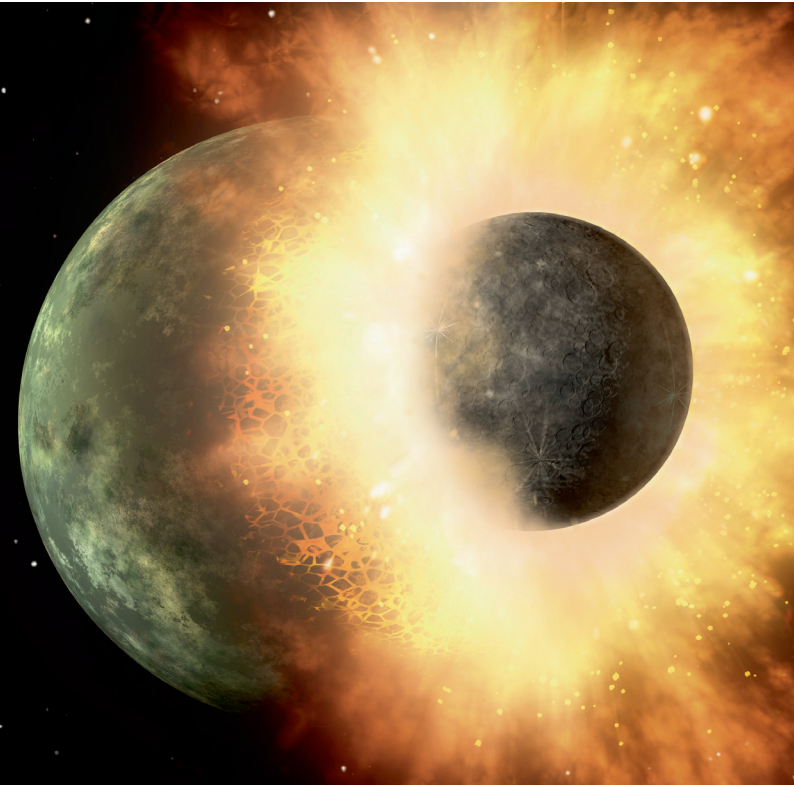


Master of Science

Experimental Geosciences

*For students who want to do research right from the
beginning!*





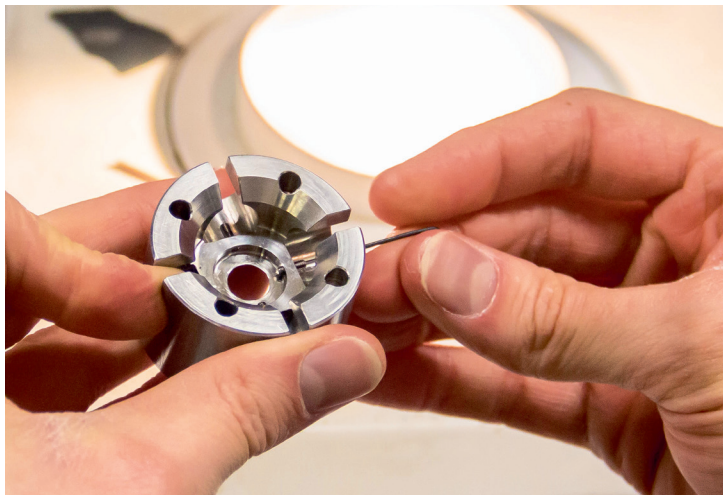
The outstanding technical equipment of Bayerisches Geoinstitut (BGI) permits novel methodological developments. Many experimental methods invented here are being used in laboratories all over the world.

What holds the world together.

Most of the matter in the interior of the Earth, in our solar system, and in the universe is under high pressure.

The investigation of material properties under extreme conditions of pressure and temperature is therefore indispensable for understanding geological processes in the Earth and other planets. In the master's programme in *Experimental Geosciences* at the University of Bayreuth you will deal with one of the central areas of modern geosciences.

You will learn to characterize the physical and chemical properties of Earth materials and thus gain a better understanding of the processes taking place in the interior of our planet.



In the course of their studies, students develop a deep understanding of Earth and material sciences, which enables them to pursue a career in industry or science.

Studying in close contact with research.

Thanks to its Earth-materials-based approach, the master's programme in *Experimental Geosciences* covers a number of traditional scientific fields: mineralogy, crystallography, inorganic chemistry, solid state physics, materials science, geochemistry, cosmochemistry, and geophysics.

Only through the integration of these different fields one may fully understand the structure and dynamics of the Earth. Right from the start of your studies, you will be integrated into small research groups and work on independent projects. In doing so, you will be supervised by experienced scientists.

The laboratory-based work is complemented by literature and research seminars, which will put you in a position to find and critically evaluate literature on a topic.

Modules

Spectroscopic Methods

Diffraction Methods

High-Pressure Experimental Techniques

Geochemical Thermodynamics

Literature Research I and II

Research Practice I–III

Master's Thesis

Scientific Seminars

Elective Modules

Acquire practical experience at the highest level.

The master's programme in *Experimental Geosciences* benefits from the expertise of *Bayerisches Geoinstitut, BGI*. BGI is a central research facility at the University of Bayreuth and one of the world's leading institutes for research and teaching in the experimental geosciences, especially with regard to the high temperatures and pressures of the Earth's interior. Complex problems, as they occur in solid Earth sciences, can only be solved efficiently by combining various experimental techniques. BGI has a wide range of excellent laboratory facilities, operated by some of the most competent researchers:

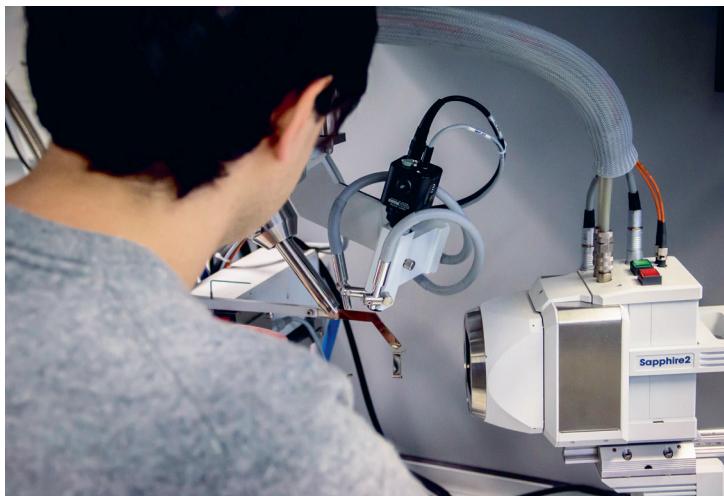
- Analytical equipment for the characterization of samples: X-ray diffraction, spectroscopic methods (optical, IR, Raman, Mössbauer), electron microscopy, electron microprobe and laser ablation mass spectrometry.

1 st Semester	2 nd Semester	3 rd Semester	4 th Semester
5 CP			
	5 CP		
5 CP			
	5 CP		
6 CP		6 CP	
15 CP	15 CP	15 CP	
			26 CP
		6 CP	
11 CP			

*CP Credit points awarded in accordance with ECTS. Credit points according to the European Credit Transfer System (ECTS) facilitates the international comparability of coursework completed at European higher education institutions.

- Synthesis equipment at high pressure and temperature: High-temperature gas mixing furnaces, hydro-thermal laboratories, piston-cylinder presses, autoclaves, multi-anvil presses and diamond anvil cells.
- Equipment for in-situ measurement of physical properties: compressibility, electrical and thermal conductivity, magnetic and optical properties.
- Computing equipment for the ab-initio simulations on material properties and for geodynamic modelling.

In the M.Sc. programme, students are trained in many of these techniques. They acquire a profound expertise in Earth materials research, which is also in demand in many areas of applied materials research.



The excellence of BGI has been repeatedly acknowledged by national and international awards, such as the Leibniz Prize, ERC Advanced Grant, the Sofja Kovalevskaja Prize, and by numerous international awards, such as the James B. Macelwane Medal of the AGU or the Bowen Award.

BGI – In pole position in Europe!

Bayerisches Geoinstitut (BGI) was founded in 1986 as a centre for high-pressure and high-temperature research in Earth sciences. It is now considered the leading institution in this field in Europe. BGI scientists regularly publish their results in leading international journals such as Nature and Science.

Among current and former BGI researchers there are four Leibniz prize winners. Thanks to its cooperative management structure, BGI offers young scientists the opportunity to conduct independent research at a very early stage. Already in the master's programme in *Experimental Geosciences*, students can work on real research projects at any stage of their studies. BGI has a number of programmes for the support of young post-doctoral students.



Everything is in close range on our campus. Unlike at larger universities, you'll know most people you see on campus. In addition, there are always lots of things to see and do here, e. g., regular cinema performances, art exhibitions, theatre performances, music events at Glashaus, the annual Uni-Open-Air, etc.

An environment for studying that scores top marks in the rankings.

The University of Bayreuth has approximately 13.500 students. Its friendly campus captivates everybody. Everything is close at hand, and you quickly get to know other students. Student life in Bayreuth offers a lot of variety, even outside the lecture halls. You can get involved in a variety of student organizations, or take advantage of the extensive range of university sports on offer. Plus, there are regular cinema performances, art exhibitions, theatre performances, numerous music events, and the annual "Uni-Open-Air", all happening on campus.

Compared to other university towns, the city of Bayreuth offers accommodation at reasonable rents, and a low overall cost of living. The city itself, and the nearby Fichtelgebirge and Franken Jura, all offer a variety of exciting recreational options.



UNIVERSITÄT
BAYREUTH

An attractive course of studies is waiting for you.

Thank you for your interest in the master's programme in *Experimental Geosciences* at the University of Bayreuth. You can apply for enrolment in the winter or summer semester. Qualified applicants take part in a selection process consisting of the preparation of a presentation on a scientific article and an oral interview based on the prepared presentation.

You can find further information on applications at:
www.master.bgi.uni-bayreuth.de

Programme Coordinator:

Dr. Gerd Steinle-Neumann
Bayerisches Geoinstitut
Universität Bayreuth
95440 Bayreuth
Germany

g.steinle-neumann@uni-bayreuth.de

Additional information is available at

Bayerisches Geoinstitut:
www.bgi.uni-bayreuth.de

M. Sc. Experimental Geosciences:
www.uni-bayreuth.de/de/studium/masterstudium/experimental_geosciences/index.php