Curriculum

The Universities of Bern and Fribourg offer an MSc degree in Earth Sciences. One of the following five special qualifications within this programme may be chosen:

- Earth and Life Evolution
- Earth Materials
- Environmental & Resource Geochemistry
- Geology
- Pure and Applied Quaternary Science

All MSc candidates complete a course module entitled Dynamic Alps, which serves as a common basis for all the specialties. Each speciality consists of a set of mandatory courses, a set of elective courses and a thesis project. Thesis work is spread over all 4 semesters of the degree programme and the topic of the thesis lies within the chosen specialty.

Special qualifications

**Earth and Life Evolution**

The evolution of the geosphere and that of the biosphere – linked by a common theme: the processes and the unique history that have produced our life-sustaining planet.

**Earth Materials**

Selected topics in mineralogy and petrology, both pure and applied aspects, e.g. properties and uses of clay minerals, zeolites in nature and industry, stability of minerals.

**Environmental & Resource Geochemistry**

Processes of rock–water interaction relevant to groundwater quality, remediation of contaminated sites, deep geological disposal of radioactive and toxic wastes, genesis and exploration of mineral resources, and development of secondary resources.

**Geology**

Structures and deformation of the lithosphere and of rocks, including the metamorphic and tectonic development of orogens, interaction between Earth internal and surface processes.

**Pure and Applied Quaternary Science**

Surface processes in orogens and in their forelands, glaciology, paleoclimate research, dating, humans as geological agents, engineering geology.

Weighting of modules

<table>
<thead>
<tr>
<th>Semester</th>
<th>Modul A</th>
<th>Modul B</th>
<th>Modul C</th>
<th>Modul D</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>6 EC</td>
<td>30 EC</td>
<td>24 EC</td>
<td>60 EC</td>
</tr>
<tr>
<td>2nd</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3rd</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4th</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Eligibility and Fees

Students with a university-level BSc in Earth Sciences are eligible for the MSc degree. Students with a BSc in a related field (e.g. physical geography, physics, chemistry, biology) may also be eligible, depending on the specific curriculum covered in their BSc coursework.

Fees (for the entire MSc course)

- Bern: CHF 3236.-
- Fribourg: CHF 2620.- for Swiss students
- 3220.- for foreign students

BeFri is the acronym for the cooperative research and teaching network between the Universities of Bern and Fribourg. All lectures given in English.
Interested in high-tech minerals or rocks?

This curriculum aims to provide the skills needed for analysing and understanding rock and mineral properties, structure, chemistry, and stability as well as the interdependence of these factors. Other aspects are:

1. Deriving models of how rocks and minerals form
2. Reproducing geo-materials in the laboratory by simplified recipes compared to the complex pathways nature is using
3. Testing potential applications for industrial technology and environmental protection.

This training can qualify you to fill the gap between geology and material science. Typical areas where our graduates are finding positions are industries or research laboratories specialized in ceramic materials, glass, cement, gems, or similar high-tech solid-state material for a range of applications.

What do we offer?

- A four semester MSc-curriculum in Earth Sciences, involving a project of independent research
- Foundation in theory and training in the use of modern solid-state analytical instruments
- Access to these analytical machines after training
- Choice between geological fieldwork and industry/laboratory internship
- Professional guidance in producing and presenting scientific results

What do we expect from you?

- Enthusiasm for unravelling scientific problems (pure or applied)
- Curiosity for working with modern analytical instruments or conducting experimental work in the laboratory
- Interest in computer-aided simulation of processes observed in nature
- An appetite to become acquainted with the physics and chemistry of geomaterials

Information

Eligibility: Students with a university-level BSc in Earth Sciences are eligible for the MSc degree. Students with a BSc in a related field (e.g., physical geography, physics, chemistry, biology) may also be eligible, depending on the specific curriculum covered in their BSc coursework.

Fees (for the entire MSc course)
- Bern: CHF 3236.-
- Fees Fribourg: CHF 2620.- for Swiss students, 3220.- for foreign students

More information: www.geo.unibe.ch/master or e-mail: master@geo.unibe.ch