

Selection table *Materials Specialization I & II – WS 24/25* Master Program Materials Science

Basic rules:

Two to three topics must be chosen. Each must be studied with 6 to 24 CP. Total sum of 30 CP. Within a topic, rules apply as stated in the table:

				Turnus	Next begin
Topic: Advanced Materials Characterization					
	Solid State Spectroscopy (Dressel/Keimer)	9 CP	opt.	SS	2025
	Diffraction Methods in Materials Science	6 CP	opt.	-	-
	Physikalische Chemie III (Statistische Thermodynamik, Streu- und Diffraktionsmethoden mit Übung und Praktikum) (Gießelmann)	-	opt.	SS	2025
	High Resolution and Analytical Microscopy (Stender/Schmitz)	6 cp	opt.	SS	2025 is offered as a block course at the end of the lecture period
Topic: Functional Materials					
	Liquid Crystals (Gießelmann/Laschat)	6 CP	opt	WS every two years/ over two Semester	2024
	Semiconductor Physics (Weis)	9 CP	opt.	WS over two Semesters	2024
	Advanced Experimental Physics (Wrachtrup/Bechinger)	9 CP	opt.	WS	2024
	Advanced Condensed Matter Physics (Wrachtrup)	6 CP	opt.	SS	2025
	Materials for Energy Technologies (Clemens)	6 CP	opt.	SS	2025
	Polymer Electronics (Ludwigs)	3 CP	opt.	WS	2024
	Bioinspired Approaches in Materials Science (Bill)	6 CP	opt.	SS every two years	2025

Selection table *Materials Specialization I & II – WS 24/25* Master Program Materials Science

					Turnus	Next begin
Topic: Inorganic Materials Chemistry						
	Inorganic Materials Chemistry for Material Scientists (Niewa)	12 CP	comp.	WS	over two Semesters	2024
	Solid State and Materials Chemistry (Niewa)	6 CP	opt.	SS		2025
	Advanced Inorganic Synthesis Chemistry (Niewa)	6 CP	opt.	WS		2024
Topic: Materials Theory and Simulation						
	Computational Chemistry (Kästner/Köhn)	6 CP	opt.	WS	over two Semesters	2024
	Methoden der Werkstoffsimulation (Schmauder)	6 CP	opt.	WS		2024
	Molecular Quantum Mechanics (Kästner/Köhn)	6 CP	opt.	SS		2025
	Advanced Condensed Matter Physics (Wrachtrup/Bechinger)	6 CP	opt.	SS		2025
	Solid State Theory (Büchler)	9 CP	opt.	SS		2025
	Material design by ab-initio methods (Grabowski)	6 CP	opt.	WS		2024
	Computergestützte Materialwissenschaft	6 CP	opt.	WS		2024

Selection table *Materials Specialization I & II – WS 24/25* Master Program Materials Science

				Turnus	Next begin
Topic: Metals and Structural Materials					
6CP	Schadenskunde (Seidenfuß)	3 CP	comp	WS	2024
	Fügetechnik (Seidenfuß)	3 CP	comp	SS	2025
	Grundlagen der Keramik und Verbundwerkstoffe	6 CP	comp	WS&SS	2024/2025
	Intermetallics and Superalloys (Schmitz)	6 CP	comp	SS _{every two years}	2026
	Diffraction Methods in Materials Science	6 CP	opt.	-	-
	Werkstoffe und Fertigungstechnik technischer Kohlenstoffe (Kern)	3 CP	opt	WS _{over two Semesters}	2024
	Werkstoffeigenschaften (Klenk)	6 CP	opt.	SS	2025
	High Resolution and Analytical Microscopy (Schmitz)	6CP	opt.	SS	2024 is offered as a block course at the end of the lecture period
	Laboratory course electron microscopy (Schmitz)	3CP	opt.	SS	
Topic: Nanomaterials and Nanostructures					
	Fundamentals of Microelectronics (Burghartz)	6CP	opt.	-	-
	Advanced CMOS Devices and Technology (Burghart)	6CP	opt.	-	-
	Nanomaterials (Schmitz)	6 CP	opt.	WS _{every two years}	2025

Selection table *Materials Specialization I & II – WS 24/25* Master Program Materials Science

				Turnus	Next begin
	Thin film materials and coatings (Schmitz/Richter)	3 CP	opt.	WS	2024
	Emulsionen & Schäume	3CP	opt.	SS	2025
Topic: Polymer Science and Plastic Engineering (only in German)					
	Kunststofftechnik - Grundlagen und Einführung (Bonten)	6 CP	comp.	WS	2024
	Charakterisierung und Prüfung von Polymeren und Kunststoffen (Bonten)	3 CP	Comp.	WS	2024
	Faserkunststoffverbunde (Kreutzbruck)	3CP	Comp.	SS&WS	2024
	Kunststoffaufbereitung und Kunststoffrecycling (Kroh/Bonten)	3 CP	opt.	WS	2024
	Grundlagen der zerstörungsfreien Prüfung	3 CP	Opt.	WS&SS	2023
	Structure and Properties of functional Polymers	6 CP	opt.	SS	2025
Topic: Soft Matter and Biomaterials					
	Liquid Crystals (Gießelmann/Laschat)	6 CP	opt.	WS every two years)	2024
	Polymer Electronics	3CP	opt.	WS	2024
	Bioinspired Approaches in Material Science (Bill)	6 CP	opt.	SS every two years)	2025
	Emulsionen & Schäume	3CP	opt.	SS	2025