

**Discipline-Specific Study and
Examination Regulations for the
Master’s Degree Program in Chemistry
of Functional Molecules and Materials
at the University of Potsdam
Dated July 24, 2024**

The Faculty Council of the Faculty of Sciences at the University of Potsdam has approved on July 24, 2024, the following study and examination regulations on the basis of Section 10 subsection 5, Section 20 subsection 1, Section 23 subsections 1-3, and Section 32 in conjunction with Section 81 subsection 2 no. 1 of the Brandenburg Higher Education Act (BbgHG) of April 09, 2024 (Law and Ordinance Gazette [GVBl.] I/14, [no. 18]), in conjunction with the Ordinance on the Design of Examination Regulations to Guarantee the Equivalency of Studies, Examinations, and Degrees (University Examination Ordinance – HSPV) of March 4, 2015 (GVBl. II/15, [no. 12]), last amended by Article 3 of the ordinance of April 9, 2024 (GVBl. I/24, [no. 12]), and the Ordinance on the Accreditation of Studies (StudAkkV) of October 28, 2019 (GVBl. II/19, [no. 90]) and with Article 14 subsection 1 no. 2 of the Basic Constitution of the University of Potsdam (GrundO) of December 17, 2009 (Bulletin UP no. 4/2010, p. 60) in the Seventh Amended Version of the Basic Constitution of the University of Potsdam (GrundO) of December 14, 2022 (Bulletin UP no. 8/2022, p. 318) and Section 1 subsection 2 of the new version of the General Study and Examination Regulations for Bachelor and Master’s Degree Programs at the University of Potsdam Not Related to Teacher Education (BAMA-O) of January 30, 2013 (Bulletin UP no. 3/2013, p. 35), last amended on December 13, 2023 (Bulletin UP no. 17/2024, p. 712).¹

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Section 1 Applicability

(1) These regulations apply to the master’s degree program in Chemistry of Functional Molecules and Materials at the University of Potsdam. They supplement the provisions of the General Study and Examination Regulations for the Bachelor and Master’s Degree Programs Not Related to Teacher Education at the University of Potsdam (BAMA-O).

(2) In the event that these regulations contradict the BAMA-O, then the provisions in the BAMA-O supersede these regulations.

Section 2 Degree

The Faculty of Sciences at the University of Potsdam awards the degree of “Master of Science” (“M.Sc.”) to students who have obtained the necessary credit points and meet the graduation requirements.

Section 3 Objectives of the Master’s Degree Program

(1) The research-oriented master's degree program in *Chemistry of Functional Molecules and Materials* focuses on chemistry as a key science for solving current global issues. Innovative materials contribute to an improved use of resources if they can be produced using more efficient processes and without fossil raw material sources. Advantageous properties of innovative materials lead to reduced greenhouse gas emissions. They are used to address biomedical issues and make a significant contribution to improving healthcare. Molecular systems and their interactions with biomolecules are the foundation of drug therapy for diseases, but they also open up paths towards more sustainable plant protection strategies. Molecular systems are used as catalysts to produce important products in the chemical industry in a more selective, energy-saving, and overall more efficient way.

(2) The master's degree program in *Chemistry of Functional Molecules and Materials* generally builds on a bachelor's degree program in Chemistry or a discipline with similar subject matter.

(3) Graduates of the master's degree program are able to solve complex chemical problems within specific time constraints as they have mastered and can apply the methods of experimental and scientific work. They have a foundation of in-depth theoretical knowledge in organic, inorganic, physical, theoretical chemistry as well as biochemistry and materials chemistry and practical laboratory skills that they have acquired in the research-oriented theoretical and practical laboratory courses of the degree program. Graduates are able to plan research projects with appropriate complexity, for example as part of a doctorate, through independent

¹ Approved by the President of the University of Potsdam on September 25, 2024.

literature research, carry them out independently, document the results in accordance with the rules of good scientific practice, discuss them, and present them orally and in writing. They are familiar with research data management and the rules of good scientific practice.

(4) Graduates recognize and understand content-related and methodological references to related natural science disciplines, in particular physics and biology. They have developed the teamwork and communication skills to work on scientific issues together with graduates from other disciplines. They can comment on socially relevant topics such as environmental chemistry and sustainability and reflect critically on their position.

(5) Graduates of the M. Sc. *Chemistry of Functional Molecules and Materials* are able to work in challenging positions at universities, non-university research institutions (e.g., as part of a doctorate), government agencies (e.g., Federal Institute for Materials Research and Testing – BAM, Federal Institute for Risk Assessment – BfR, German Environment Agency – UBA), associations and non-governmental organizations (e.g., Association of the German Chemical Industry – VCI, Nature and Biodiversity Conservation Union – NABU, United Nations Environment Program – UNEP) as well as in companies in the private sector (especially in the chemical and pharmaceutical industries) thanks to the high degree of independence, initiative, and responsibility they have developed during their studies. Graduates meet the prerequisites to successfully master tasks in research and development, in quality management (e.g., in production processes), in the patent system (e.g., for further training as a patent attorney), in science communication (e.g., in journalism).

Section 4 Duration and Organization of the Master's Degree Program

(1) The consecutive and research-oriented master's degree program in Chemistry of Functional Molecules and Materials is offered at the University of Potsdam as a single-subject program with a standard period of study (full-time studies) of 4 semesters and 120 credit points (CP). Students can choose one of the specializations "Materials and Interfaces" (MI) or "Molecular and Biomolecular Chemistry" (MB) or study the program without a specialization.

(2) The master's program is structured as follows:

Mandatory modules	24 CP
Focus area lab course modules	6-12 CP
Elective modules	24-30 CP
Research projects	30 CP
Master's thesis	30 CP

Section 5 Modules and Course of Studies

(1) The master's degree program in Chemistry of Functional Molecules and Materials consists of the following components:

Module abbreviation	Module title	CP
I) Mandatory modules (24 CP)		
CHE-MI-1	Materials and Interfaces – Polymers	6
CHE-MI-2	Materials and Interfaces – Solid State Systems	6
CHE-MB-1	Modern Synthesis Strategies and Methods in Molecular Chemistry	6
CHE-MB-2	Analytics, Theory and (Bio-)Applications	6
II) Focus area lab course modules (6-12 CP)		
<i>Students can take two focus area lab course modules with a scope of 6 CP each. One of the focus area lab course modules can also be replaced by an elective module under III).</i>		
II.1) Specialization Materials and Interfaces		
CHE-MI-LC	Materials and Interfaces – Lab Course	6
II.2) Specialization Molecular and Biomolecular Chemistry		
CHE-MB-LC	Molecular and Biomolecular Chemistry – Lab Course	6
III) Elective Modules (24-30 CP)		
<i>Depending on whether one or both lab course modules under II) have been completed, four or five of the following modules must be completed.</i>		
III.1) Specialization Materials and Interfaces		
CHE-MI-W1	Functional Polymer Systems	6
CHE-MI-W2	Functional Nanomaterials	6
CHE-MI-W3	Solid State Syntheses and Advanced Characterization	6
CHE-MI-W4	Computer-aided Materials Science	6
III.2) Specialization Molecular and Biomolecular Chemistry		
CHE-MB-W1	Advanced Bioorganic Chemistry	6
CHE-MB-W2	Advanced Bioinorganic Chemistry	6
CHE-MB-W3	Bioanalytics	6
CHE-MB-W4	Biophysical Chemistry	6
III.3) Cross-disciplinary Modules		
<i>a) Chemistry modules</i>		
CHE-CD-W1	Light and Matter	6
CHE-CD-W2	Sustainable Chemistry	6

CHE-CD-W3	Chemical and Biological Sensing	6
CHE-CD-W4	Quantum Chemistry	6
CHE-CD-W5	In-depth Aspects and Special Applications	6
<i>b) Modules from related disciplines (Maximum 12 CP).</i>		
BIO-MBIB03	Programming Expertise	6
BIO-MBIW05	Structural Bioinformatics	6
GEE-M-V02	Atmospheric Science in the Anthropocene	6
INF-DSAM10	Research Data Management, Law, and Ethics	6
PHY_731h	Modern Spectroscopy	6
PHY_731m	Material Science	6
PHY-SS05	Recent Advances in CIEWS	6
BBMBWL200	Introduction to Management, Organization and Personnel	6
IV) Research projects (30 CP)		
<i>Two research projects with a total scope of 30 CP have to be completed. One RP1 and one RP2 must be completed.</i>		
IV.1) Specialization Materials and Interfaces		
CHE-MI-RP1	Materials and Interfaces – Research Project 1	15
CHE-MI-RP2	Materials and Interfaces – Research Project 2	15
IV.2) Specialization Molecular and Biomolecular Chemistry		
CHE-MB-RP1	Molecular and Biomolecular Chemistry - Research Project 1	15
CHE-MB-RP2	Molecular and Biomolecular Chemistry – Research Project 2	15
V) Master's thesis (30 CP)		
Total:		120

(2) The specialization is included on the degree certificate if the student completed

a) either the focus area lab course, a research project, and four elective modules in one of the specializations, of which up to two modules can be replaced by cross-disciplinary modules, or
a) the focus area lab course, both research projects, and at least two elective modules in one of the specializations, which can be replaced by cross-disciplinary modules.

(3) English is the language of instruction and examination for the degree program. In individual cross-disciplinary modules in related disciplines, the

language of instruction may be German. This will be announced at the latest at the start of the module registration period.

(4) Details on the modules mentioned in subsection 1 are defined in Appendix 1 of these regulations.

(5) Sample degree progress plans for the master's program can be found in Appendix 2 of these regulations.

Section 6 Stay Abroad

If a student intends to plan a stay abroad during the master's degree program, the 3rd semester is recommended.

Section 7 Non-Binding Examinations

In the master's degree program *Chemistry of Functional Molecules and Materials*, two non-binding exam options can be used.

Section 8 Master's Thesis

(1) Students who have obtained 69 CP are entitled to the immediate allocation of a topic for the master's thesis.

(2) The master's thesis has a scope of 30 CP including the oral defense.

(3) The master's thesis can be completed in the department of a (junior) professor who is involved in teaching in the master's degree program *Chemistry of Functional Molecules and Materials* or, with the approval of the Examining Board, in university or non-university research institutes working in relevant fields.

(4) In derogation from Section 30 subsection 12 BAMA-O, the master's thesis will be written in English.

Section 9 Entry into Force

(1) These regulations shall be published in the Official Announcements of the university and will enter into force on April 01, 2025.

(2) These regulations apply to all students who enroll in the master's degree program in Chemistry of Functional Molecules and Materials at the University of Potsdam after these regulations have taken effect.