

**Updated Elective Module Catalogs for the Master's Degree in Chemistry  
at the Clausthal University of Technology,  
Faculty of Natural and Material Sciences,  
AFB of 03 May 2022  
for WS 25/26 and SoSe 26**

**Status: June 10, 2025**

On June 10 2025, the Faculty of Natural and Material Sciences adopted the following catalogs of compulsory elective modules for the Master's degree program in Chemistry in the version of the executive regulations dated 03.05.2022 in the version of the 1st amendment dated 14.01.2025 for the academic year winter semester 2025/26 and summer semester 2026 in accordance with Section 13 (1) APO in conjunction with the program-specific executive regulations:

**Color code:**

Newly selectable modules or courses

~~Deleted modules or courses~~ (these are no longer selectable)

Updates

**Elective module selection “Cross-Cutting Topics of Modern Chemistry”**

The list of modules offered can be updated once a year by resolution of the Faculty Council for the sub-sequent year of study. The updated lists will be published university-internally by the Study Center:

<https://www.studiengaenge.tu-clausthal.de/master-studiengaenge/chemistry-master>

Title of the module or lecture	Responsible examiner	LV-No.	LV-type, SWS	CP	Exam form	Weighting	Graded ?	Exam type	WS 25/26	SS26
<b>Module Computational Chemistry</b>			4	6		0				
Chemische Bindung / Chemical Bond	J. Adams	S 3227	1 V	2	ThA	0	unben.	LN		x
Computer-Aided Molecular Modeling	D. Johannsmann	W 3228	2 V/Ü	2	ThA	0	unben.	LN	x	
Computerübungen zur Quantenchemie / Computer-Aided Quantum Chemistry	E. Hübner	W/S 3180	1V/Ü	2	ThA	0	unben.	LN	x	x

Title of the module or lecture	Responsible examiner	LV-No.	LV-type, SWS	CP	Exam form	Weighting	Graded ?	Exam type	WS 25/26	SS26
<b>Module</b> <b>Chemie im globalen Umfeld</b>			<b>5</b>	<b>6</b>		<b>0</b>				
Energieflüsse, Stoffkreisläufe und globale Entwicklung	T. Turek	S 8413	2V	2	K od. M	0	unben.	LN		x
Sicherheit und Zuverlässigkeit in der Chemie	G. Dudek	S 3225	1V	2	ThA	0	unben.	LN		x
Chemiewirtschaft	W. Meier	W 3179	2S	2	ThA	0	unben.	LN	x	
<b>Module</b> <b>Personal und Projektorganisation</b>			<b>4</b>	<b>6</b>		<b>0</b>				
Personal- und Unternehmensführung für Naturwissenschaftler und Ingenieure	D. Meiners	W 7950	2 V/S	3	SL	0,5	ben.	LN	*	
Unternehmensstrukturen, Projektentscheidungen und Projektmanagement in der Praxis	O. Gedrat	S 7941	2 V/S	3	SL	0,5	ben.	LN		*
<b>Module</b> <b>Führung</b>			<b>4</b>	<b>6</b>		<b>0</b>				
Führung	T. Niemand	W 6605	4 V/Ü	6	K od. M	1	ben.	LN	x	

## Elective module catalog „Mandatory Electives A“ \*)

The list of modules offered can be updated once a year by resolution of the Faculty Council for the sub-sequent year of study. The updated lists will be published university-internally by the Study Center:

<https://www.studiengaenge.tu-clausthal.de/master-studiengaenge/chemistry-master>

Title of the module or lecture	Responsible examiner	LV-No.	LV-type, SWS	CP	Exam form	Weighting	Graded ?	Exam type	WS 25/26	SS26
<b>Module</b> <b>Solid-State Chemistry</b> <i>(nicht kombinierbar mit Modul Microanalysis and Material Analysis)</i>			9	11		0,1				
Inorganic Synthesis Chemistry III / Anorganische Synthesechemie III	A. Adam	W/S 3036	1V	2	M	1	ben.	MP	*	*
Modern Inorganic Chemistry		W/S 3037	1V	1					*	*
Chemistry of the Solar System / Chemie des Sonnensystems		W/S 3041	1V	1					*	*
X-ray Crystallography / Röntgenstrukturanalyse		W/S 3040	2V/2Ü	5					*	*
Seminar on Solid State and Coordination Chemistry / Seminar zur Festkörper- und Koordinationschemie	A. Adam	W/S 3048	2S	2	SL	0	unben.	LN	*	*
<b>Module</b> <b>Microanalysis and Material Analysis</b> <i>(nicht kombinierbar mit Solid-State Chemistry)</i>			9	11		0,1				
Instrumental Analysis II / Instrumentelle Analytik II	U. Fittschen	W 3055	2V/1Ü	3	M	1	ben.	MP	x	
X-ray based Material and Micro Analysis / Röntgenbasierte Material und Mikroanalytik		S 3052	1V/1Ü	3						x
Inductively-coupled plasma mass spectrometry / Induktiv-gekoppelte Plasma Massenspektrometrie		S 3064	1V/1Ü	2						x
Working Methods in Applied and Technical Mineralogy / Arbeitsmethoden der Angewandten und Technischen Mineralogie		W 3059	2V	2					x	
Seminar Analytical Chemistry / Seminar Analytische Chemie	U. Fittschen	S 3063	1S	1	SL	0	unben.	LN		x

Title of the module or lecture	Responsible examiner	LV-No.	LV-type, SWS	CP	Exam form	Weighting	Graded ?	Exam type	WS 25/26	SS26
<b>Module Syntheses and Mechanisms</b> (nicht kombinierbar mit Modul Organic Materials Chemistry)			<b>9</b>	<b>11</b>		<b>0,1</b>				
Total Syntheses of Selected Target Molecules	A. Schmidt	S 3199	2V	3	M	1	ben.	MP		x
Named Reactions		W 3120	2V	3					x	
Advanced NMR-Methods		W 3135	2V/1Ü	3					x	
Seminar for New Synthesis Methods	A. Schmidt	W 3171	2S	2	SL	0	unben.	LN	x	
<b>Module Specific Physical Chemistry</b>			<b>7</b>	<b>11</b>		<b>0,1</b>				
Physical Chemistry in Astrophysics/ Physikalische Chemie am Nachthimmel	D. Johannsmann	S 3232	1 V	2	M	1	ben.	MP		x
Biophysical Chemistry / Biophysikalische Chemie		W 3216	2V	3					x	
Modern Spectroscopic Methods / Moderne spektroskopische Methoden		S 3219	2V	3						x
Chemical Sensors / Chemische Sensoren		S 3224	2V	3						x
<b>Module Specific Technical Chemistry</b>			<b>9</b>	<b>11</b>		<b>0,1</b>				
Modeling of Chemical Processes / Modellierung Chemischer Prozesse	S. Beuermann	W 3303	1V/1Ü	2,5	M	1	ben.	MP	x	
Process Intensification in Chemistry / Prozessintensivierung in der Chemie		S 3327	2V	2,5						x
Practical Course on 'Special Aspects of Technical Chemistry' / Praktikum Spezielle Technische Chemie	S. Beuermann	W/S 3361	4P	4	PrA	0	unben.	LN	x	x
Seminar on the 'Practical Course on Special Aspects of Technical Chemistry' / Seminar zum Praktikum Spezielle Technische Chemie	S. Beuermann	W/S 3374	1S	2	SL	0	unben.	LN	x	x

## Elective module catalog „Mandatory Electives B“ \*)

The list of modules offered can be updated once a year by resolution of the Faculty Council for the sub-sequent year of study. The updated lists will be published university-internally by the Study Center:

<https://www.studiengaenge.tu-clausthal.de/master-studiengaenge/chemistry-master>

Title of the module or lecture	Responsible examiner	LV-No.	LV-type, SWS	CP	Exam form	Weighting	Graded ?	Exam type	WS 25/26	SS26
<b>Module Moderne Umweltchemie</b>			<b>10</b>	<b>11</b>		<b>0,1</b>				
Recycling von Metallen	A. Schmidt	S 7904	3V/Ü	3	M	1	ben.			x
Umweltanalytik I (Einführung in die Umweltchemie)		S 3050	2V/S	2,5						x
Umweltanalytik II (Chemische Umweltanalytik)		W 3051	2V/S	2,5					x	
Recycling von Kunststoffen		W 7919	3V/S	3					x	
<b>Module Einführung in die Chemie des Brauwesens</b>			<b>9</b>	<b>11</b>		<b>0,1</b>				
Theorie und Praxis der Bierbrauerei	F. Endres	S 8036	2V	3	K/M	1	ben.	MP		x
Bieranalytik		W 8056	2V/Ü	3					x	
Praktikum in der Forschungsbrauerei		S 8056	3P	3						x
Exkursion und Blockvorlesung zu kommerziellen Aspekten des Brauwesens	M. Zarnkow	S 8090	1E/1V	2	Ex	0	unben.	LN		x
<b>Module Energie und Materialphysik</b>			<b>9</b>	<b>11</b>		<b>0,1</b>				
Oberflächenanalytik und -physik	K. Stallberg	W 2319	3V/Ü	4	M30	1/3	ben.	MTP	x	
Funktionsmaterialien	H. Fritze	S 2340	4 V	4	M/K	1/3	ben.	MTP		x
Einführung Energie	U. Willer	W 2122	2 V/Ü	3	M30	1/3	ben.	MTP	x	

**\*) Note:** The elective module selection " Specialist Field 1" or " Specialist Field 2" from the elective module catalogs " Mandatory Electives A" or " Mandatory Electives B" must be made according to the provisions in Appendix 1 of the Regulatory statutes (AFB) for the master's degree program in chemistry. For information purposes, the following excerpt from the AFB for the master's program in Chemistry dated May 3, 2022, in the version of the 1st amendment dated 14.01.2025:

„...“

**Choice of Mandatory Elective „Specialist Field 1“**

- One module comprising a total of 11 credit points is to be selected from the Catalog of Mandatory Elective Modules “Mandatory Electives A“ and completed successfully. Additional modules can only be completed as additional exams.
- The choice of a mandatory elective is only binding with the first examination attempt. It is only possible to change the mandatory elective modules if no examination attempt was conducted in any form.

**Choice of Mandatory Elective „Specialist Field 2“**

- One module comprising a total of 11 credit points is to be selected from the Catalog of Mandatory Elective Modules “Mandatory Electives A“ or the Catalog of Mandatory Elective Modules “Mandatory Electives B” and completed successfully. Additional modules can only be completed as additional exams.
- The choice of a mandatory elective is binding with the first examination attempt. It is only possible to change the mandatory elective modules if no examination attempt was conducted in any form.

...“

**Explanatory Notes:**

(1) Type of Course:	E	Excursion [Exkursion]
	P	Practical Course [Praktikum]
	S	Seminar [Seminar]
	T	Tutorial Lecture [Tutorium]
	V	Lecture [Vorlesung]
	Ü	Exercise [Übung]
(2) Examination Form:	K	Written Exam [Klausur]
	M	Oral examination
	SL	Seminar performance [Seminarleistung]
	PrA	Practical Work [Praktische Arbeit]
	ThA	Theoretical Work [Theoretische Arbeit]
	Ex	Excursion [Exkursion]
	Ab	Final Thesis [Abschlussarbeit]
(3) Type of Examination:	LN	Certificate of performance [Leistungsnachweis]
	MP	Module exam [Modulprüfung]
	MTP	Module-part exam [Modulteilprüfung]
	PV	Prerequisite [Prüfungsvorleistung]
(4) Further Abbreviations:	ben.	Graded performance [benotet Leistung]
	unben.	Ungraded performance [unbenotet Leistung]
	od.	or [oder]
	LV	Course [Lehrveranstaltung]
	Prüf.	Examination [Prüfung]
	CP	Credit points
	AFB	Regulatory statutes [Ausführungsbestimmungen]
	SWS	Semester hours per week [Semesterwochenstunden]