

# MOLECULAR BIOLOGY

## Master's degree program

Master of Science: MSc in Molecular Biology

This Master's degree program is offered by the Biozentrum of the University of Basel. It provides direct access to molecular biology research and teaching at the international top level in a working atmosphere which equally promotes professional and personal development. The core activity of the Master's degree is a supervised practical research project of at least 12 months length. In parallel, the students attend lectures and seminars in their area of specialization. Possible areas of specialization are Biochemistry, Biophysics, Cell Biology, Computational Biology, Developmental Biology, Genetics, Immunology, Infection Biology, Microbiology, Neurobiology, and Structural Biology. The Master's degree demonstrates the capacity to conduct a scientific research project and to present the results in written and oral form.

## Focal area of teaching and research

Research at the Biozentrum Basel covers a wide range of topics and techniques, aiming to understand the molecular organization of living organisms. Its main research fields include Computational and Theoretical Biology, Developmental, Regenerative and Stem Cell Biology, Evolution and Ecology, Genetics and Genomics, Microbiology, Infection Biology and Immunology, Molecular and Cellular Biology, Molecular Medicine, Physiology, Metabolism and Aging, Multicellular Dynamics, Neuroscience, Physics of Life, Signaling and Gene Regulation, Structural Biology, Biochemistry and Biophysics, and Systems and Synthetic Biology. These research fields share common concepts and technologies and act in a synergic and collaborative manner. New relevant questions often emerge at the interface between disciplines, while innovative solutions can be provided by the individual techniques. Examples include uncovering the structure and function of macromolecules, deciphering regulatory circuits, or identifying fundamental principles underlying complex biological systems and their dynamic interactions.

## Course structure Master studies

The Master of Science degree is the postgraduate degree after the Bachelor's programme. The program awards 90 ECTS credits in total. The Master's degree program Molecular Biology is a so called «mono-course» consisting of only one core subject. One ECTS credit point roughly equals 30 hours of study.

Curriculum Master's Degree in Molecular Biology	KP
Courses in the field of Molecular Biology (Cycle A – I)	18
General Electives (of which at least 6 ECTS must be taken outside the Molecular Biology course offerings)	12
Master's thesis	50
Master's examination	10
Total	90

One ECTS credit point roughly equals 30 hours of study.

## Course language

The language of instruction is English. The Master's thesis is to be written in English.

## Exams

Student performance is assessed through course certificates, study contracts, a Master's thesis and a Master's examination.

## Language stays / Internships

No language stays or internships are required.

## Combination of subjects

The degree programs at the Faculty of Science are generally mono-courses with the possible addition of one specialization and one elective subject.

## Start of program

The program can be started in fall or spring semester.

## Duration of study

The Master's program regularly lasts three semesters. There are no restrictions on the duration of study.

## Further degrees

**Teaching diploma for secondary schools:** The teaching diploma enables teaching at the Secondary Level II and is based on the academic degree at Master's level of a university in one or two subjects. In addition, two semesters of vocational training at FHNW have to be completed. The diploma does not require a Master's degree in a second subject, this is however advisable due to better career options. Details can be found in UNI INFO «Lehrdiplom für Maturitätsschulen».

Also see: [www.fhnw.ch/de/studium/paedagogik/sekundarstufe-2](http://www.fhnw.ch/de/studium/paedagogik/sekundarstufe-2)

**Doctorate:** A Master of Science in Biology qualifies for a doctorate in biochemistry, biophysics, botany, computational biology, genetics, microbiology, molecular biology, neurobiology, structural biology, cell biology or zoology. Trans-faculty doctorates are possible in the fields of epidemiology, history of the sciences, medical-biological research and pharmacology. The doctoral studies typically last 4 years. The acceptance of the dissertation is followed by an oral examination in the doctoral subject.

## Career opportunities

After successfully completing their Master's degree the graduates are optimally qualified for a doctorate or to follow a profession in the life sciences. The subject Molecular Biology is of interdisciplinary nature and the career opportunities include activities in the fields of medicine, biotechnology and pharmaceutical industries. Practical applications of the subject are found in basic research, but also in business, society and politics. Numerous jobs are open within the university, in private industry, government service, schools and organizations, as researchers, communicators, teachers or advisors.

## Admission

Admission to the Master's degree program Molecular Biology is given for holders of a Bachelor of Science (BSc) in Biology, Major in Molecular Biology from the University of Basel, or comparable degrees from other Swiss or foreign education institutions recognized by the University of Basel. Other Swiss or foreign degrees from an education institution recognized by the University of Basel require approval by the examination commission of the Faculty of Science.

To qualify as equivalent, the external degree has to be subject-related and requires a broad education in mathematical methods and statistics, physical and biophysical chemistry, structural biology as well as substantial practical courses in biophysical chemistry, biochemistry and related topics. A typical equivalent degree generally is a Bachelor in Molecular Biology with 180 credit points from an internationally recognized university. In the absence of complete equivalence, additional requirements

can be imposed towards admittance. These can be fulfilled within the Bachelor program at the University of Basel.-Binding information under: [www.unibas.ch/admission](http://www.unibas.ch/admission)

### Application

Application under [www.unibas.ch/application](http://www.unibas.ch/application); the application fee amounts to CHF 100.-. Application deadline for the fall semester is April 30, for the spring semester 30 November.

### Enrollment

The letter of admission also informs students on the procedure of enrollment. In general, students with a Swiss educational background do not have to be present in person for enrollment.

### Tuition fees and scholarships

**Tuition fees** per semester (also for examination semesters): CHF 850.-  
Individual costs of living etc. are not included.

**Scholarships and student loans:** Applications should be sent to the responsible office of the canton in which the parents are eligible to pay their taxes.

### Mobility

Semesters abroad are possible and supported by scholarship programs. The mobility programs facilitate the stay at other Swiss universities or foreign universities. Further Information: Student Exchange, Petersplatz 1, 4001 Basel, T +41 61 207 30 28, [mobility@unibas.ch](mailto:mobility@unibas.ch)

### Further information

**Guidelines and regulations** of the Master's Degree in Molecular Biology see [www.bio.unibas.ch/en/regulations](http://www.bio.unibas.ch/en/regulations)

### Information about the University of Basel

- The course directory can be found under: [www.unibas.ch/en/Studies/Course-Directory.html](http://www.unibas.ch/en/Studies/Course-Directory.html)
- Basler Studienführer: [www.studienberatung.unibas.ch](http://www.studienberatung.unibas.ch)
- Website: [www.unibas.ch](http://www.unibas.ch)

### Student advice

Questions regarding the study of Molecular Biology can be discussed with the Study Counselor for the Master Program Molecular Biology.

## Contacts

### **Study Counselor for the Master Program Molecular Biology**

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### **Study Coordination Biology**

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### **Office of the Dean of Studies of the Faculty of Science**

Klingelbergstrasse 50, 4056 Basel  
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### **Student Administration Office of the University of Basel**

Petersplatz 1, 4001 Basel  
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[www.unibas.ch](http://www.unibas.ch)  
enquiries: [www.unibas.ch/studseksupportEN](http://www.unibas.ch/studseksupportEN)

### **Student Advice Center Basel**

Steinengraben 5, 4051 Basel  
T +41 61 207 29 29/30  
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