

**Program-Specific Examination Regulations
for the Master's Course of Study
in Sustainable Chemistry
at RWTH Aachen University,
Originally Adopted September 18, 2025
Now Issued in Their First Revised Version
Of the Program-Specific Examination Regulations
Dated February 25, 2026
Presented as a Complete Version**

(Examination Regulations – 2025 Version)

Please note: This document is an English translation. Only the German original of these regulations as published in the Official Announcements of RWTH Aachen University (“Amtliche Bekanntmachungen”) is legally binding.

Based on Section 2 (4, 64) of the law governing the Universities of the Federal State of North Rhine-Westphalia (Higher Education Act – HEA) in the version of September 16, 2014 (Law and Official Gazette of the State of North Rhine-Westphalia p. 547), last amended by Article 2 of the Act to Strengthen Bochum as a Higher Education Hub in the Field of Health Care and to Amend Other Higher Education Regulations dated December 19, 2024, (Law and Official Gazette of the State of North Rhine-Westphalia, p. 1222), RWTH Aachen University has issued the following Examination Regulations:

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Curriculum Outline

I. General Provisions

Section 1 Scope and Degree Awarded

- (1) These examination regulations govern the master's course of study in Sustainable Chemistry at RWTH. They apply only in conjunction with the most recent version of the General Examination Regulations for bachelor's and master's degree programs at RWTH (GER) and they supplement those regulations with program-specific regulations. In the event of any conflict, the provisions of the GER shall take precedence.
- (2) Students who successfully complete the master's course of study are awarded the academic degree of Master of Science RWTH Aachen University (M. Sc. RWTH) by the Faculty of Mathematics and Natural Sciences.

Section 2 Educational Objectives and Language of Instruction

- (1) This is a master's course of study pursuant to Section 2 (3) GER (master's degree program building on a bachelor's degree)
- (2) The program's overarching educational objectives and intended learning outcomes are aligned with Section 2 (1 and 3) GER. Additional program-specific educational objectives and intended learning outcomes are detailed in the introductory section of the module handbook.
- (3) This degree program is primarily taught in English. If any module is offered in a different language, this will be noted in the module handbook.
- (4) Exams and assignments may be submitted in either German or English, contingent upon prior agreement with the respective examiner.

Section 3 Admission Requirements

- (5) Admission to this program requires a recognized first university degree pursuant to Section 3 (4) GER.
- (6) In addition, applicants must present an academic record that demonstrates the necessary background and the potential for success in the Sustainable Chemistry master's program. This is typically evidenced by prior coursework or academic credit in relevant areas. Applicants should have earned:
 - A total of 137 CP from the areas of mathematics and natural sciences.

These 137 CP must have been awarded for coursework and assessments comparable to those required by the following basic modules of the RWTH bachelor's program in chemistry:

Sections (Modules of the bachelor's program in Chemistry at RWTH)	CP total
General Chemistry - General Chemistry ("General Chemistry - Inorganic Chemistry" module) - Internship Quantitative Analysis ("General Chemistry - Inorganic Chemistry" module) - Internship Qualitative Analysis ("General Chemistry - Inorganic Chemistry" module)	8 4 4
Inorganic Chemistry - Chemistry of Metals and Non-Metals ("Inorganic Chemistry A 1" module) - Structure and properties of ionogenic solids (Module "Inorganic Chemistry A 2") - Coordination Chemistry ("Inorganic Chemistry F" module) - Lab courses on Inorganic Chemistry ("Inorganic Chemistry A 2" and "Inorganic Chemistry F" modules)	4 4 4 7
Computational Chemistry (Module "Computational Chemistry")	4
Mathematics and Mathematical Methods ("Mathematical Methods in Chemistry 1", "Mathematical Methods in Chemistry 2", and "Mathematical Methods in Chemistry 3" modules)	10
Organic Chemistry - Organic Chemistry ("General Chemistry - Organic Chemistry" module) - Reaction Mechanisms ("Organic Chemistry A" module) - Organic Chemistry of Complex Systems ("Organic Chemistry F" module) - Practical courses in organic chemistry (modules "General Chemistry - Organic Chemistry" and "Organic Chemistry F")	6 6 3 12
Physics ("Physics" module)	10
Physical Chemistry - Kinetics ("General Chemistry - Physical Chemistry 1" module) - Spectroscopy ("General Chemistry - Physical Chemistry 2" module) - Thermodynamics and Electrochemistry ("Physical Chemistry A" module) - Theory of Chemical Bonding ("Physical Chemistry F" module) - Lab courses on Physical Chemistry ("Physical Chemistry A" and "Physical Chemistry F" modules)	4 4 8 4 7
Spectroscopy ("Spectroscopy" module)	4
Additional chemistry subject (e.g. Biochemistry, Macromolecular Chemistry, Pharmaceutical Chemistry, Technical Chemistry)	20

(3) Conditional admission to the master's program with additional requirements is subject to Section 3 (6) GER. If additional requirements corresponding to more than 20 CP would be required or if internships from the bachelor's program in Chemistry would still have to be completed, admission to the master's program will be denied.

(4) Applicants must demonstrate English language proficiency as outlined in Section 3 (9) GER.

- (7) If admission is dependent on the completion of additional requirements and one or more of these requirements can only be completed in German, then, in addition to the language skills as outlined in Section 4, the candidate must also provide evidence of sufficient proficiency in German pursuant to Section 3 (7a) GER.
- (8) The evaluation of whether an applicant meets the admission requirements is conducted in accordance with Section 3 (12) GER.
- (9) The general policies governing the transfer and acceptance of academic credit from examinations and coursework are outlined in Section 13 GER.

Section 4 Standard Period of Study, Program Structure, Credit Points, and Degree Requirements

- (1) The degree program, including the master's thesis module, is designed to be completed in four semesters (two academic years), which represents the standard period of study for full-time enrollment. Students may begin their studies in either the winter or summer semester.
- (2) The degree program consists of the two focus areas "Sustainable Chemistry" (CHEM) and "Technology for Sustainable Chemistry" (TECH), both of which must be completed. The CHEM focus area includes a mandatory section worth 20 CP, a core elective section worth 9 CP and a research internship worth 10 CP. The mandatory section TECH includes a mandatory section of 12 CP, a core elective section "Sustainability Assessment" of 5 CP, a core elective section "Technology for Sustainable Chemistry" of 9 CP and a research internship of 10 CP. The degree program also includes a Sustainability Assessment project worth 10 CP, modules from the General Studies elective section worth 5 CP and the Master's Thesis module.

To successfully complete the degree program, students must earn a total of 120 credit points. The master's degree is composed of the following elements:

Focus area Sustainable Chemistry (CHEM)	
Mandatory section Sustainable Chemistry	20 CP
Core elective section Sustainable Chemistry	9 CP
Research internship Sustainable Chemistry	10 CP
Focus area Technology for Sustainable Chemistry (TECH)	
Mandatory section Technology for Sustainable Chemistry	12 CP
Core elective section Sustainability Assessment	5 CP
Core elective section Technology for Sustainable Chemistry	9 CP
Research internship Technology for Sustainable Chemistry	10 CP
Project Sustainability Assessment	10 CP
Elective section General Studies.	5 CP
Master's thesis (incl. final colloquium with 3 CP)	30 CP
Total	120 CP

- (3) The degree program contains 15 modules including the master's thesis module plus the flexible modules that are offered in General Studies. Detailed descriptions of all modules can be found in the official module handbook. The credit points (CP) assigned to specific course requirements—such as exams and assignments—within each module are determined in accordance with Section 4 (4) GER.

Section 5 Attendance Requirements

- (1) In accordance with Section 5 (2) GER, attendance may be required for the following types of courses:
 1. Lab sessions
 2. Seminars
 3. Colloquia
 4. Lab courses and internships
 5. Field trips
 6. Tutorials
- (2) Attendance requirements under this provision (Section 1) are explicitly indicated in the module handbook.

Section 6 Policies Governing Exams and Assignments

- (1) General regulations on exams, assignments, and registration periods are outlined in Section 6 GER.
- (2) If the successful completion of modules, exams or assignments, or module components as outlined in Section 5 (4) GER is required as a prerequisite for participation in other assessments, this will be indicated in the module handbook.

Section 7 Types of Exams and Assignments

- (1) General regulations regarding examination and assignment formats are outlined in Section 7 GER.
- (2) In accordance with Section 7 (1) GER, the following additional types of exams or assignments are permitted forms of assessment:
 1. In **written homework**, which is handed out and evaluated during the course, students gradually deepen their knowledge and skills in the subjects that they are being taught.
 2. In **group projects**, several students shall, under guidance, work together to independently solve a narrowly defined, academic question, preferably in class during the lecture period. By special arrangement, group work accompanying lectures can also be carried out outside of class time. More extensive group work that exceeds the scope of a lecture unit is to be conducted outside of class time.
 3. **Poster presentations** serve to concisely present the essential aspects of a scientific topic on a poster. Credit points are awarded for designing a poster and giving a presentation that is followed by a group discussion. The presentation should be between 10 and 20 minutes in duration. The subsequent discussion shall last at least 5 and not more than 10 minutes. A poster presentation may be carried out as a group exam with up to four candidates.

4. The **e-assessment** is a form of examination in which basic theoretical knowledge is tested in digital form during the course. After each course block, students demonstrate that they have actively engaged with the content that has been taught. The examination serves to reduce the burden of any final module examinations and makes it easier for students to deal with the respective topic on an ongoing basis during the course. The examination may also be multiple-choice, in which case the provisions of Section 10 (4) GER apply. The e-assessment lasts a minimum of 15 and a maximum of 30 minutes.
- (3) The duration of written exams is determined by the number of credit points assigned:
- For up to 6 CP: up to 90 minutes
 - For more than 6 CP: 90 to 180 minutes.
- (4) Oral exams range from 20 to 45 minutes in duration. Group oral exams, involving up to four candidates, may also be conducted.
- (5) The maximum write-up period for seminar papers and student research projects is 4 weeks. A seminar paper or research paper should not exceed 30 pages.
- (6) The term paper should not exceed 10 pages in length. The write-up period for a term paper should be a maximum of 2 weeks.
- (7) The length of a project thesis is 5 to 25 pages per group member. Specific details will be announced at the beginning of the event.
- (8) For written exams in the form of a portfolio, the following applies in detail: The specific time period, the requirements, and the assessment criteria are to be announced in the CMS. They are also to be announced in the learning management system (LMS), along with the tasks and questions as soon as these have been decided upon. Portfolios may also be submitted as e-portfolios. Digital media, such as web blogs, can also be submitted using an e-portfolio. The e-portfolio can be mapped via an electronic LMS, such as RWTHmoodle.
- (9) Papers that accompany oral presentations must not exceed 5 pages. Oral presentations are expected to last 10 to 30 minutes.
- (10) Colloquia are expected to last between 15 and 60 minutes.
- (11) The following applies to internships: During research internships – each worth 300 hours and lasting no longer than four months – students will work independently on a narrowly defined, scientific problem. Supervision will be provided whilst they are doing so. Students must write a paper on the work carried out during such internships and submit it to the relevant instructor no later than four months after beginning the internship. The paper should not exceed 30 pages without appendices. Failure to submit the paper by the deadline will result in the internship being graded as “insufficient” (5.0). Supervision of research internships shall be governed by the provisions of Section 17 (2), sentences 1 – 4, with the additional rule that students may not complete two research internships under the supervision of the same instructor. Students may not complete two external research internships at the same department or institution, e.g. at the same university research group or industrial company. The assignment for a research internship can only be returned if the student deregisters in accordance with Section 11 (3) within the first two weeks of the processing period. In exceptional cases, the internship period may be extended by a maximum of six weeks upon submission of a justified written request to the Examination Board and with the approval of the assigned examiner. Students with chronic illnesses or disabilities may be granted an appropriate extension to account for potential disadvantages, in accordance with applicable accessibility and accommodation policies. A medical certificate substantiating the health condition and its impact on the thesis writing period is required.

- (12) Instructors will define time limits and assessment criteria for assignments and exams at the beginning of the course.
- (13) Admission to module examinations and assessments may be contingent upon the successful completion of specific module components, as specified in Section 7 (15) GER. For the relevant modules, these requirements are outlined in the module handbook. Instructors will communicate any optional coursework for grade improvement by the start of the semester or, at the latest, during the first class session. This information will be made available in the Campus Management System (CMS) and will include details on the number and type of extra credit assignments, as well as the corresponding assessment methods and grading criteria.

Section 8 Assessment and Grading

- (1) General regulations governing the assessment of exams and assignments, as well as the grading process, are outlined in Section 10 GER.
- (2) If an exam or assignment consists of several components, each component must be passed, i.e. be completed at least with the grade "sufficient" (4.0).
- (3) A module is successfully completed if all associated assignments and exams are passed with a grade of at least "sufficient" (4.0) and all other credit points earned or module components have been completed according to the relevant program-specific examination regulations.
- (4) The overall grade is determined by the module grades and the grade of the master's thesis module as outlined in Section 10 (8) GER.

Section 9 Examination Board

In accordance with Section 11 GER, the Master's Examination Board for Chemistry of the Faculty of Mathematics and Natural Sciences is the responsible examination board.

Section 10 Repeat Attempts for Exams, Assignments, or the Master's Thesis, and Loss of Assessment Eligibility

- (1) The general policies governing exam retakes and assignment resubmissions – including those pertaining to the master's thesis module – as well as the circumstances under which a student may forfeit the right to participate in assessments, are detailed in Section 14 GER.
- (2) Modules that can be freely selected within an area (Core elective section within a focus area, General Studies) from this master's course of study can be replaced provided this is permitted in the relevant module handbook. However, substitutions for mandatory modules are not allowed.

Section 11 Withdrawal, Absences, Missed Deadlines, Academic Integrity Violations, and Other Infractions

- (1) General provisions regarding deregistering or withdrawing from exams or assignments, unjustified absences, failure to submit required work, violations of academic integrity, or other infractions are outlined in Section 15 GER.
- (2) The following applies to deregistering from exams or assignments according to Section 15 (1) GER: students can deregister and withdraw from block courses up to one working day before the course starts.
- (3) The following applies to deregistering from internship modules: Students can deregister and withdraw from internship modules up to two weeks after they have begun a research internship.

II. Master's Degree Requirements and Master's Thesis

Section 12 Master's Degree Requirements

- (1) The master's degree is awarded upon successful completion of all required coursework and examinations, including the master's thesis module, as specified in Section 4 (2) and the module handbook.
- (2) Students are expected to follow the course sequence that is specified in the curriculum outline (Appendix). The assignment for the master's thesis can only be issued once at least 80 CP have been achieved and the modules Research Internship Sustainable Chemistry, Research Internship Technology for Sustainable Chemistry and Project Sustainability Assessment have been successfully completed.

Section 13 Master's Thesis

- (1) The general requirements for completing a master's thesis are governed by Section 17 GER.
- (2) Further details regarding the supervision of the master's thesis are outlined in Section 17 (2) GER.
- (3) The master's thesis must be written in English.
- (4) The standard duration for completing and submitting the final master's thesis is typically no longer than six months and it runs concurrently with the student's final semester of study. In exceptional cases, and with proper justification, students may apply to the Examination Board for an extension of up to six weeks, as outlined in Section 17 (7) GER.
- (5) In addition to the written thesis, the "master's thesis" module also includes a master's final colloquium. Section 7 (12) GER in connection with Section 7 (10) apply accordingly. The master's final colloquium may be held before the master's thesis is submitted.
- (6) The workload for preparing and completing the master's thesis, including the colloquium, corresponds to 30 credit points (CP).

Section 14 Acceptance and Assessment of the Master's Thesis

General provisions on the acceptance and assessment of the master's thesis are outlined in Section 18 GER.

III. Final Provisions

Section 15 Exam Review Policy

Post-exam reviews and access to graded materials follow the guidelines outlined in Section 22 GER.

Section 16 Effective Date, Publication, and Transitional Provisions

- (1) These Examination Regulations are published as an Official Announcement of RWTH Aachen University ("Amtliche Bekanntmachung") and take effect the day after publication.
- (2) They apply to all students who have enrolled in the master's program in Sustainable Chemistry at RWTH in or after the 2025/2026 winter semester.

Issued based on the resolution of the Faculty Council of the Faculty of Mathematics and Natural Sciences dated February 4, 2026.

It should be noted that, in accordance with Section 12 (5) NRW HG, any claims asserting violations of procedural or formal requirements related to the University's regulatory or autonomous rights must be raised within one year of the official publication of this announcement unless:

- 1) The regulations were not properly published;
- 2) The Rectorate previously objected to the decision of the body adopting the regulations;
- 3) The procedural or formal defect was previously reported to the University, with specific reference to the violated legal provision and the nature of the defect; or
- 4) The official public announcement of the regulations failed to provide notice that the right to object to procedural or formal defects would be barred after one year.

The Rector
of RWTH
Aachen University

Aachen, February 25, 2026,

sgd. Rüdiger
Univ.-Prof. Dr. rer. nat. Dr. h. c. mult. U. Rüdiger

Appendix: Curriculum applicable if the student begins in winter semester and summer semester

**a) Schematic representation of the master's degree program in Sustainable Chemistry
(Example for studies starting in the winter semester)**

Section	1st semester (Winter)	2nd semester (Summer)	3rd semester (Winter)	4th semester (Summer)
CHEM	Mandatory (6 CP) Core Elective (9 CP) Research (10 CP)	Mandatory (6 CP)	Mandatory (8 CP)	-
TECH	Mandatory (6 CP)	Mandatory (6 CP) Core Elective II (9 CP) Research (10 CP)	Core Elective I (5 CP)	-
Other	-	-	Project work (10 CP) General Studies (5 CP)	Master's Thesis (27 CP) Final colloquium (3 CP)
Total	31 CP	31 CP	28 CP	30 CP

**b) Schematic representation of the master's degree program in Sustainable Chemistry
(Example for studies starting in the summer semester)**

Section	1st semester (Summer)	2nd semester (Winter)	3rd semester (Summer)	4th semester (Winter)
CHEM	Mandatory (6 CP) Core Elective (9 CP) Research (10 CP)	Mandatory (6 CP) Mandatory (8 CP)	-	-
TECH	-	Mandatory (6 CP) Research (10 CP)	Mandatory (6 CP) Core Elective I (5 CP) Core Elective II (9 CP)	-
Other	General Studies (5 CP)	-	Project work (10 CP)	Master's Thesis (27 CP) Final colloquium (3 CP)
Total	30 CP	30 CP	30 CP	30 CP

Abbreviations:

- CHEM: Focus area Sustainable Chemistry
 - TECH: Focus area Technology for Sustainable Chemistry
 - Mandatory: Mandatory Section
 - Core Elective: Core Elective Section
 - Core Elective I: Core Elective Section Sustainability Assessment
 - Core Elective II: Core Elective Section Technology for Sustainable Chemistry
- Research Research internship

c) Mandatory modules of the master's degree program in Sustainable Chemistry

	Module	SWS	CP
Focus area CHEM	Sustainable Methods in Inorganic Chemistry (winter semester)	V4	6
	Sustainable Methods in Organic Chemistry (summer semester)	V4	6
	Physical Chemistry Methods for Sustainable Chemistry (winter semester)	V4 / Ü2	8
	Research Internship Sustainable Chemistry	P18	10
Focus area TECH	Sustainable Catalysis (winter semester)	V4	6
	Sustainable Processes and Materials: From nanoscale to reactor level (summer semester)	V4	6
	Research Internship Technology for Sustainable Chemistry	P18	10
	Project work Sustainability Assessment	PT18	10
	Master's Thesis		30

Abbreviations:

- CHEM: Focus area Sustainable Chemistry
- TECH: Focus area Technology for Sustainable Chemistry

d) General Studies

Students can select modules from the interdisciplinary courses offered at RWTH or from the degree programs offered at RWTH (exceptions are listed under conditions). Students may also complete external modules, such as they might do during a stay abroad.

The modules assigned to General Studies in RWTHonline can be selected for General Studies without the student having to submit an application for them. RWTH modules that are not yet assigned to General Studies can be assigned by applying to the Examination Board Chemistry via the application portal "Paperless". External modules that were completed during a stay abroad, for example, and modules that were completed in a previous degree course can be recognized retrospectively by submitting an application to the Examination Board Chemistry.

The selected modules must meet the following conditions:

- The modules teach skills that are not taught in the mandatory and core elective modules of the bachelor's degree programs in Chemistry, Chemistry Plus, and Teacher Training in Chemistry as well as the master's degree programs in Chemistry, Sustainable Chemistry and Teacher Training in Chemistry as a Teaching Subject or are comparable to these, with the exception of the modules
 - o Didactics of Chemistry,
 - o Modules of the mandatory section and the core elective section of the bachelor's degree program Chemistry Plus that are unrelated to the field of chemistry.
- Students have to undergo assessments (written exams, oral exams, presentations, term papers, tutorials, etc.) as part of the modules, and
- such modules cannot require any background knowledge or entry qualifications that the students do not fulfill.

The modules selected as part of General Studies can be taken in any semester, in the summer semester or in the winter semester, depending on the dates that are available for the selected modules.