



Deutscher Akademischer Austauschdienst
German Academic Exchange Service



Table of Contents

Master's degree	2
 Mathematics for Data and Resource Sciences • TU Bergakademie Freiberg • Freiberg	2

Master's degree



Mathematics for Data and Resource Sciences

TU Bergakademie Freiberg • Freiberg

Overview

Degree	Master of Science
Course location	Freiberg
Teaching language	<ul style="list-style-type: none">English
Languages	Courses are held in English.
Full-time / part-time	<ul style="list-style-type: none">full-time
Programme duration	4 semesters
Beginning	Winter semester
Application deadline	1 January – 15 April For applicants from India, China and Vietnam, please note: The APS certificate must be submitted with the application. The submission form alone will not be accepted.
Tuition fees per semester in EUR	None
Combined Master's degree / PhD programme	No
Joint degree / double degree programme	No
Description/content	Programme Concept <ul style="list-style-type: none">Mathematical skills are indispensable for the activities of modern industrial enterprises. In addition, the necessary quantification, professional assessment and documentation of the findings of application-oriented research can only be carried out with the advanced and qualified use of mathematical methods. The current issue of climate change and the challenges associated with it make the management of large data volumes an essential skill, while an understanding of the technical difficulties involved in the provision, transportation and recycling of valuable waste materials and by-products has become invaluable for companies today. Based on a top-class mathematical foundation – ideally laid upon the groundwork of a Bachelor's degree in mathematics – the Mathematics for Data and Resource Sciences programme focuses on the methods and techniques necessary to understand and mathematically address the challenges described above.

Programme Objective

- Successful graduates of the Master's programme Mathematics for Data and Resource Sciences will have acquired the techniques, methods and general mathematical skills to solve the most pressing problems of today. These include the ability to understand and exploit large amounts of data, a mastery of so-called computer-based machine learning as well as a broad understanding of problems in the field of scarce resources – such as rare raw materials in particular, or planet Earth in general.

Application-Oriented Lecture Series

- Mathematical problems from real-world applications are discussed in a lecture series created specifically for the Master's programme. This series provides a catalogue of relevant problem statements at an early stage so that students can apply the skills they have learned in a meaningful way. The clusters of complex issues presented go straight to the heart of the individual research areas and are constantly updated to gain the deepest insight into mathematical problems.

Industrial Internship

- The Master's programme rewards student commitment to companies based in the region. If an industrial internship of at least four months duration is completed during the degree programme, this time can be recognised in credits that count towards the completion of the Master's thesis: The maximum time required for completing the thesis is reduced from nine months to six, and the content required is also reduced accordingly. This measure is intended to benefit the local economy in the form of expedited graduation and the precise skills acquired by the students. Meanwhile, the students themselves gain by taking their first steps towards permanent employment in the region.

Certification for Specialised Training

- Within the Master's programme, it is possible to obtain extra certification if in-depth knowledge in Mathematical Data Science or Geomathematics is acquired during the degree programme. By means of their respective specialisation – whereby the former focuses more on the processing and treatment of (large) data volumes and the latter more on the mathematical problems associated with climate change or the circular economy – graduates are eminently prepared for the real-world requirements of professional practice.

Course Details

Course organisation	» PDF Download
A Diploma supplement will be issued	Yes
Certificates for specific modules are awarded	Yes
Course-specific, integrated German language courses	Yes
Course-specific, integrated English language courses	No

Costs / Funding

Tuition fees per semester in EUR	None
Semester contribution	94 EUR per semester
Costs of living	750 EUR to 900 EUR per month, depending on individual lifestyle, rent and utilities: 250 EUR to 380 EUR
Funding opportunities within the university	Yes
Description of the above-mentioned funding opportunities within the university	<p>Deutschlandstipendium:</p> <ol style="list-style-type: none"> 1. The "Deutschlandstipendium" is a national scholarship programme that supports above-average students with excellent grades. Social commitment, a willingness to take responsibility and special social, family or personal circumstances will also be taken into account (300 EUR per month for one year). 2. Grants awarded to exceptionally committed students (three to four months, 300 EUR per month) 3. Study completion grant (300 EUR per month for three months)

Requirements / Registration

Academic admission requirements	<ul style="list-style-type: none"> • Bachelor's degree in mathematics or equivalent (graduate status) • English language skills (details see below) • Letter of motivation • Qualification interview • Successfully completed modules from the catalogue of requirements
Language requirements	<p>TOEFL (Test of English as a Foreign Language) with at least 90 points (Internet-based test)</p> <p>or</p> <p>IELTS (International English Language Test System) with a result of 6.5 or higher</p> <p>or</p> <p>equivalent</p>
Application deadline	<p>1 January – 15 April</p> <p>For applicants from India, China and Vietnam, please note: The APS certificate must be submitted with the application. The submission form alone will not be accepted.</p>
Submit application to	Application portal of TU Bergakademie Freiberg

Services

Possibility of finding part-time employment

It is possible to find part-time employment on campus, e.g. as a student assistant or in the canteen.

Accommodation

Different kinds of accommodations are available on campus and in the city of Freiberg, from single flats to shared flats. Prices vary from 250 EUR to 380 EUR, including utilities. In the dormitory, each student has her/his own room, but usually the bathroom and the kitchen have to be shared with other flatmates. Living in a dormitory is usually the first choice for new international students. There is a good chance that you will get a place in a dormitory if you apply early. The International Office supports international students in finding accommodation.

Supervisor-student ratio

1:5

TU Bergakademie Freiberg

The Technische Universität Bergakademie – TUBAF – has a unique profile as a "resource university" with expertise in sustainable raw materials and energy management, along with material and substance recycling. Together with national and international partners, TUBAF develops modern technologies and processes for the responsible use of finite resources. In order to address the economic and ecological challenges of the 21st century, the six faculties conduct interdisciplinary research regarding alternatives for raw material extraction, energy technologies, materials and recycling processes.

The Bergakademie Freiberg was founded in 1765. It is therefore one of the world's oldest technical higher education institutions.



University location

Freiberg is located in the centre of the state of Saxony in the picturesque Erzgebirge Mountains, 40 km south-west of Dresden and 240 km south of Berlin.

[Location on Openstreetmap.org](#)

Freiberg is more than 850 years old, and it was founded after the discovery of silver ore in 1168. Today, Freiberg has around 40,000 inhabitants. The medieval heart of the town, which is almost completely intact, is very attractive. It features the Upper Market Square with its late Gothic patrician houses and the Freiberg Cathedral at the Lower Market Square with its famous Silbermann organ and golden portal. Along with the world's oldest town theatre, a modern multiplex cinema, nightclubs, more than a hundred restaurants, cafés, and pubs invite you to take a break and enjoy life.

There are sports facilities, a modern open-air and indoor swimming pool, and a park which surrounds the town centre like a green belt. Since 2008, the "Terra Mineralia" mineral collection has functioned as a centre of attraction for tourists, students, and inhabitants of Freiberg. The mineral collection, one of the largest collections in the world, is shown in the "Freudenstein", a refurbished castle in the town centre.

The nearby Saxon Switzerland National Park and the Erzgebirge Mountains are beautiful places for a wide variety of outdoor activities, including hiking and climbing in the summer and skiing in the winter. Dresden, Leipzig, and Berlin are easily accessible by train and offer plenty of social, cultural, and recreational alternatives.

Contact

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🌐 Course website: https://tu-freiberg.de/en/master_mathematics_for_data_and_resource_sciences

📘 <https://www.facebook.com/bergakademie>

🐦 <https://twitter.com/tubergakademie>

🌐 <https://www.linkedin.com/school/tu-freiberg.de/>

📷 https://www.instagram.com/tu_bergakademie_freiberg/

📺 https://www.youtube.com/channel/UC76MdG8Ewd7_LNajayTzBag

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Disclaimer

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