Title, Form, CP Lect. 2	Basics of Biology	L 3	Regional Geology	L 1	General Chemistry Lab Practice	P 2	Physics of the Solid Earth II	L 2		
Title, Form, CP Lect. 3	Introduction to Fossils	E 1	Geological Maps	E 2						
		5 SWS		6 SWS		6 SWS		5 SWS		4 SWS

Modules Sem. 3	Physical, Chemical and Biological Oceanography		Marine Geology and Sedimentology		Rock-Forming Processes		Principles of Applied Geophysics		Multidisciplinary Sediment Core Project	
Title, Form, CP Lect. 1	Climate and Ocean	L+E 6	Introduction to Marine Geology	L+E+S 2	Principles of Petrology	L+E 3	Fundamentals of Applied Geophysics	L+E 3	Multidisciplinary Sediment Core Project	PE 4
Title, Form, CP Lect. 2			Ship-based Survey for Marine Sediments	F 2	Polarized-light Microscopy	L+E 3	Geophysical Field Exercise	F 3	Stratigraphy in Marine Sediments	L+E 2
Title, Form, CP Lect. 3			Principles of Sedimentology	L+E 2						
		5 SWS		5 SWS		5 SWS		4 SWS		6 SWS

2nd Half	Practical Professional Competences in Geosciences		Specialization tracks Select 3 core fields out of 10		
Language	English/German	English/German	English or German		

Modules Sem. 4	Geoscientific Field Competence		Digital Competences		1rst module specialization I	1rst module specialization II	1rst module specialization III
Title, Form, CP Lect. 1	12 Days in the Field (2 one-week Field-Exercises in Germany/Central Europe)	F 6	Computercourses in Programming (Excel, Matlab, Python, QGIS) + Drawing Programs (Corel, GMT, Paraview/Blender)	BC 6	Core fields offered: Exploration geophysics, Geochemistry, Geodynamics, Geoinformatics, Hydro- und Ingenieurgeologie, Kristalline Materialien, Paleontology, Paleoceanography, Petrologie und Lagerstättenkunde, Sedimentology; see details		
Title, Form, CP Lect. 2							
		6 SWS		6 SWS			

Modules Sem. 5	Professional Competences		Interdisciplinary Skills		2nd module specialization I	2nd module specialization II	2nd module specialization III
Title, Form, CP Lect. 1	Four-Week Professional Internship	P 6	e.g. Language, Economy or Law Courses or another Professional Internship, Tutorial	GS 6	a chosen core field needs to be completed with 3 modules, each in semester 4,5,6.		
Title, Form, CP Lect. 2							

Modules Sem. 6	Bachelor Thesis Module (12 CP)		3rd module specialization I	3rd module specialization II	3rd module specialization III
Title, Form, CP Lect. 1	Bachelor Thesis	BT 9	most core fields are taught in English, some are taught in German; specializations are also joined by students of B.Sc. Geowissenschaften		
Title, Form, CP Lect. 2	Bachelor Defense	BT 3			

Details core fields	Specialization in Sedimentology	Specialization in Paleontology	Specialization in Geochemistry	Specialization in Geoinformatics	Specialization in Paleoceanography
Language	English/German	English/German	English/German	English/German	English/German

Modules Sem. 4	Sedimentology of Coast and Shelf		Introduction to Paleontology and Paleoecology		Geochemical Processes and Isotope Geochemistry		Research Data Management and Analysis		Paleoceanography and Environmental Change	
Title, Form, CP Lect. 1	Siliciclastic Coastal and Shelf Depositional Systems	L+E 3	Introduction in Palaeontology	L+E 3	Geochemical Cycles + Processes: the Present View	L+E 3.5	Research Data Management	L+S 3	Paleoceanography - Introduction	L 3
Title, Form, CP Lect. 2	Sedimentology of Carbonate Shelves and Coasts	L+E 3	Introduction in Paleoecology	L+E+F 3	Isotope Geochemistry	L+E 2.5	Research Data Ananlysis	E 3	Paleoceanography - Case Studies	E 3
		4 SWS		6 SWS		5 SWS		4 SWS		4 SWS

Modules Sem. 5	Sedimentary Processes		Marine Micropaleontology		Principles and Methods of Organic Geochemistry		Data Visualization		Paleoceanography - Core Lab or Field Studies	
Title, Form, CP Lect. 1	Basic Concepts of Sediment Dynamics	L+E 3	Marine Micropaleontology	L+E 6	Basics of Organic Geochemistry	L 2	Introduction to Basic Principles of Data Visualisation	L+E 2	Paleoceanography - Core Lab or Field Studies	BC 6
Title, Form, CP Lect. 2	Coastal Processes	F 3			Lab Course in Organic Geochemistry	L+P+S 4	Introduction to Basic Practises of Data Visualisation	E 4		
		4 SWS		5 SWS		6 SWS		4 SWS		4 SWS

Modules Sem. 6	Deep Sea Sedimentology		Paleontological Methods		Applied Geochemistry		Earth-System Modeling and Data Ananlysis		From Past to Future Ocean Conditions	
Title, Form, CP Lect. 1	Deep-Water Depositional Systems	L 4.5	Laboratory Methods in Paleontology	LP 3	Aquatic Geochemistry	PE 6	Earth-System Modeling Primer	BC 2	Future Oceans	L+E 3
Title, Form, CP Lect. 2	Deep-Water Sediments Exercise	E 1.5	Quantitative Methods in Paleontology	L+E 3			Earth-System Data Analysis	L+E 4	Consequences of Global Change	S 3
		4 SWS		5 SWS		4 SWS		4 SWS		4 SWS

Details core fields	Specialization in Exploration Geophysics	Specialization in Geodynamics	Schwerpunkt Hydro- und Ingenieurgeologie	Schwerpunkt Kristalline Materialien	Schwerpunkt Petrologie and Lagerstättenkunde
Language	English/German	English/German	Deutsch	Deutsch	Deutsch

Modules Sem. 4	Marine Geophysics		Geodynamic and Plate Tectonic Principles		Grundlagen der Hydro- und Ingenieurgeologie		Kristalline Materialien verstehen		Petrologie und Vulkanologie	
Title, Form, CP Lect. 1	Marine Geophysics	L+E+S 6	Geodynamic and Plate Tectonic Principles	L+E+S 6	Ingenieurgeologie I	V + GÜ 4	Kristallchemie + Synthese von Kristallen	V+Ü 3	Vulkanologie	V+Ü 2
Title, Form, CP Lect. 2					Laborkurs	P 2	Minerale + ihre Oberflächen	V+Ü 3	Thermodynamik und Phasenlehre	V+Ü 2
		4 SWS		4 SWS		5 SWS		4 SWS		6 SWS

Modules Sem. 5	Material Properties and Structural Imaging		Seismology and Earth's Potential Fields		Methoden der Hydro- und Ingenieurgeologie		Kristalline Materialien untersuchen		Geochemie und Metamorphose	
Title, Form, CP Lect. 1	Material Properties and Downhole Measurements	L+E+S 2	Seismology	L+E 3	Altlasten	V+Ü+S 3	Röntgenograph. Phasenanalyse	V+Ü 3	Spurenlement- + Isotopengeochemie	V+Ü 3
Title, Form, CP Lect. 2	Structural Imaging	LP 4	Earth's potential fields	L+E 3	Hydrogeologische Praxis	BK 3	Mineralog. Analysemethoden	V+Ü 3	Gesteinsmetamorphose	V+Ü 3
		5 SWS		4 SWS		4 SWS		4 SWS		6 SWS

Modules Sem. 6	Non Seismic Exploration		Geodynamic Modelling		Regionale und angewandte Hydrogeologie		Mit kristallinen Materialien arbeiten		Magmatische Systeme und Lagerstätten	
Title, Form, CP Lect. 1	Methods, processing and survey design	L+E 3	Intr. into Granular Simulation Techn. - Sim. of Forearc Deform. Proc.	L+E 3	Hydrogeologische Prozesse	V+Ü 3	Seminar: Mit Kristallinen Materialien arbeiten	S 2	Magmatische Petrologie	V+Ü 3
Title, Form, CP Lect. 2	Practical data acquisition, analysis, and reporting	F 3	FEM Techn. - Deform. of Lithosph. under Ext. with Ex. Rifts + Ridges	L+E 3	Regionale Hydrogeologie	S 3	Laborprojekt: Mit kristallinen Materialien arbeiten	PÜ 4	Bildung mineral. + metall. Lagerstätten	V+Ü 3
		5 SWS		4 SWS		5 SWS		5 SWS		5 SWS