



Deutscher Akademischer Austauschdienst
German Academic Exchange Service



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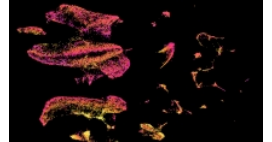
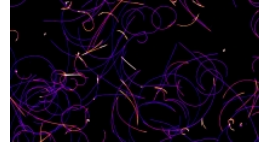
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Master's degree



Molecular Bioengineering

Dresden University of Technology • Dresden



Overview

Degree	Master of Science
Teaching language	<ul style="list-style-type: none">English
Languages	The Master's programme is taught completely in English.
Full-time / part-time	<ul style="list-style-type: none">full-time
Programme duration	4 semesters
Beginning	Winter semester
Application deadline	31 May for the following winter semester
Tuition fees per semester in EUR	None
Combined Master's degree / PhD programme	No
Joint degree / double degree programme	No

Description/content

Let's move to the nanoscale! It is at this level of spatial resolution that 21st-century technology meets modern biology.

Proteins, the mighty molecules in our cells and all life on Earth, are nanomachines encoded in a genetic language. They function at a much smaller scale and a greater efficiency than is currently possible with the available micro-technologies. Become a molecular bioengineer and learn how to engineer cellular machines.

The Molecular Bioengineering programme brings together a novel combination of biology, biochemistry, biophysics, material science, medical science, bioinformatics, and nanotechnology.

Join us and learn the fundamentals of biology, biomedicine, and bionanotechnology. Combine life science with technology. Explore biology to understand how nature engineers its mighty

molecules. Use nanotechnology and computational biology to engineer nanomachines, tiny molecular factories, and biomaterials for medical and industrial applications.

Course Details

Course organisation

The Molecular Bioengineering is a comprehensive Master's programme. Over the course of four semesters, the students receive a well-rounded education and gain sought-after wet lab skills.

The initial three semesters are dedicated to build foundational knowledge in a variety of courses that fall into two categories:

- The biomedical modules comprise genomics and stem cell engineering, proteomics, and chemistry with biomolecules.
- The technological modules include bioinformatics, bionanotechnology and biomaterials, biophysics and cellular machines.

Starting in the second semester, the students have the opportunity to dive deeper in their areas of interest by selecting one out of two elective (optional) modules:

- application in biomedicine (Materials in Biomedicine, Biomedical Tissue Engineering)
- application in technology (Microsystems Technology, Applied Bionanotechnology)

Students also have the opportunity to participate in a workshop on public and economic aspects of bioengineering that discusses ethical and legal issues, patenting, and skills required to found and lead biotechnological companies.

Over the course of the third semester, the students have the ability to gain valuable hands-on experience in one of the laboratories at the CMCB, TU Dresden, or partner institution.

The studies culminate in the fourth semester which is dedicated to the Master's thesis. The students have the flexibility to choose from a variety of research topics and work in one of the research groups at the B CUBE, BIOTEC, or CRTD. They can also reach out to groups at other TU Dresden departments or partner institutions.

[» PDF Download](#)

A Diploma supplement will be issued

Yes

International elements

- International guest lecturers
- Specialist literature in other languages
- Projects with partners in Germany and abroad

Integrated internships

Lab classes are part of the curriculum of the Master's programme. Usually, they are organised as blocks at the end of each semester. Moreover, students work on a project in a lab in the third semester for half of their time. The fourth and last semester is fully dedicated to the Master's thesis in a lab.

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	Currently, students pay approx. 290 EUR per semester (i.e. for six months). This includes the Deutschland-Ticket, a ticket for most local public transport (bus, tram, ferry, S-Bahn) and regional trains in all of Germany incl. Dresden. Students can also use a bike rental service all over the city of Dresden for free for 30 minutes. The contribution also assures concessions in the university cafeterias and offers benefits (e.g. price reductions) for many cultural and leisure activities.
Costs of living	Dresden offers a high quality of living at very moderate costs. Currently, students should expect to pay around 850 EUR per month including rent, food, insurance, and basic expenses. This figure is relatively low compared to other big German cities.
Funding opportunities within the university	Yes
Description of the above-mentioned funding opportunities within the university	Deutschlandstipendium Further information on scholarships and funding for students is summarised on a dedicated web page of the TU Dresden .

Requirements / Registration

Academic admission requirements	Applicants are required to have: 1. A "Diplom", Bachelor's degree, or equivalent qualification in one of the following fields: <ul style="list-style-type: none">• biology/life sciences• biotechnology• chemistry/biochemistry• computer science• materials science• medicine• physics• nanotechnology 2. Proven basic knowledge in biochemistry, cell biology, materials science, physics and mathematics 3. A good command of English
Language requirements	English proficiency: TOEFL: 92 points Internet-based test or IELTS 6.5 or other equivalent and internationally recognised certificates
Application deadline	31 May for the following winter semester
Submit application to	Online application: https://tu-dresden.de/cmcb/lehre/application Additionally, for graduates from a non-German institution of higher education https://www.uni-

Services

Possibility of finding part-time employment

In order to top up their budget, some students may want to look for temporary work in Dresden. If so, different regulations apply for students from EU member states, countries of the European Economic Area (EEA) and Switzerland, and students from outside the European Union and the EEA area. In addition, restrictions on the duration of employment may apply. Professors, lecturers, and group leaders involved in the Master's programme may offer students the possibility of working as academic assistants. However, living expenses can be financed only partially through a job as an academic assistant.

Accommodation

It is still relatively easy to find affordable accommodation in Dresden. Accommodation is available either via the "Studentenwerk Dresden" or on the private market. Rent for a single room in a student residence is approx. 250 EUR per month.

Private housing can be found online. We recommend that you move into a hall of residence at the beginning of your stay in Dresden. Subsequently, you can look for a place on the private market or in a shared apartment, which is known as a "Wohngemeinschaft" in German.

Career advisory service

TU Dresden offers plenty of counselling and training within its Career Service to help students with finding professional orientation. They offer workshops to equip students with professional skills and assistance with optimising their CVs.

Additionally, there are special workshops for international students to get to know the German and Saxon job market and network.

Support for international students and doctoral candidates

- Welcome event
- Buddy programme
- Specialist counselling
- Visa matters



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**Michelle Geraldine
Patino Gaillez**
MSc, MolBioeng Alumna

The course has an interdisciplinary approach that combines biotechnology, biomedicine, and bionanotechnology, and it is taught by international lecturers to international students from different scientific backgrounds. Besides adding diversity to the training, it allowed me to build a wide and varied network of contacts and create unforgettable memories. I think this programme is “eye-opening” in the scientific sense as well as in social and community aspects.



Study Life Sciences at CMCB

The video introduces the three Master's programmes in Molecular Bioengineering, Physics of Life, and Regenerative Biology and Medicine offered at the CMCB of TU Dresden as well as the Life Science research environment at CMCB and Dresden.

» more:

<https://www.youtube.com/watch?v=CuNeU-6LI6E>

Dresden University of Technology



Center for Molecular and Cellular Bioengineering

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TU Dresden is one of eleven Universities of Excellence in Germany and is among the top universities in Europe: strong in research, it offers first-rate programmes with an overwhelming diversity, with close ties to culture, industry and society. As a modern comprehensive university with five schools (17 faculties), it offers a wide academic range of programmes. With around 29,000 students (18% international) TU Dresden is the largest university in Saxony. It enjoys an outstanding national and international reputation for research in natural and

engineering sciences.

One of the most prominent characteristics of TU Dresden is its dynamic development – a process that has been going on for years and will continue into the future. As a "synergetic university", TU Dresden closely cooperates with external research institutions as well as cultural, industrial, and social organisations. Students also benefit from interdisciplinary collaboration with a focus on practical outcomes. Teaching and research follow the principle of involving both students and graduates into current research early on.



University location

The capital of the Free State of Saxony, Dresden, stands majestically on the river Elbe. The fourth-largest city by area in Germany, Dresden is home not just to riverside palaces, Baroque churches and world-class museums but also to a proud history of science and technology. This finds continuity into the present with the DRESDEN-concept, an alliance of 37 research institutions in and around Dresden, of which TUD is a proud and prominent member. Whether you are interested in theatre, opera, cabaret or cinema, or if you enjoy a stroll through museums or a night out at the pub, Dresden has something to offer for everyone. Students also get an opportunity to be active in the many sports facilities in Dresden, including TU Dresden's own, or in the surrounding nature of the Elbe landscape, the Elbe Sandstone Mountains (Elbsandsteingebirge) or the Ore Mountains (Erzgebirge). The surroundings of the city have plenty to offer and the city is an excellent hub from which to explore Berlin, Prague, Leipzig and Wrocław.

Contact

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🌐 Course website: <https://tu-dresden.de/cmcb/bildung-und-karriere/masters-courses/molecular-bioengineering>

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

🐦 https://twitter.com/biotec_tud

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Editor

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Consortium for International Higher Education Marketing
www.gate-germany.de

Disclaimer

The data used for this database was collected and analysed in good faith and with due diligence. The DAAD and the Content5 AG accept no liability for the correctness of the data contained in the "International Programmes in Germany" and "Language and Short Courses in Germany".

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