JACOBS UNIVERSITY

EXPLORE BIO SIMULATION

COMPUTATIONAL LIFE SCIENCE (MSc)

GRADUATE PROGRAM

THE PROGRAM

COMPUTATIONAL LIFE SCIENCE (COMPLIFE)

Over the last decades, biomedical research has become increasingly interdisciplinary in nature, focusing heavily on the analysis of system-wide quantitative information. In fact, quantitative methods of computational and theoretical modeling pervade all biological sciences. The presence of ever more sophisticated high-throughput techniques in understanding complex biological processes pose new computational challenges that must be addressed, in particular for data integration and model-based data interpretation.

The Computational Life Science (CompLife) MSc program provides an academically challenging, broad and research-oriented degree that meets the demand for expertise in this ever-changing field. This two-year graduate program encompasses all computational, theoretical and mathematical approaches in biology and life sciences at Jacobs University, and is geared towards bioinformaticians, physicists, computer scientists and applied mathematicians. The CompLife program is strongly linked to related programs and research areas, such as theoretical physics, applied mathematics and molecular life science.

RESEARCH AND SPECIALIZATION AREAS

Jacobs University is an excellent hub for graduate studies in all areas of computational life science. Computational life science employs computational and mathematical concepts in order to understand diverse biological phenomena. Students can specialize their course selection in a wide range of research areas, such as systems biology, RNA biology, bioinformatics, ecological modeling, theoretical biophysics, medical imaging, and mathematical modeling of medical processes. Core questions addressed by faculty members and their research groups include:

- analyzing and interpreting metabolic and gene regulatory networks
- linking network dynamics to biological function
- employing image analysis and large-scale mathematical modeling of biomedical processes for the design of medical procedures
- modeling marine ecology and biodiversity
- understanding the regulatory action in small RNAs
- developing bioinformatics methods for integrating environmental information into microbial genomics
- molecular dynamics simulations and structure calculation for proteins and protein complexes

CAREER OPTIONS

Graduates from the CompLife MSc program are qualified for a wide range of employment opportunities in industry and government institutions and are equally well prepared to pursue a PhD. Within the triangle of systems biology, bioinformatics and biotechnology, CompLife graduates have a large variety of industrial career options in pharmaceutical and biomedical companies. CompLife offers students excellent opportunities for research, as documented by the numerous publications co-authored by students supervised by the CompLife core faculty.

HOW TO APPLY

Applicants to the CompLife graduate program (MSc) must have a Bachelor of Science (BSc) degree or equivalent (minimum three years of study).

To apply, please fill out our online application form and submit the following documents:

- Letter of motivation
- Two letters of recommendation
- University transcript
- Degree certificate
- English language proficiency test certificate (not required if English was the language of instruction at the undergraduate level)

For details on the online application process, please visit:
www.jacobs-university.de/graduate-admission

TUITION

The tuition for the Computational Life Science program is €20,000 per year.

SCHOLARSHIPS

Jacobs University is renowned for its extensive and generous scholarship program. Therefore, each applicant for this program is automatically considered for a merit-based scholarship.

ACCOMMODATION

Jacobs University offers you accommodation on campus. Each of the four residential colleges has its own dining room, recreation room, study areas, and common and group meeting rooms. Your fellow students, Jacobs University's sports facilities and a vibrant campus life help you to quickly feel at home. Room and board is €500 per month and can be requested during your application.

ABOUT JACOBS UNIVERSITY

Jacobs University is a state-accredited, research-oriented, private university in Bremen, Germany, and is one of the most international academic institutions in the country, characterized by a truly intercultural community. Founded in 2001, Jacobs University attracts highly talented and open-minded students from all over the world; more than 1,300 students from over 100 nations currently live and study on our residential campus. With a broad portfolio of undergraduate and graduate programs, from the natural and social sciences to engineering and economics, all of Jacobs University's programs are taught in English.

Research and education at Jacobs University are structured in three distinct focus areas:

- **MOBILITY – OF PEOPLE, GOODS AND INFORMATION**
- **HEALTH – FOCUS ON BIOACTIVE SUBSTANCES**
- **DIVERSITY – IN MODERN SOCIETIES**

Class sizes are small, enabling professors to act as personal mentors and academic advisors to students. Our faculty members address issues from multiple perspectives through their transdisciplinary research and teaching approaches, and students are actively involved in research from their first year of study. Over the last decade, Jacobs University has consistently achieved top marks according to Germany's most comprehensive and detailed university ranking by the Center for Higher Education.

CONTACT

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For latest information on the program, please visit:
www.jacobs-university.de/complife

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