

Modulnumber	Modultitle	Semester	Modul number	Course title	ECTS-Punkte	
1. Fachsemester						
GOP 1	Heterogeneous Systems	WS	P 1.1	Heterogeneous Systems (Lecture)	3	6
		WS	P 1.2	Heterogeneous Systems (Exercise)	3	
P 3	Applied Mineralogy	WS	P 3.1	Glass and Ceramics	3	6
		WS	P 3.2	Polarisation Microscopy	3	
WP 1	Materials Science I	WS	WP 1.1	Fundamentals in Materials Science (Lecture)	4	6
		WS	WP 1.2	Fundamentals in Materials Science (Exercise)	2	
WP 2	Advanced Structural Studies I	WS	WP 2.1	Structure Determination (Lecture)	3	6
		WS	WP 2.2	Structure Determination (Exercise)	3	
P 2	Petrophysics	WS	P 2.1	Petrophysics (Lecture)	3	6
		WS	P 2.2	Petrophysics (Exercise)	3	
WP 3	Volcanology I	WS	WP 3.1	Volcanology (Lecture)	3	6
		WS	WP 3.2	Volcanology (Exercise)	3	
WP 4	Geochemistry I	WS	WP 4.1	Isotope Geochemistry	3	6
		WS	WP 4.2	Geochronology	3	
WP 5	Recent Topics in Geosciences	WS	WP 5.1	Recent Topics in Geosciences (Seminar)	3	3
WP 6	Advanced Geosciences I	WS	WP 6.1	Advanced Geosciences	3	3
WP 7	Microthermometry	WS	WP 7.1	Introduction to Microthermometry	2	3
		WS	WP 7.2	Microthermometry (Exercise)	1	
WP 8	Selected Topics in Natural Sciences	WS	WP 8.1	Complementary Natural Sciences	3	3

mandatory 24 ECTS

elective* 6 ECTS

2. Fachsemester

P 4	High Resolution Microscopy	SS	P 4.1	High Resolution Microscopy (Lecture)	3	6	mandatory 21 ECTS
		SS	P 4.2	High Resolution Microscopy (Exercise)	3		
P 5	Analytical Methods in Geochemistry	SS	P 5.1	Introduction to Geochemical Analytics	2	6	
		SS	P 5.2	Applied Geochemical Analytics	4		
WP 9	Materials Science II	SS	WP 9.1	Functional Materials (Lecture)	4	6	
		SS	WP 9.2	Functional Materials (Exercise)	2		
WP 17	Advanced Structural Studies II	SS	WP 17.1	Powder Diffraction (Lecture)	2	3	
			WP 17.2	Powder Diffraction (Exercise)	1		
WP 10	Crystal Physics	SS	WP 10.1	Crystal Physics (Lecture)	3	6	
		SS	WP 10.2	Crystal Physics (Exercise)	1		
		SS	WP 10.3	Thermodynamics of Crystals	2		
WP 11	Petrology	SS	WP 11.1	Petrology (Lecture)	3	6	
		SS	WP 11.2	Petrology (Exercise)	3		
WP 12	Geochemistry II	SS	WP 12.1	Geochemical Cycles	3	6	
		SS	WP 12.2	Experimental Geochemistry	3		
WP 13	Advanced Geosciences II	SS	WP 13.1	Theory in Advanced Geosciences	3	6	
		SS	WP 13.2	Applied Advanced Geosciences	3		
WP 14	Industrial Minerals	SS	WP 14.1	Introduction to Industrial Minerals	3	6	
		SS	WP 14.2	Analysis of Nonmetallic Raw Materials	1		
		SS	WP 14.3	Field exercise to Industrial Minerals	2		
WP 15	Complementary Natural Sciences I	SS	WP 15.1	Theory in Complementary Natural Sciences 1	3	6	
		SS	WP 15.2	Applied Complementary Natural Sciences 1	3		
WP 16	Materials Science III	SS	WP 16.1	Nano Structures	3	3	
WP 18	Volcanology II	SS	WP 18.1	Physics of Volcanoes	3	3	
WP 19	Rock-Fluid-Interactions	SS	WP 19.1	Rock-Fluid-Interactions (Lecture)	3	3	
WP 20	Dynamic Processes in Igneous Systems	SS	WP 20.1	Dynamic Igneous Processes	3	3	
WP 21	Advanced Geosciences III	SS	WP 21.1	Advanced Earth Sciences	3	3	

elective* 9 ECTS

3. Fachsemester								
P 6	Research Project	WS	P 6.1	Individual Research Project	4	6	mandatory 24 ECTS	
		WS	P 6.2	Research Project (Seminar)	2			
WP 22	Synthesis and Processing	WS	WP 22.1	Synthesis and Processing (Lecture)	3	6		
		WS	WP 22.2	Synthesis and Processing (Exercise)	3			
WP 26	Field Practical	WS	WP 26.1	Field Exercise/ MaMaSELF Summerschool	4	6		
		WS	WP 26.2	Field Exercise (Seminar)	2			
WP 30	Scientific Working	WS	WP 30.1	Techniques of Scientific Working	3	3		
WP 31	Spectroscopic Methods	WS	WP 31.1	Methods of Spectroscopy	3	3		
P 7	Rheology and Thermal Analysis of Melts	WS	P 7.1	Theory of Physics and Chemistry of Melts	3	6		elective* 6 ECTS
		WS	P 7.2	Applied Physics and Chemistry of Melts	3			
WP 23	Mineral Surfaces and Reactivity	WS	WP 23.1	Surfaces and Interfaces	2	6		
		WS	WP 23.2	Surface Analysis	4			
WP 24	Thermodynamical Phase Equilibria	WS	WP 24.1	Theory of Thermodynamical Phase Equilibria	3	6		
		WS	WP 24.2	Application of Thermodynamical Phase Equilibria	3			
WP 25	Deformation and Transformation	WS	WP 25.1	Rheology of Rocks	3	6		
		WS	WP 25.2	Rheology of Rocks (Laboratory)	3			
WP 27	Complementary Natural Sciences II	WS	WP 27.1	Theory in Complementary Natural Sciences 2	3	6		
		WS	WP 27.2	Applied Complementary Natural Sciences 2	3			
WP 28	Advanced Materials Science	WS	WP 28.1	Theory in Advanced Materials Science	3	6		
		WS	WP 28.2	Applied Advanced Materials Science	3			
WP 29	Concepts of Biomineralization	WS	WP 29.1	Concepts of Biomineralization: Lecture	3	3		
WP 32	Reflected-Light Microscopy	WS	WP 32.1	Reflected-Light Microscopy (Exercise)	3	3		
4. Fachsemester								
P 8	Final Module	SS	P 8.1	Master's Thesis	29	30	mandatory	
			P 8.2	Disputation	1			

* ELECTIVE courses: additional to the courses listed in this curriculum, courses can be taken at LMU or TUM faculties in the following fields of studies: physics, chemistry, materials sciences.

This course overview applies for MaMaSELF students only. It is adapted to the official course listing 2019. Adaptions had been made after consulting the examination boards members of the studyprogram "Master in Geomaterials and Geochemistry" Prof. Schmahl and Prof. Park (chair).

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