

Easy Application

Qualification assessment process

Applicants are assessed to prove their qualification for the ILS master's degree program. They need a B. Sc. degree with above-average success in ILS, Physics, Mathematics, and/or Biology (or a B. Sc. in related disciplines, e. g. Biomathematics or Biophysics).

The program is offered in the Winter as well as in the Summer semester.

Application and admission procedures are organized in two steps:

Step 1: Via e-mail send application form, CV (resume), secondary certificate, and Bachelor's degree.

Step 2: If selected from step 1, application must be submitted to the master's office by February 28th (Summer term) or July 15th (Winter term).

Visit: ils.nat.fau.de

Language requirement

The required English level is B2 according to the Common European Framework of Reference for Languages. Six years of English at a German Gymnasium also suffice. Applicants whose native language is English do not need to submit any such certificate.

Contact

Department Biologie
Friedrich-Alexander Universität
Erlangen-Nürnberg
Staudtstraße 5
91058 Erlangen

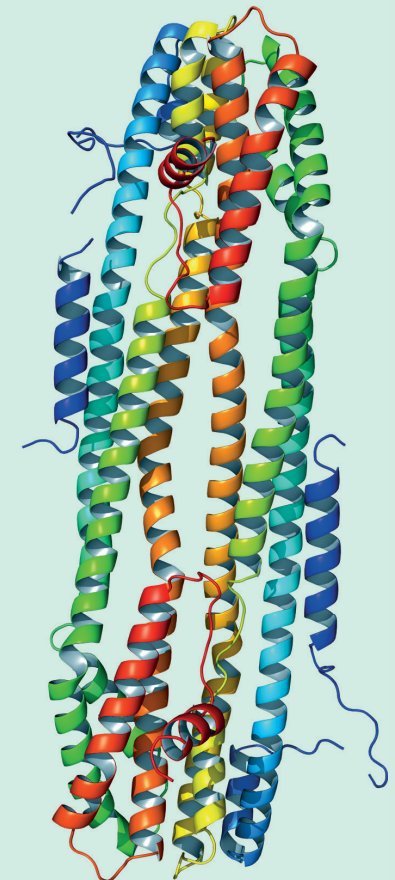


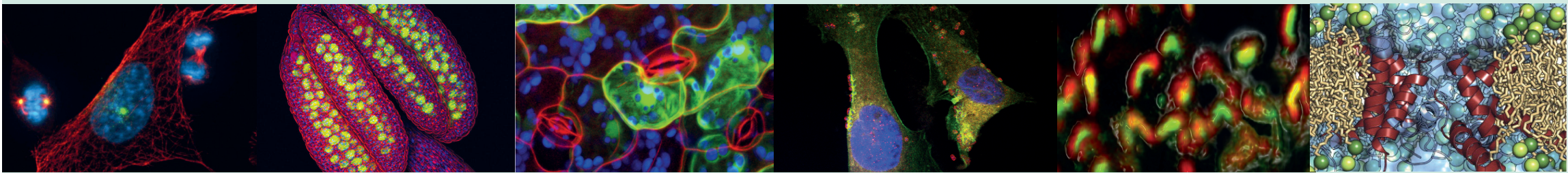
Student Advice Service:
ils-studienberatung@fau.de

Study guidance ILS Master:
Prof. Dr. Böckmann (rainer.boeckmann@fau.de)

Master's degree program

Integrated Life Sciences - Biology, Biomathematics, Biophysics





Integrated Life Sciences - Biology, Biomathematics, Biophysics

The international master's degree program Integrated Life Sciences (ILS) was jointly initiated by the Departments of Biology, Physics, and Mathematics at the Friedrich-Alexander University (FAU). In theoretical and practical courses we teach modern concepts and methods at the interface between life and natural sciences. The program aims to prepare young scientists for cutting-edge research in cell biology, biophysics, systems biology, or synthetic biology. Progress in these modern fields necessitates the integration of techniques and concepts from different science disciplines, e.g. in order to:

- understand the function of single biomolecules using X-ray diffraction and computer simulations
- follow individual molecules in living cells by applying novel high-resolution microscopy methods
- develop new computer algorithms to analyze the large data sets from genomics and metabolomics
- understand how cells differentiate and organize into tissues, organs and whole organisms by means of quantitative biology and computer simulations

Prerequisites

- ability to handle different subjects of the natural sciences
- passion for mathematics and physics
- deep interest in understanding complex biological systems

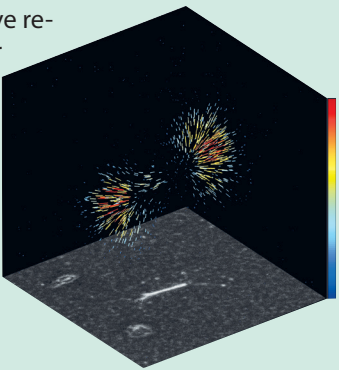
Curriculum

The curriculum of the M.Sc. program „Integrated Life Sciences“ is research-oriented and closely connected to current research in the participating research groups at FAU and the Max-Planck-Institute (MPI) for the Physics of Light. Building on a solid foundation in biology, physics, and mathematics, it intensifies training in selected biophysical methods in small groups of 2-6 students, and through cutting-edge research in the master's thesis during the second year of the master program.

In the first year of the 2-year master program in Integrated Life Sciences, students select two out of these three module groups:

- Mathematical Modeling and Systems Biology
- Bioimaging and Biophysics
- Biological Structures and Processes

Each of these subjects is associated with mandatory and elective theoretical courses and advanced hands-on trainings. A master thesis in an active research environment in the second year completes the master program. In total, 120 ECTS are required for the successful completion of the Master in Integrated Life Sciences. Every student selects a mentor at the beginning of the master program. The chosen study program needs to be approved by the mentor.



Schedule

Within the first year of the degree program, the students take courses from two of the three module groups.

During the second year, education in one of these focal areas is intensified in lectures, seminars, or hands-on practicals, followed by a research-driven master thesis.

4	master's thesis 30 ECTS	
3	10 ECTS	advanced module 20 ECTS
2	15 ECTS	15 ECTS
1	15 ECTS	15 ECTS
sem	module group 1	module group 2

Career prospects

The ILS master's degree program qualifies for a doctorate in the fields of molecular biology, biomathematics, bioimaging, or biophysics, and for career opportunities in the fields of:

- Industry- and Business Enterprises
- Public or Private Research Institutes
- Offices and Private Laboratories
- Administration
- Media Companies