



Deutscher Akademischer Austauschdienst
German Academic Exchange Service



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Master's degree



Systems Biology and Metabolomics

Julius-Maximilians-Universität Würzburg • Würzburg

Overview

Degree	Master of Science Biosciences - Systems Biology and Metabolomics
Teaching language	<ul style="list-style-type: none">English
Languages	All courses are held in English. In addition to the regular programme, students are expected to enrol in German language courses.
Mode of study	Less than 50% online
Programme duration	4 semesters
Beginning	Winter and summer semester
Application deadline	For all applicants: 15 July for the following winter semester 15 January for the following summer semester
Tuition fees per semester in EUR	None
Combined Master's degree / PhD programme	No
Joint degree / double degree programme	No
Description/content	<p>The programme focuses on the reprogramming mechanisms of the metabolism in association with transcriptional, metabolomic, physiological, phenotypic, or behavioural changes including disease development. Current techniques of metabolomics and bioanalytics, including quantitative metabolite analysis methods (chromatography, mass spectrometry) are applied for comprehensive gene function analysis or stress response analysis. Bioinformatics and complex computational approaches yield insights into the field of computational biology and metabolic networks. In particular, advances and current results of systems biology are discussed including bioinformatics (genome and sequence analysis, protein domains, or protein families) and large-scale data analysis (e.g. next generation sequences, proteomics data). Moreover, systems biology analyses dynamics and effects of different functional RNAs (e.g. miRNAs, lncRNAs), modelling in functional genomics, and the dynamics of the transcriptome and of metabolism. Finally, metabolic networks and their integration with regulatory networks are investigated and discussed.</p>

Course Details

Course organisation

During the first year of the programme, the students enrol in two theoretical courses and one practical course in each of the two topics. All modules are accompanied by a graded examination. In semesters three and four, further specialised research training is provided in a selected field of interest. The students are actively involved in ongoing research projects. They learn to independently plan and perform both theoretical and experimental work and finally, to summarise and discuss the results obtained in their thesis. The thesis has to be presented and defended in a final colloquium. The thesis (25 ECTS) is preceded by an ungraded preparatory practical course of 12 weeks (15 ECTS).

Further modules (15 ECTS) are selected within the sub-area "Additional Qualifications" to cover special aspects of interest. These modules will not be graded (pass/fail only).

[» PDF Download](#)

A Diploma supplement will be issued

Yes

International elements

- Language training provided

Integrated internships

Elective research project, involvement in research working groups within universities or companies in Germany or abroad

Course-specific, integrated German language courses

No

Course-specific, integrated English language courses

No

Online learning

Pace of course

Instructor-led (Specific due dates for lectures/assignments/exams)

Phase(s) of attendance in Germany (applies to the entire programme)

Yes, compulsory

Types of online learning elements

- Online sessions
 - Online study material provided by institution
-

Costs / Funding

Tuition fees per semester in EUR

None

Semester contribution

There are generally no tuition fees at the University of Würzburg. However, you must pay the semester contribution each semester for enrolment or registration. The student contribution includes a semester ticket that allows you to use public transportation all throughout the beautiful city of Würzburg.

Student contribution: approx. 146 EUR

Costs of living

The cost of living in Würzburg is low compared to other German cities. Of course, this strongly depends on your individual lifestyle, but you should expect monthly costs of about 940 EUR.

- Food: 250 EUR
- Rent: 350 EUR
- Health insurance: 110 EUR
- Other: 212 EUR
- Broadcasting fees (AZDBS/GEZ): 18 EUR

Funding opportunities within the university

No

Requirements / Registration

Academic admission requirements

Bachelor of Science in biology or equivalent study degree that fulfils the criteria of the "Fachkanon Biologie", in particular:

1. required basic skills in biology in the fields of botany, zoology, and microbiology which may have been achieved in the areas of cell biology, developmental biology, genetics, systematics, physiology, ecology, neurobiology, behavioural biology, 30 ECTS in total
2. required advanced skills in biology achieved in any of the following areas: cell biology, developmental biology, behavioural biology, virology, immunology, neurobiology, human genetics, microbiology, biotechnology, ecology, pharmaceutical biology, bioinformatics, biophysics, biochemistry, 45 ECTS in total
3. required skills in chemistry: inorganic, organic, physical, 15 ECTS
4. required skills in physics, mathematics, biostatistics, 15 ECTS

Documents required:

- certificates of a degree in a Bachelor study programme (acquisition of 180 ECTS points) at the University of Würzburg or another national or international institution or a comparable national or international degree (for example state examination)
- proof of a university or equivalent degree attesting the achieved overall grading
- proof of previously achieved study and examination performances (transcript of records) which documents the basic and advanced skills in biology and all required skills in chemistry, physics, mathematics, and biostatistics
- proof of English proficiency

Please submit either your final degree or your transcript of records to certify a minimum requirement of 150 ECTS. You have to submit your completed transcript of records not later than 15 September or 15 March, respectively.

Language requirements

Language requirements in English

The proof of skills in the English language should be at a level not lower than:

1. Test of English as a Foreign Language (TOEFL) with at least 570 points (paper-based TOEFL), 240 points (computer-based TOEFL), or 90 points (Internet-based TOEFL)
2. International English Language Test System with a score of 6.5 or better
3. Cambridge Certificate in Advanced English (CAE)
4. Bachelor's degree from an English-taught course
5. any certificate issued by the Faculty of Biology's admission committee after approving of English skills based on the assessment of a Bachelor's thesis written in English, of a language course other than specified above, or an interview held in English

In addition, German language skills (e.g., B1 CEFR) are highly recommended and may be achieved during the first phase of the programme.

Application deadline

For all applicants:
15 July for the following winter semester
15 January for the following summer semester

Submit application to

European and Non-European Bachelor's degree holders: bioeu@uni-wuerzburg.de

Non-European Bachelor's degree holders may also mail to:

Universität Würzburg
International Office
Josef-Martin-Weg 55
97074 Würzburg
Germany

Services

Possibility of finding part-time employment

- **Students from countries within the EU and the EEA** are on equal terms in the labour market and are allowed to work during their course of study.
- **Students from other countries** are allowed to work 120 full days or 240 half days per year (which also includes voluntary internships). If you would like to work more, you will need permission from the employment agency ("Agentur für Arbeit") or the immigration office.
- Important: Be sure your studies will not suffer if you have a side job!

Accommodation

The [Student Housing Service](#) ("Studentenwerk") is responsible for 10 dormitories in various locations in Würzburg.

Amenities:

- Single and double rooms or rooms in apartments in which two to four students share a kitchen and a bathroom.
- All rooms and apartments are furnished.
- Dishes, cooking items, bedding, and towels are not provided.
- You can find more information about the individual dormitories [here](#).

Length of stay:

- The rental contracts of the "Studentenwerk" are temporary contracts.
- The fixed-term rental contracts of the "Studentenwerk" can be terminated in writing with two months' notice for the following deadlines: 31 March or 30 September.

Application:

- Deadlines: **15 June for the winter semester and 15 January for the summer semester** (The student housing service must receive the security deposit of 300 EUR by this date.)
- You will receive further information about applying for housing in your letter of acceptance.

Career advisory service

Support regarding career development, including internships, occupational prospects, individual coaching by coordinator of Bio Careers

Support for international students and doctoral candidates

- Buddy programme
- Accompanying programme
- Specialist counselling

Contact

Julius-Maximilians-Universität Würzburg

Fakultät für Biologie
Studiendekanat

PD Dr Alois Palmetshofer

Biozentrum Am Hubland Süd
97074 Würzburg

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🌐 Course website: <https://www.biologie.uni-wuerzburg.de/masterbiosciences/msc-programmes/systems-biology-and-metabolomics/>

📘 <https://www.facebook.com/uniwue>

🐦 https://twitter.com/uni_wue

📷 <https://www.instagram.com/uniwuerzburg/>

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www.daad.de/international-programmes
www.daad.de/sommerkurse

Editor

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German Academic Exchange Service
Section K23 – Information on Studying in Germany
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D-53175 Bonn
www.daad.de

GATE-Germany

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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