

M.Sc. Materials Chemistry and Mineralogy (MCM)

Sem 1

Introduction & Methods

Modules Sem. 1	Mineralogy		Crystallography		Chemistry		Materials Science		Analytical Methods I	
Language	English		English		English		English		English	
Title, Form, CP Lect. 1	Introduction to Mineralogy	L 3	Introduction to Crystallography	L+E 3	Surfaces and Interfaces	L+E 1.5	Introduction to Materials	L 3	Materials Analysis I	L+E 6
Title, Form, CP Lect. 2	Materials Resources	L+E+S 3	X-Ray Diffraction and Rietveld Analysis	L+E 3	Solid State Chemistry	L+E 1.5	Phase Diagrams and Relationships	L+E 3		
Title, Form, CP Lect. 3					Solid State Physics	L+E 3				
	4 SWS		5 SWS		4 SWS		4 SWS		4 SWS	

Sem 2

Profile-Building & Methods

Modules Sem. 2	Profile Chemistry OR Profile Mineralogy								Analytical Methods II	
MCM	choose 4 modules: 2-3 from the profile taken and 1-2 from the other profile								Materials Analysis II	L+E 6
									4 SWS	

Profile Offer

Chemistry

Modules Sem. 2	Solid State Synthesis and Characterization		Structure Property Relationships		Surface Chemistry and Catalysis		Solid State Spectroscopy	
Language	English		English		English		English	
Title, Form, CP Lect. 1	Practical Class SSSC	LP 4.5	Lecture Structure Property Relations	L 3	Lecture Heterogeneous Catalysis	L 3	Solid State Spectroscopy	L 3
Title, Form, CP Lect. 2	Seminar SSSC	S 1.5	Seminar Structure Property Relations	S 3	Vacuum and Cryotechnics	L+ E+P 3	Solid State Spectroscopy Practical	LP 3
	5 SWS		4 SWS		4 SWS		4 SWS	

Modules Sem. 2

Language	Multiple (Large) Dataset Analysis		Computational Material Science	
Language	English		English	
Title, Form, CP Lect. 1	Introduction to Data Analysis	L 3	Introduction to Computational Materials Science	L 4
Title, Form, CP Lect. 2	Practical Data Analysis	E 3	Practical Aspects of Computational Materials Science	LP 2
	4 SWS		4 SWS	

Profile Offer

Mineralogy

Modules Sem. 2	Crystal Structure Analysis		Minerals and Materials		Physical Properties of Crystals		Special Topics in Mineralogy and Materials Science	
Language	English		English		English		English	
Title, Form, CP Lect. 1	Crystal Structure Analysis and Crystal Chemistry	L+E 4	Mineral Surfaces and Reactions	L 3	Introduction to Crystal Physics	L+E 3	Layered and Framework Silicates in Mineralogy and Technology	L+E 3
Title, Form, CP Lect. 2	Single Crystal Diffraction	L+E 2	Minerals for Sustainability	L+E 3	Electron Microscopy	L+E 3	Lab Course: Zeolites and Clay Minerals	LP 3
	5 SWS		4 SWS		4 SWS		4 SWS	

Modules Sem. 2

Language	Nanomaterials		Functional Ceramics		Technical Ceramics		Petrological Methods in Ore Geology	
Language	English		English/German		English/German		English	
Title, Form, CP Lect. 1	Nanomaterials	L+E 3	Bioceramics	L+E 3	Ceramics Lab Course	LP 3	Petrological Methods in Ore Geology	L+E 6
Title, Form, CP Lect. 2	Nanotechnology	PE 3	Ceramic Nanotechnology II: Functional Ceramics	L 3	Ceramic Nanotechnology I: Fundamentals	L 3		
	5 SWS		4 SWS		5 SWS		4 SWS	

Sem 3

General Studies & Research Modules

Modules Sem. 3	Research Module I				Research Module II				Programming	General Studies-Offers
Language	English				English				English/German	
Title, Form, CP Lect. 1	Profile Chemistry: Research Module Chemistry I or II				another Research Module out of Research Module Chemistry I or II and Research Module Mineralogy I or II.				Programming	L+E 3
Title, Form, CP Lect. 2	Profile Mineralogy: Research Module Mineralogy I or II								General Studies Compulsory Course	L+E+S 3
	10 SWS				10 SWS				2 SWS	

Sem 4

Master Thesis

Modules Sem. 4	Module Master Thesis									
Language	English									
Title, Form, CP Lect. 1	Master Thesis (6 Months) in the Profile taken and oral Master Defense (ca. 1 hour)									
	MT 30									

Compulsory Module

Compulsory Elective Module

Elective Module