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Master of Science in Bioinformatics • Freie Universität Berlin • Berlin .................................... 2
# Master's degree

**Master of Science in Bioinformatics**  
Freie Universität Berlin • Berlin

## Overview

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| In cooperation with | Charite - Universitätsmedizin Berlin  
Leibniz-Institut für Gewässerökologie und Binnenfischerei (IGB)  
Max-Planck-Institut für molekulare Genetik (MPIMG)  
Zuse-Institut Berlin (ZIB)  
Max-Delbrück-Centrum für molekulare Medizin (MDC) |
| Teaching language | English |
| Languages | Courses are held in English. |
| Programme duration | 4 semesters |
| Beginning | Winter semester |
| More information on beginning of studies | October |
| 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

Bioinformatics research in medicine and the life sciences is increasingly based on analysis and interpretation of biological mass data. The use of computers, combined with accurate mathematical models and efficient algorithms, is indispensable in this process. Building on the knowledge gained in a Bachelor’s degree programme in bioinformatics, this programme offers advanced education in the corresponding subfields of mathematics, computer science, biology, and translational bioinformatics. The programme is jointly conducted by the Department of Mathematics and Computer Science, the Department of Biology, Chemistry and Pharmacy and the Charité Medical School. It offers both in-depth theoretical courses and applied training in bioinformatics. This gives students the necessary knowledge and skills to identify relevant biological issues, develop appropriate mathematical or computational solutions to approach them, and interpret the results correctly in a biological or biomedical context.
The research areas include biodiversity, medical bioinformatics, network analysis, physiology, sequence analysis, and structural bioinformatics.

Course Details

Course organisation

The Master’s course of study in bioinformatics consists of a general part with required modules (each with lecture and exercises). This phase covers one semester and serves to deepen and broaden the students’ knowledge of bioinformatics and related disciplines. During a second coursework phase (two semesters), the students learn to work independently in a specialised field of bioinformatics. This includes a research internship, core modules (each with lectures, exercises and seminar), practical modules (practical courses) and a research module. The last semester is dedicated to research on a relevant bioinformatics topic and to publishing the results in the form of a Master’s thesis.

Required Area (40 credits)

Required Modules: (students must complete all modules)

- Algorithms (6 credits)
- Genomics (6 credits)
- Numerical Mathematics (6 credits)
- Optimisation (6 credits)
- Statistics (6 credits)
- Research Internship (10 credits)

Required Elective Area (50 credits)

Core Modules: (students must complete two of these)

- Biodiversity and Evolution (10 credits)
- Medical Bioinformatics (10 credits)
- Network Analysis (10 credits)
- Physiology (10 credits)
- Sequence Analysis (10 credits)
- Structural Bioinformatics (10 credits)

Practical Modules: (students must complete two of these)

- Current Issues in Cell Physiology (5 credits)
- Applied Sequence Analysis (5 credits)
- Measurement and Analysis of Physiological Processes (5 credits)
- Computational System Biology (5 credits)
- Environmental Metagenomics (5 credits)
- Current Issues in Medical Genomics (5 credits)
- Current Issues in Structural Bioinformatics (5 credits)

Research Modules: (students must complete one of these)

Research modules consist of research-oriented courses. Students must choose from among the applicable offerings.

- Research Module A (two lectures with exercises, one seminar, project paper, 20 credits)
- Research Module B (one lecture with exercises, two seminars, project paper, 20 credits)

Master’s Thesis with Oral Presentation (30 credits)

Please note: A revision of the module structure/study regulations is in the works and will possibly come into force in the next application period. However, the content of the programme remains largely unchanged. Current information can be found on the course website.

Types of assessment

Module exams are written or oral exams/presentations. Seminar presentation, reports on practical courses as well as writing, presentation and defence of Master’s thesis are further forms of assessment.
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Language requirements

Proof of English language skills (level B2 CEFR or equivalent) is required. English as a school subject for six years is equivalent to level B2.

Application deadline

31 May for the following winter semester

Submit application to

Freie Universität Berlin
c/o uni-assist e.V.
11507 Berlin
Germany

Possibility of finding part-time employment

There are many ways of earning money while you study. For example, you can work as a waiter, academic assistant or private tutor. Knowledge of German will improve your chances of finding a part-time job. Please be aware of the legal regulations.

Student services at the universities and the local representative of the "Bundesagentur für Arbeit" (Federal Employment Agency) can provide information about jobs for students. When searching, look at online job boards, ads in local newspapers and notice boards on campus.

Accommodation

You have the option to stay in a public/private student dormitory or in a private (shared) apartment. Student dormitories are not administrated by the university itself, so Freie Universität Berlin does not have any on-campus housing. However, it works together with "studierendenWERK Berlin" regarding student accommodation. If you do not wish to stay in a student dormitory, you can try to find a room or an apartment on the private housing market. Many students in Berlin live in shared apartments ("WGs"). You can find these offers online (e.g., studenten-wg.de or wg-gesucht.de), in various Berlin magazines, or on notice boards. Rooms/apartments around the university are rare. Therefore, students mostly commute from other parts of the city. The duration of the commute on public transport typically ranges from 30 minutes to one hour.
Contact

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