Materials Chemistry and Mineralogy
Master
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Description of the Study Program

Materials Chemistry and Mineralogy is an international postgraduate study program covering application and research related topics ranging from raw materials to industrial products.

The curriculum is divided into a general mandatory part and an elective part focusing on either chemistry or mineralogy. The mandatory part (42 CP) includes lectures and exercises in the fields of mineralogy, crystallography, chemistry (solid state and surfaces) and materials science, and a broad education in analytical methods. In the elective part (48 CP) special topics and skills in the field of materials chemistry or mineralogy are covered.

The interdisciplinary study program is offered in cooperation of the Depts. of Geosciences and Chemistry with strong contributions from the Engineering and Physics Depts. and the University of Applied Sciences.

Admission Criteria and Requirements

The master's program is subject to a selection procedure: The admission regulations specify the admission requirements and selection criteria of the master's program. The information provided below is an excerpt of the admission regulations from the “Aufnahmeordnung” (only available in German; version January 22th, 2014) and refers to winter semester 2019/20. Please re-check the current requirements as they are subject to change: www.uni-bremen.de/en/master

The master's program is restricted in places. All applications, which have successfully passed the selection procedure are ranked by the final gpa, the study related specifications and the professional training experience. Only the upper 20 applicants on the ranked list will receive an admission offer.

To be considered applicants need to provide:

- A proof of a **bachelor’s (or master’s) degree** or its equivalent in a field in natural science with a specialization in **chemistry, crystallography, materials science or mineralogy**. Students whose degree is pending may apply nonetheless if they have completed a large part of their studies (corresponding to at least **120 CP**).
• At least **10 ECTS** credit points or an equivalent amount of courses of the curriculum in **maths, physics and chemistry (each)**

• At least **24 ECTS** credit points or an equivalent amount of courses of the curriculum in **mineralogy, crystallography, materials science and/or in chemistry** (in addition to 10 ECTS CPs, s. before)

• A **proof of proficiency in English at the level of C1** (according to the Common European Framework of Reference for Languages CEF) or higher unless the last academic degree was obtained from a university in which the primary language of instruction was English. Information on language certificates accepted as proof of C1-Level can be found at www.fremdsprachenzentrum-bremen.de/EngZert

• **Letter of motivation** (The examining board evaluates the letter of motivation with respect to reference to the course, a clear description of the candidate's qualifications and future aims as well as their accordance with the focus of the course.)

Eligibility of applicants is evaluated based on their previous training (including field of study, grade point average, experience, etc.).

Admission of applicants whose degree is pending at the time of application is conditional on their providing the completed, **final transcript and language proof no later than two weeks after the courses have started** as well as the bachelor's certificate by 31 December of the same year. Information on the required application documents (official certification, translation, health insurance, language certificates etc.) can be found at: www.uni-bremen.de/en/master/faq/

**Expected Interests and Qualifications**

• Explicit interest in natural sciences and materials, their use, characterization and development

• Ability to work both independently and as part of a team

• Intercultural competence
Occupational Fields and Career Opportunities

- Materials-oriented industries such as glass, ceramics, refractories, paper, dye, pharmaceuticals, gemstones and building materials,
- Materials-dependent fields such as biomineralization, dentistry, electronics, energy supply and storage, and crystal growth,
- Recycling, waste management and remediation industries,
- Materials research at universities and other research institutes,
- Knowledge-based work in quality management, patent systems, environmental authorities, education and consulting.

Curriculum and contents of program

Curriculum

<table>
<thead>
<tr>
<th>Analytical Methods I</th>
<th>Mineralogy</th>
<th>Crystallography</th>
<th>Chemistry</th>
<th>Materials Science</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analytical Methods II</td>
<td>Profile block: 3-5 modules from chemistry and 1-3 modules from mineralogy or vice versa</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General Studies</td>
<td>Profile block (cont.)</td>
<td>Research Module Chemistry/Mineralogy</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Master Thesis</td>
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</tr>
</tbody>
</table>

Mandatory and elective modules

During the first semester fundamentals of all core subjects are presented in lectures and accompanying exercises, including mineralogy, crystallography, chemistry and materials science. Furthermore, a two-semester training in a number of analytical methods starts and is continued in the second semester. Here, the two-semester profile section starts which comprises 48 CP. The General Studies module is dedicated to an elective course from the university's program and a programming course. Once the profile has been fixed, this is also a commitment for the choice of the research module. It is dedicated to the development and presentation of research projects and prepares the students for their master thesis. The fourth semester is reserved for thesis work, which has to be defended in a colloquium.
Major fields of study
Students can choose Mineralogy or Chemistry as their study profile. The two-semester profile section starts in the second semester. It comprises 48 CP. Within a profile 30-42 CP are to be accumulated while 6-18 CP are to be selected from the second profile (for details see syllabus):

Profile Chemistry
Solid State Synthesis and Characterization
Structure Property Relationship
Catalysis and Surface Chemistry
Functional Surfaces
Introduction to Technical Chemistry
Research Module Chemistry I

Profile Mineralogy
Crystal Structure Analysis
Physical Properties of Crystals
Functional Ceramics
Minerals and Materials
Petrology and Isotope Geochemistry
Technical Ceramics
Special Topics in Material Science
Building Materials

Internship
Industrial training is not required, but recommended.

Typical Learning Formats
Teaching units are predominantly scheduled as weekly assignments throughout an academic semester (Oct-Feb, Apr-Jul).

Short field excursions (depending on the selected elective modules), lab work, or special projects may be scheduled as blocks assigned to a few weeks within a semester break.

Language of Instruction
English with just four elective modules in German.
Semester Abroad
Optional.

Start of the Study Program
Program start: every winter semester
Lecture period summer semester 2020:
April 14–July 17, 2020
Lecture period winter semester 2020/21:
October 19–February 5, 2021
Holidays: December 23–January 5, 2021
Lecture period summer semester 2021:
April 12–July 16, 2021

Duration of Study
The master program is a two-year course, composed of four semesters and includes 120 CP/ECTS (European Credit Transfer System).

Degree
Master of Science (M.Sc.)

Faculty
Professors of the Depts. Geosciences and Chemistry as well as from the Engineering and Physics Depts. and the University of Applied Sciences; lecturers; academic staff, and professional experts.

Number of Students in the First Semester
26 male, 2 female students (as of: winter term 2018/19)
Fees and Accommodation
The semester fee will be approximately 380 Euro per semester. It includes the use of public transportation in Bremen and the region around. For current information see www.uni-bremen.de/semester-contribution
After fourteen semesters of study in an EU- or EEA-country or after reaching the age of 55, students have to pay an additional fee of 500 Euro. Information about the long-term tuition fees can be found at www.uni-bremen.de/tuition-fee
General information about the city of Bremen and rental accommodation can be found at www.bremen.de and www.uni-bremen.de/accommodation. Students moving to Bremen receive 150 Euro as a welcome gift.
For information on study finance and jobs see www.uni-bremen.de/student-finances
Information for international students concerning visa, health insurance and finances can be found at www.uni-bremen.de/studentstatus

Admission and Application
Application closing dates (first semester and advanced)
Winter semester: April 30 (for first semester and advanced)
Summer semester: January 15 (only for advanced)
Applications for the first semester are only possible for the winter semester. Advanced students can apply both for the winter as well as for summer semester.
If your previous bachelor’s degree course has not been completed by the application deadline April 30, it is possible to apply as an undergraduate student, provided you have earned at least 120 ECTS credit points out of a total of 180 credit points or an equivalent amount of study points are gained by that date. For preliminary admission, all other requirements with exception of the language proof should be fulfilled. If your application is successful, you will have to provide evidence of having obtained your bachelor’s degree and the required language certificates two weeks after the beginning of the master’s program at the latest.
Applying as advanced student

Advanced Master students have either already graduated from undergraduate studies, or are currently in the final stages of their Bachelor studies and can show by means of an official Transcript of Studies that they only need another 15 ECTS before obtaining their bachelor’s degree. In addition to this, advanced Master students have to account for at least 10 ECTS that are transferrable to the Master’s program in question. To be transferrable, credits awarded in undergraduate studies must have been in the same subject as the respective Master’s program or obtained in another accordant Master’s program. For Master’s programs subject to restricted admission (Z) the required evidence of at least 10 transferrable ECTS credit points must be submitted by the end of the deadline; for Master’s programs with unrestricted admission by 31st March (for admission in summer semester) or 30th September (for admission in winter semester). Any additional deadlines or closing dates for submitting required documents will be notified together with confirmation of admission/registration.
Applications are to be submitted online at:
www.uni-bremen.de/en/master
Applications are to be submitted online via the Master Portal of the Admission Office under www.uni-bremen.de/en/master. The online application form is activated about 8 weeks before the application deadline. You will be notified of all required documents for enrollment together with the confirmation of admission/registration.

Student Office
Contact point for all formalities regarding admission and enrollment, re-registration, leave of absence, change of address.
Visiting address: Bibliothekstraße 1, Verwaltungsgebäude (VWG),
            Ground floor
Postal address: Universität Bremen
            Sekretariat für Studierende
            Postfach 33 04 40
            28334 Bremen
            phone: +49 421 218 61002
            master@uni-bremen.de
            www.uni-bremen.de/master
Visiting hours: Mo, Tue & Thu 9–12 a.m., Wed 14–16 p.m.
            (no advanced notification necessary)
Contact and Advisory Services

Internet address of the study program
www.geo.uni-bremen.de/mscmmcp

Consultancy for study affairs and career perspectives
Helpdesk regarding course-information, program-coordination, time scheduling, study abroad, general studies, quality management, career perspectives
Dr. Ulrike Wolf-Brozio, Dr. Barbara Ventura
GEO-building
Room no. 1330/1300
+49 421 218 65004/-65005
mscminer@uni-bremen.de

Academic Counseling
In questions focussing on study design, core subject- and regulation-regarding aspects
Prof. Dr. Reinhard X. Fischer
GEO-building, room-no. 2340
+49 421 218 65160
rfischer@uni-bremen.de

Examination office
Miriam Deutsch
GEO-building, room no. 1350
+49 421 218 65012
sekrlu@uni-bremen.de

University services
www.uni-bremen.de/consultation

Service and information for international students
(accommodation, jobs, finances, language learning)
www.uni-bremen.de/offers-international-students

Information and advice on visa matters and social security
www.inneremission-bremen.de/beratungen/internationale_studierende/
www.uni-bremen.de/bsu/ (see menu: Ausländerangelegenheiten)
Student representatives for the faculty
StugA Geowissenschaften
GEO, room 1320
stuga@geo.uni-bremen.de
www.geo.uni-bremen.de/page.php?pageid=116
www.instagram.com/geo.stuga.bremen/

Student representatives for the whole university
General Students’ Committee (AStA)
Services include: Advice on BAföG student grants, social counseling, and childcare
AStA-Etage, Studentenhaus (StH)
www.asta.uni-bremen.de/asta-services/

09/2019 (Mo)
Central Student Advisory Service

Visiting address:
Bibliothekstr. 1, Verwaltungsgebäude
Ground floor

Postal address:
Universität Bremen
Zentrale Studienberatung
Postfach 33 04 40
28334 Bremen
Germany

+49 421 218-61160
zsb@uni-bremen.de
www.zsb.uni-bremen.de

Advisory hours (no advanced notification necessary):
Mo, Tue & Thur 9–12 a.m.
Wed 14–16 p.m.
Additional appointments by agreement