



Deutscher Akademischer Austauschdienst
German Academic Exchange Service



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Doctorate



PhD Programme in Biomedical Data Science

Hannover Medical School • Hannover

Overview

Degree	PhD or Dr rer nat
In cooperation with	<ul style="list-style-type: none">• Leibniz University Hannover• Helmholtz Institute for Infection Research Braunschweig• Technical University Braunschweig• University of Veterinary Medicine Hannover• Ostfalia University• Fraunhofer Institute• Several other research institutions in the Hannover region
Teaching language	<ul style="list-style-type: none">• English
Languages	English German classes are offered.
Programme duration	6 semesters
Beginning	Winter semester
Tuition fees per semester in EUR	None
Combined Master's degree / PhD programme	No
Joint degree / double degree programme	No
Description/content	<p>Digitisation and advances in data science, including artificial intelligence (AI), which influence and change all areas of life, have a particular impact on life sciences and health-related sciences. For example, large data sets for each individual patient are already routinely collected and systematically recorded. A further increase in complexity is expected in the coming years due to increasing use of molecular and imaging diagnostics. The degree of resolution – already at single-cell level – will continue to increase in all disciplines of life sciences, and the need to process and combine huge data sets such as the phenome, genome and exposome, including continuously measured health data such as heartbeat or activity measurements of wearables, will increase. The processing and analysis of such complex data is one of the greatest challenges for life sciences, and in particular, for health-related sciences. However, there are few experts, and application is limited and constrained by the scientific environment, which hinders the full use of existing and expected data. As part of the Translationsallianz in Niedersachsen (TRAIN), which integrates various regional partners from translational research, the concept of a cross-university PhD programme involving non-university institutions was developed to enable the combination of different scientific and technological disciplines relevant to biomedical data science. The start of "BIOMEdical Data Science (BIOMEDAS)" took place in the winter semester 2020 at Hannover Medical School (MHH),</p>

which is the leading institution of the new programme of the Hannover Biomedical Research School (HBRS). BIOMEDAS is directed to students who are interested in combining disciplinary knowledge with the skills of a data scientist and working at the interface of bioinformatics, medical informatics, databases, data mining, machine learning, applied mathematics, biomedical modelling and analysis of complex networks. Joint data science projects between the different partners are further developed in different areas, which open up numerous opportunities for interdisciplinary exchange. In particular, projects in the areas of “exploiting the potential of available biomedical and clinical data sources”, “making use of biomedical data to realise personalised medicine”, “understanding pathomechanisms through biomathematical modelling” and “employing artificial intelligence to develop tailored diagnostic and treatment strategies” will be researched by BIOMEDAS students. The PhD programme applies a collaborative training principle involving supervisors from the individual partners. Annual meetings with the thesis advisory committee and a combination of a core research project and individual courses form the basis of the training programme.

Course Details

Course organisation	The course is organised similarly to all other programmes in Hannover Biomedical Research School. https://www.mhh.de/hbrs
International elements	<ul style="list-style-type: none"> • International guest lecturers • Specialist literature in other languages • Language training provided • Training in intercultural skills • Study trips • Projects with partners in Germany and abroad
Course-specific, integrated German language courses	Yes
Course-specific, integrated English language courses	Yes

Costs / Funding

Tuition fees per semester in EUR	None
Semester contribution	About 400 EUR per semester
Costs of living	About 1,000 EUR
Funding opportunities within the university	Yes

Description of the above-mentioned funding opportunities within the university

All PhD students are financially supported, usually by means of the respective supervisor.

Requirements / Registration

Academic admission requirements

BIOMEDAS is addressed to students who are interested in combining disciplinary knowledge with skills in biomedical data science. These can be either computer scientists or life scientists who already have a training in bioinformatics and are interested in developing their career in biomedical data science.

In order to be registered to the PhD programme, a successfully completed university degree in computer science related fields (e.g. medical computer science, bioinformatics, physics, engineering, computer science, statistics, mathematics) or in health science related fields (e.g. medicine, veterinary medicine, pharmacy, life sciences) is mandatory. Applicants from the field of computer science have to demonstrate an adequate understanding of biomedical research, while applicants from the field of health sciences have to demonstrate competence in data science. The proof must be submitted to the programme commission, which may propose further qualification measures in consultation with the supervisor.

Language requirements

Excellent English

Submit application to

biomedas@twincore.de

Services

Accommodation

It is possible to apply for a room in one of our student hostels.

Structured research and supervision

Yes

Research training / discussion

Yes

Career advisory service

There are several possibilities to seek advice.

Support for international students and doctoral candidates

- Welcome event
 - Tutors
 - Accompanying programme
 - Cultural and linguistic preparation
 - Visa matters
 - Pick-up service
-

Contact

Hannover Medical School

TWINCORE, Zentrum für Experimentelle und Klinische Infektionsforschung

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🌐 Course website: <https://www.translationsallianz.de/train-academy/biomedas/?L=1>

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International Programmes in Germany - Database

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