

**Updated Elective Module Catalogs for the Master's Degree in Chemie
and the Master's Degree in Chemistry
at the Clausthal University of Technology,
Faculty of Natural and Material Sciences,
Master's program in Chemie:
AFB of June 25, 2019, as amended by the 1st amendment of May 03, 2022.
Master's Degree in Chemistry:
AFB of 03 May 2022
for **WS 24/25 and SS 25**

Status: June 17, 2024**

On June 17 2024, 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 implementation regulations dated 25.06.2019 in the version of the 1st amendment dated 03.05.2022 and for the Master's degree program in Chemistry in the version of the implementation regulations dated 03.05.2022 for the academic year winter semester 2024/25 and summer semester 2025 in accordance with Section 13 (1) APO in conjunction with the program-specific implementation 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 elective module catalog is as of June 17, 2024. The list of modules offered can be updated once a year by resolution of the Faculty Council for the subsequent year of study. The updated lists will be published university-internally by the Study Center:

<https://www.tu-clausthal.de/en/prospective-students/degree-programs/masters/chemistry>

<i>Title of the module or lecture</i>	<i>Responsible examiner</i>	<i>LV-No.</i>	<i>LV-type, SWS</i>	<i>CP</i>	<i>Exam form</i>	<i>Gewichtung</i>	<i>Graded ?</i>	<i>Exam type</i>	<i>WS 24/25</i>	<i>SS25</i>
Module Computational Chemistry			4	6		0				
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	
Computer-Aided Quantum Chemistry	E. Hübner	W/S 3180	1V/Ü	2	ThA	0	unben.	LN	x	x
Module Chemie im globalen Umfeld			5	6		0				
Energieflüsse, Stoffkreisläufe und globale Entwicklung	T. Turek	S 8413	2V	2	K od. M	0	unben.	LN		x
Sicherheit und Zuverlässigkeit in der Chemie	K. Hecht	S 3225	1V	2	ThA	0	unben.	LN		x
Chemiewirtschaft	W. Meier	W 3179	2S	2	ThA	0	unben.	LN	x	
Module Personal und Projektorganisation			4	6		0				
Personal- und Unternehmensführung für Naturwissenschaftler und Ingenieure	D. Meiners	W 7950	2 V/S	3	SL	0,5	ben.	LN	x	
Unternehmensstrukturen, Projektentscheidungen und Projektmanagement in der Praxis	O. Gedrat	S 7941	2 V/S	3	SL	0,5	ben.	LN		x

Elective module catalog „Mandatory Electives A“ *)

The elective module catalog is as of June 17, 2024. The list of modules offered can be updated once a year by resolution of the Faculty Council for the subsequent year of study. The updated lists will be published university-internally by the Study Center:

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Title of the module or lecture	Responsible examiner	LV-No.	LV-type, SWS	CP	Exam form	Gewichtung	Graded ?	Exam type	WS 24/25	SS25
Module Solid-State Chemistry (cannot be combined with the module Microanalysis and Material Analysis)			9	11		0,1				
Inorganic Synthesis Chemistry III	A. Adam	W/S 3036	1V	2	M	1	ben.	MP	x	x
Modern Inorganic Chemistry		W/S 3037	1V	1					x	x
Chemistry of the Solar System		W/S 3041	1V	1					x	x
X-ray Crystallography		W/S 3040	2V/2Ü	5					x	x
Seminar on Solid-State and Coordination Chemistry	A. Adam	W/S 3048	2S	2	SL	0	unben.	LN	x	x
Module Microanalysis and Material Analysis (cannot be combined with the module Solid-State Chemistry)			9	11		0,1				
Instrumental Analysis II	U. Fittschen	W 3055	2V/1Ü	3	M	1	ben.	MP	x	
X-ray based Material and Micro Analysis		S 3052	1V/1Ü	3						x
Characterization of Nano-Materials		S 3053	1V/1Ü	2						*
Inductively-coupled plasma mass spectrometry		S 3064	1V/1Ü	2						x
Working Methods in Applied and Technical Mineralogy		W 3059	2V	2						x
Seminar Analytical Chemistry	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	Gewichtung	Graded ?	Exam type	WS 24/25	SS25
Module Organic Materials Chemistry <i>(cannot be combined with the module Syntheses and Mechanisms)</i>			9	11		0,1				
Applied Organic Materials Chemistry	R. Wilhelm	W 3136	2V	3	M	1	ben.	MP	*	
Advanced NMR Methods		W 3135	2V/1Ü	3					*	
Organic Biomaterials		W 3127	2V	3					*	
Seminar for Organic Materials	R. Wilhelm	S 3142	2S	2	SL	0	unben.	LN		*
Module Syntheses and Mechanisms <i>(cannot be combined with the module Organic Materials Chemistry)</i>			9	11		0,1				
Total Syntheses of Selected Target Molecules	A. Schmidt	S 3199	2V	3	M	1	ben.	MP		x
Name 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	
Module Specific Physical Chemistry			7	11		0,1				
Statistical Thermodynamics	D. Johannsmann	W 3208	1V	2	M	1	ben.	MP	*	
Physical Chemistry in Astrophysics		S 3232	1V	2						x
Biophysical Chemistry		W 3216	2V	3					x	
Modern Spectroscopic Methods		S 3219	2V	3						x
Chemical Sensors		S 3224	2V	3						x

<i>Title of the module or lecture</i>	<i>Responsible examiner</i>	<i>LV-No.</i>	<i>LV-type, SWS</i>	<i>CP</i>	<i>Exam form</i>	<i>Gewichtung</i>	<i>Graded ?</i>	<i>Exam type</i>	<i>WS 24/25</i>	<i>SS25</i>
Module Specific Technical Chemistry			9	11		0,1				
Modeling of Chemical Processes	S. Beuermann	W 3303	1V/1Ü	2,5	M	1	ben.	MP	x	
Process Intensification in Chemistry		S 3327	2V	2,5						x
Practical Course on 'Special Aspects of Technical Chemistry'	S. Beuermann	W/S 3361	4P	4	PrA	0	unben.	LN	x	x
Seminar on the 'Practical Course on Special Aspects of Technical Chemistry'	S. Beuermann	W/S 3374	1S	2	SL	0	unben.	LN	x	x

Elective module catalog „Mandatory Electives B“ *)

The elective module catalog is as of June 17, 2024. The list of modules offered can be updated once a year by resolution of the Faculty Council for the subsequent year of study. The updated lists will be published university-internally by the Study Center:

<https://www.tu-clausthal.de/en/prospective-students/degree-programs/masters/chemistry>

Title of the module or lecture	Responsible examiner	LV-No.	LV-type, SWS	CP	Exam form	Gewichtung	Graded ?	Exam type	WS 24/25	SS25
Module			10	11		0,1				
Moderne Umweltchemie										
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	
Module			9	11		0,1				
Einführung in die Chemie des Brauwesens										
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 TU Clausthal Brauerei		S 8056	3P	3						x
Exkursion und Blockvorlesung zu kommerziellen Aspekten des Brauwesens		S 8090	1E/1V	2	Ex	0	unben.	LN		x
Module			9	11		0,1				
Energie und Materialphysik										
Oberflächenanalytik und -physik	K. Stallberg	W 2319	3V/Ü	4	M	1/3	ben.	MTP	x	
Funktionsmaterialien	H. Fritze	S 2340	4V/Ü	4	M/K	1/3	ben.	MTP		x
Einführung Energie	U. Willer	W 2122	2V	3	M	1/3	ben.	MTP	x	
Solare Energiewandlung	D.M. Schaadt	W 2330	2V	3	M	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 Chemie / chemistry. For information purposes, the following excerpt from the AFB for the master's program in Chemie dated July 19, 2011, as amended on June 25, 2019, or the AFB for the master's program in Chemie dated June 25, 2019, as amended on May 3, 2022, or the AFB for the master's program in Chemistry dated May 3, 2022:

„...“

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]