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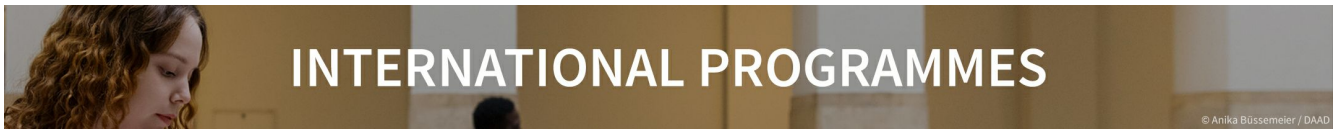

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Master's degree **2**

Data Science • Technische Universität Braunschweig • Braunschweig 2

Master's degree

Data Science

Technische Universität Braunschweig • Braunschweig

Overview

Degree	Master of Science
Course location	Braunschweig
Teaching language	• English
Languages	Courses are held in English (100%).
Programme duration	4 semesters
Beginning	Winter and summer semester
Application deadline	Winter semester: 15 March (for non-EU applicants) 15 July (for EU applicants and applicants not subject to visa requirements) Summer semester: 15 September (for non-EU applicants) 15 January (for EU applicants and applicants not subject to visa requirements)
Tuition fees per semester in EUR	None
Combined Master's degree / PhD programme	No
Joint degree / double degree programme	No
Description/content	The science of gaining knowledge and insight from data is so highly developed today that it forms its own field: data science. The study of data science combines computer science, mathematics and various selectable application subjects. Because of the fascination with these methods and their importance for business, technology and research, the position of a data scientist is often considered the "hottest job" of our time. The study programme in data science is a joint course offered by the departments of Computer Science and Mathematics. Through the application areas, all other faculties of TU Braunschweig also participate in the study programme. TU Braunschweig has been offering the study of computer science since 1972, making it one of the first universities in Germany to do so, and mathematics has always been taught at TU Braunschweig. Since 2018, a specialisation in the mathematics of data science has been offered in the Master's in Mathematics programme. The English-taught Master's programme in Data Science is thus – unlike at other locations – a combination of the fundamentals

of mathematics, relevant areas of computer science, and a variety of application areas from the entire portfolio of TU Braunschweig.

Examples of these application areas include the following:

- engineering
- biology/chemistry/pharmacy
- medicine
- image and signal processing

Further application areas are in preparation.

The study programme manifests itself in three core areas:

- the education in fundamental research in **mathematics**, with emphasis on mathematical foundations for data analysis
- the education in fundamental research in **computer science**, with an emphasis on data processing, data analysis, and data management
- an **application area** in which these fundamental techniques are put into practice

Ramp-up courses in mathematics and computer science bring students with different previous degrees to a comparable level in order to make the entire range of the Data Science degree programme accessible to them. A wide freedom of choice in the three core areas of the programme (mathematics, computer science and applications) allows students to develop their own profile and focus. Seminars, labs and projects implement practical, project-based and research-oriented learning and train the application of theoretical knowledge to practical problems. Written within a six-month period, the **Master's thesis** at the end of the Master's programme constitutes an independent scientific research work under expert supervision at one of the institutes in computer science or mathematics, usually in connection with an application area.

Course Details

Course organisation	**The Master's degree programme in Data Science divides into the following parts:** • Ramp-up phase (10 credit points) • Compulsory electives from the scope of "Methods and Concepts of Computational Sciences" (25 credit points) • Compulsory electives from the scope of "Methods and Concepts of Mathematics" (25 credit points) • Compulsory electives from the scope of "Data Science in Applications" (15-25 credit points) • Compulsory electives from the scope of "Key Qualifications and Ethics" (5-15 credit points) • Master's thesis including presentation (30 credit points) Together with their tutors, all students develop an individual study plan at the beginning of their studies, in order to set their own specific study priorities. Please refer to the module guide for more detailed information: https://www.tu-braunschweig.de/en/data-science/documents » PDF Download
A Diploma supplement will be issued	Yes
International elements	• Integrated/optional study abroad unit(s)
Integrated/optional study abroad unit(s)	Option for semester abroad via ERASMUS+

Course-specific, integrated German language courses	No
Course-specific, integrated English language courses	No

Costs / Funding

Tuition fees per semester in EUR	None
Semester contribution	In order to enrol at TU Braunschweig or to register back for the coming semester, you have to pay your semester contribution (currently approx. 364 EUR). The semester contribution for example covers your semester ticket for public transport.
Costs of living	By German standards, Braunschweig is not an expensive place to study. Nevertheless, you need a minimum of about 940 EUR per month to be able to study here successfully. More information about financing your studies can be found here.
Funding opportunities within the university	Yes
Description of the above-mentioned funding opportunities within the university	TU Braunschweig has a scholarship programme for excellent students ("Deutschlandstipendium"). The stipend rate is 300 EUR per month. Information on funding can be found here.

Requirements / Registration

Academic admission requirements	**To enter the consecutive Master's degree programme in Data Science, applicants must:** • hold an equivalent qualification in the prior degree programme in data science, computer science, mathematics or a closely related degree programme and • demonstrate a particular specialised qualification Knowledge and expertise have to be proven in the following study areas: either basic knowledge, that has been acquired within the scope of the first study programme by successfully participating in equivalent study modules (courses such as lectures, exercise courses, practical courses); having achieved at least 25 credit points in basic mathematics and at least 60 credit points in basic computer science; and knowledge in the following central subjects of computer science: • programming skills • software engineering

- data bases
- as well as at least two topics from the areas IT security, distributed systems and computer networks

or

basic knowledge, that has been acquired within the scope of the first study programme by successfully participating in equivalent study modules (courses such as lectures, exercise courses, practical courses); having achieved at least 75 credit points in basic mathematics, of which up to 15 credit points may have been achieved in computer science; and knowledge in the following central subjects:

- linear algebra
- analysis, also multivariate
- programming skills

Proofs have to be furnished by way of a written presentation on at most one DIN A4-page (typeface Arial, type size 10) with attached documents/copies.

Selection interview:

The selection interview is meant to show whether an applicant is qualified for the Master's degree programme chosen.

Please refer to the **Admission Regulations** for more detailed information: https://www.tu-braunschweig.de/en/data-science/documents

Language requirements	Applicants whose native language is not English must have a sufficient knowledge of English. The proficiency in English must be demonstrated by minimum performance in one of the following internationally recognised tests or equivalent tests as specified below: Minimum result - Test of English as a Foreign Language (TOEFL), internet-based Test/IBT www.ets.org: 95 credit points - Cambridge English: Advanced (CAE) www.cambridgeenglish.org: Grade B or higher - Cambridge English: Proficiency (CPE) www.cambridgeenglish.org: Grade C or higher - International English Language Testing System (IELTS) www.ielts.org: Band 6.5 or higher - English Language Proficiency Report of the language centre of TU Braunschweig: At least two skills on level B2 and two skills on level C1 of the English Language Proficiency Report from the language centre The successful completion of one of these tests must not date back more than three years from the date of application for admission to the Master's degree programme.
Application deadline	Winter semester: 15 March (for non-EU applicants) 15 July (for EU applicants and applicants not subject to visa requirements) Summer semester: 15 September (for non-EU applicants) 15 January (for EU applicants and applicants not subject to visa requirements)
Submit application to	https://www.tu-braunschweig.de/en/international-students/application

Services

Accommodation	The Student Services OstNiedersachsen ("Studentenwerk") offer several dormitories: https://www.stw-on.de/en/braunschweig/housing/. More information about finding housing is available here:https://www.tu-braunschweig.de/en/freshmen-hub/important-informations/housing-search.
Career advisory service	Various mentoring programmes
Support for international students and doctoral candidates	• Welcome event • Buddy programme • Accompanying programme • Cultural and linguistic preparation
General services and support for international students and doctoral candidates	TU Braunschweig offers a broad range of support programmes for all administrative, academic, social, and personal questions and challenges that international students may have. Read more about our International Student Support programme

Contact

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https://www.facebook.com/tubraunschweig

https://www.linkedin.com/school/tu-braunschweig/

https://www.instagram.com/tu.braunschweig/?hl=en

https://www.youtube.com/channel/UC8X4NAyIUr9Q12hVUOoqyhQ

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