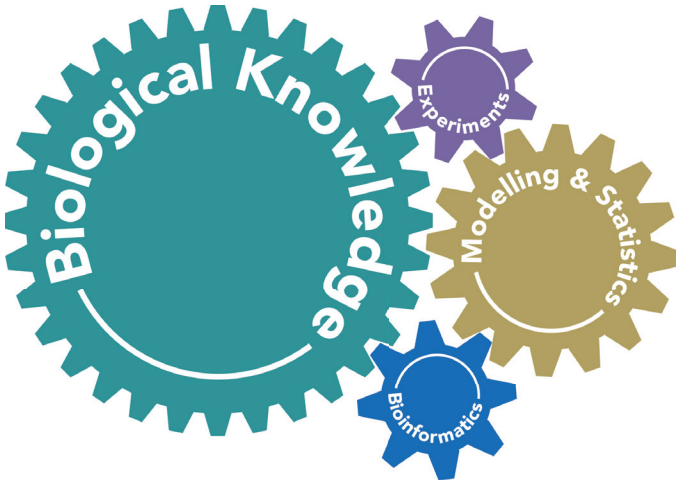

Student Service Center

Monday to Friday, 8 am to 6 pm
Building 21.02
Universitätsstraße 1, 40225 Düsseldorf
Telephone 0211 81-12345
E-Mail studierendenservice@hhu.de

Studierendenservice im SSC

Information and Counseling **www.hhu.de/studieninteressierte**
Study programmes at HHU **www.hhu.de/studienangebot**
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Heinrich Heine Universität Düsseldorf

Quantitative Biology

Bachelor of Science

Facts

Faculty	Faculty of Mathematics and Natural Sciences
Degree	Bachelor of Science [B.Sc.]
Period of Study	6 or 8 Semester
Start of Study	Winter Semester
Admission restrictions	Limited admissions [NC]
Application	www.hhu.de/dosv
Application Deadline	31. July

Refresher courses before the start of studies
www.math-nat-fak.hhu.de/studium/vor-/auffrischungskurse-1

Info-Video
www.hhu.de/hhumeinstudium

Master-Study Proggrammes
www.hhu.de/studienangebot

Contact Person

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Telephone +49 221 470 89886

Universität zu Köln

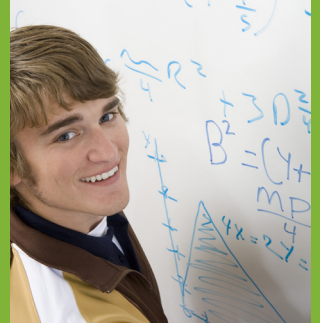
CEPLAS

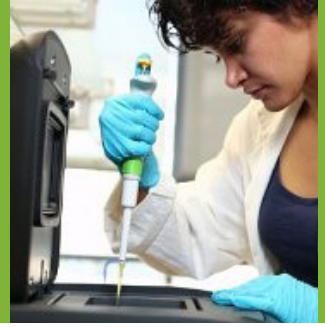
QuantBiO

Fotos: © HHU/Ivo Mayr (1, 2); © Thomas Josek
Stand: 04/2021

Aktuellste Infos und Fristen: www.hhu.de/studienangebot

hhu.de





The international Bachelor in Quantitative Biology is a new degree programme offered jointly by Heinriche Heine University Düsseldorf and the University of Cologne.

By integrating the study of Biology, with mathematical modeling, data analysis and bioinformatics, Bachelor Quantitative Biology prepares you perfectly for a job in modern biological and biomedical research.

Study Content

In contrast to traditional biology curricula, the modules in the first two years are not divided between botany, zoology, microbiology, etc. Instead, you acquire understanding of the basic principles in biology, which lead sometimes to very similar, sometimes to very different results in distinct organisms. The study programme equips you with profound knowledge of biology, including the mastery of important experimental, mathematical, statistical, and computational methods. The integrative design of the teaching modules embeds the necessary quantitative skills in biological contexts. Courses are taught in English, and almost all modules include practical courses or exercises, to help you internalise the course contents in an applied setting. Our central aim is to empower you to combine biological with quantitative-analytical thinking, so that you're optimally positioned for a career in modern research.

Course Curriculum

Semester	Module	
1	Network of Life [6 CP] | Biomolecules [9 CP] | Mathematical Fundamentals [6 CP] | Programming [6 CP] | Methods of Science [3 CP]	
2	Molecular Mechanism of the Cell [12 CP] | Deterministic processes in Biology [6 CP] | Principles of Statistics & Stochastics [6 CP] | Algorithmic Bioinformatics [6 CP]	
3	Cell Bioenergetics [6 CP] | Cell Structure & Dynamics [6 CP] | Metabolism [6 CP] | Applied Bioinformatics [6 CP] | Population & Quantative Genetics [6 CP]	
4	Microbial Ecology [6 CP] | Biotechnology & Synthetic Biology [9 CP] | Developmental Biology [6 CP] | Data Science & Machine Learning [6 CP] | Science Ethics & Communication [3 CP]	
5	Organismic Physiology [15 CP] | From Data to Knowledge [6 CP] | Advanced Module I [9 CP]	
	B.Sc. Quantitative Biology	**B.Sc. Quantitative Biology PLUS**
6	Project Planning [6 CP] | Project Internship [9 CP] | Bachelor Thesis [15 CP]	3x Advanced Modules [3x9 CP] Interdisciplinary Selection [12 CP] International/Industrial Research Experience [21 CP] Project Planning [6 CP] Project Internship [9 CP] Bachelor Thesis [15 CP]
7		
8		
Total	**180 CP**	**240 CP**

Curriculum

In the first five semesters, interdisciplinary modules provide a deep understanding of biological mechanisms, phenomena, and concepts, combined with the relevant physical and chemical foundations. Besides teaching fundamental experimental techniques, we put particular emphasis on mathematical modelling, biostatistics, and bioinformatics. The 4-year variant (quantBio+), into which you can switch in semester 4, is designed to give you more freedom to plan stays abroad and offers room for additional, intensive research experience in academia and industry.

Career Possibilities

The Bachelor Quantitative Biology prepares you for a career in research and development in the life sciences and health sectors, be it in industry or public research institutions and universities. The degree qualifies you for diverse Master programmes at HHU, including Biology, Molecular Biomedicine, Translational Neuroscience, Industrial Pharmacy, and Artificial Intelligence & Data Science. With quantBio+, you can directly pursue a PhD in suitable graduate schools.