

# Selection table *Materials Specialization I & II*

Master Program Materials Science

## Basic rules:

Two topics must be chosen. Each must be studied with 12 to 18 CP. Total sum on both 30 CP. Within a topic, rules apply as stated in the table:

				Turnus <sup>1</sup>	Next begin
<b>Topic: Advanced Materials Characterization</b>					
	Solid State Spectroscopy (Dressel/Keimer)	9 CP	opt.	SS	2019
	Diffraction Methods in Materials Science	6 CP	opt.	SS	preliminary 2019
	Physikalische Chemie III (Statistische Thermodynamik, Streu- und Diffraktionsmethoden mit Übung und Praktikum)	12 CP	opt.	SS	2019
	High Resolution and Analytical Microscopy (Stender/Schmitz)	6 cp	opt.	SS	2019
<b>Topic: Functional Materials</b>					
	Liquid Crystals	6 CP	opt	WS every two years	2020
	Semiconductor Physics (Weis)	9 CP	opt.	WS over two Semesters	2019
	Advanced Experimental Physics (Wrachtrup/Bechinger)	9 CP	opt.	WS	2019
	Advanced Condensed Matter Physics (Wrachtrup)	6 CP	opt.	SS	2019
	Materials for Energy Technologies (Weidenkaff)	6 CP	opt.	SS	2019
	Polymer Electronics (Ludwigs)	3 CP	opt.	WS	2019
	Bioinspired Approaches in Materials Science	6 CP	opt.	SS	2019
<b>Topic: Inorganic Materials Chemistry</b>					
	Inorganic Materials Chemistry for Material Scientists (Niewa)	12 CP	comp. <sup>2</sup>	WS	2019
	Solid State and Materials Chemistry (Niewwa)	6 CP	opt.	SS	2019
	Advanced Inorganic Synthesis Chemistry (Niewa)	6 CP	opt.	WS	2019

<sup>1</sup> Bold: Recommended starting semester

<sup>2</sup> Compulsory, if respected topic is chosen

<b>Topic: Materials Theory and Simulation</b>					
	Computational Chemistry	6 CP	opt.	SS	2019
	Methoden der Werkstoffsimulation	6 CP	opt	WS	2019
	Molecular Quantum Mechanics	6 CP	opt	WS	2019
	Advanced Condensed Matter Physics	6 CP	opt.	SS	2019
	Solid State Theory	9 CP	opt.	SS	2019
	Molecular Quantum Mechanics	6 CP	opt.	WS	2019
	Material design by ab-initio methods	6 CP	opt.	erratic	
	Computergestützte Materialwissenschaft	6 CP	opt.	SS	2019
<b>Topic: Metals and Structural Materials</b>				Turnus	Next begin
	Werkstoffe und Festigkeit and/or			<b>WS&amp;SS</b>	2019
	Grundlagen der Keramik und Verbundwerkstoffe (Gadow) and/or	at least 6 CP	comp. <sup>3</sup>	<b>WS&amp;SS</b>	2019
	Intermetallics and Superalloys (Stender/Schmitz)			SS (every two years)	2020
	Diffraction Methods in Materials Science (Zotov)	6 CP	opt.	SS	2019
	Werkstoffe und Fertigungstechnik technischer Kohlenstoffe	3 CP	opt	WS&SS	2019
	Werkstoffeigenschaften	6 CP	opt.	WS&SS	2019
<b>Topic: Nanomaterials and Nanostructures</b>					
	Fundamentals of Microelectronics	6CP	opt.	SS	2019
	Surfaces & Colloids	6 CP	opt.	WS (every two years)	2020
	Nanomaterials	6 CP	opt.	WS (every two years)	2019
	Physics of Material Surfaces	3 CP	opt.	WS	2019
	Thin film materials and coatings	3 CP	opt.	WS	2019
<b>Topic: Plastics Engineering</b>					
	Kunststofftechnik - Grundlagen und Einführung	6 CP	comp.	WS	2019
	Charakterisierung und Prüfung von Polymeren und Kunststoffen	3 CP	Comp.	WS	2019
	Faserkunststoffverbunde	3CP	Comp.	SS&WS	2019

<sup>3</sup> Compulsory, if respected topic is chosen

	Kunststoffaufbereitung und Kunststoffrecycling	3 CP	opt.	WS	2019
	Kunststoff-Werkstofftechnik 1	3 CP	opt.	WS	2019
	Grundlagen der zerstörungsfreien Prüfung	3CP	Opt.	SS&WS	2019
<b>Topic: Soft Matter and Biomaterials</b>					
	Liquid Crystals (Gießelmann/Laschat)	6 CP	opt.	WS every two years)	2020
	Surfaces and Colloids (Sottmann/Stubenrauch)	6 CP	opt.	WS every two years)	2019
	Bioinspired Approaches in Material Science	6 CP	opt.	SS every two years)	2019