

# INFECTION BIOLOGY

## Specialized Master's degree program

Master of Science: MSc in Infection Biology

The Specialized Master's degree program in Infection Biology at the University of Basel is run by the Swiss Tropical and Public Health Institute (Swiss TPH), an internationally recognized center for public health excellence. Infection biology focuses on host-pathogen interactions and aims to understand the mechanisms through which viruses, bacteria, fungi or parasites colonise their hosts and cause disease. Infection biologists study molecular, cellular, metabolic or immunological aspects of pathogen biology and infection, try to elucidate mechanisms and evolution of drug resistance and immune evasion, or investigate dynamics of transmission and infection in the field. Knowledge gained from studying these and other aspects of infection biology provides the basis for the development of novel diagnostic tools, drugs and vaccines for improved prevention and treatment of infectious diseases.

### Focal area of teaching and research

The main goals of the MSc course in Infection Biology are the following:

- To understand the phenomenon of infection and host-pathogen interaction from a molecular, immunological and cell-biological viewpoint.
- To understand different concepts and approaches in drug and vaccine discovery and development.
- To understand basic concepts in bioinformatics and acquire skills for computational data analyses.
- To have a good understanding of molecular, cellular and epidemiological methods for the analysis of host-pathogen interactions.
- To be able to plan and carry out laboratory experiments in order to address a scientific hypothesis, to analyze the results and to report them orally and in writing.
- To obtain an overview on the current research literature in areas of infectious diseases.

The major pathogens studied in the research laboratories at Swiss TPH include *Plasmodium* parasites (malaria), African trypanosomes (sleeping sickness), *Mycobacterium tuberculosis* and various parasitic worms (helminthic diseases).

### Course structure Master studies

The Master of Science degree is a postgraduate degree that requires a successfully completed Bachelor's program. The Specialized Master's degree program Infection Biology awards 90 ECTS credits and is a so called «mono-course» consisting of only one core subject. Supervised practical work over the course of one year constitutes the core of the studies.

<b>Curriculum Master's Degree in Infection Biology</b>	<b>KP</b>
Master's thesis	50
Master's examination	10
courses (of which 18 ECTS must be taken within the Infection Biology course offerings)	30
<b>Total</b>	<b>90</b>

One ECTS credit point roughly equals 30 hours of study.

### Course language

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

### Exams

Student performance is assessed through course accompanying certificates, proof of course participation according to study contracts, a Master's thesis and through 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 an in-depth subject and an elective subject.

### Start of program

The program begins in the fall semester.

### Duration of study

The Master's program generally lasts three semesters. However, there are no restrictions on the duration of study.

### Further degrees

**Doctorate:** A Master's degree in Infection Biology builds the basis for doctoral studies (PhD) in the Life Sciences including 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, medical-biological research, pharmacology or the history of natural sciences. The doctoral studies usually take three to four years and are completed with a written thesis and oral exam covering the postgraduate studies in the doctoral subject.

### Career opportunities

Holders of a Master of Science in Infection Biology usually work in academia or industry in laboratory-oriented projects in the fields of basic or applied research, in the teaching/training or communication/documentation sectors or as scientific writers.

### Admission

The following degrees of a Swiss university allow for direct admission to the Specialized Master's degree program Infection Biology: Bachelor of Science (BSc) in Biology, Biochemistry, Medicine, Veterinary Medicine or Pharmaceutical Sciences. A minimum average mark of 5.0 for all BSc degrees and basic knowledge in infection biology/microbiology of at least 4 ECTS are required.

Students with a BSc in a different branch will be assessed individually.

Students with a BSc degree but insufficient mark can alternatively pass the GRE® General Test in the area of «Quantitative Reasoning» with a score in the top 35 % (GRE = Graduate Record Examinations®).

BSc degrees from other Swiss or foreign universities are also eligible but have to be approved by the respective teaching committee of the Faculty of Science.

Further information and regulations can be found in the study regulation and the guidelines for the Master's degree program Infection Biology: [www.bio.unibas.ch](http://www.bio.unibas.ch)  
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. Students of the University of Basel see: [www.unibas.ch/de/Studium/Im-Studium/Rueckmelden/Masterstudium.html](http://www.unibas.ch/de/Studium/Im-Studium/Rueckmelden/Masterstudium.html). The application deadline for Basel students is published there.

### 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 Infection 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)

### Information about the Swiss TPH

- Education and training at Swiss TPH: [www.swisstph.ch/en/study-with-us/](http://www.swisstph.ch/en/study-with-us/)
- Website: [www.swisstph.ch](http://www.swisstph.ch)

### Student advice

Questions regarding the Master's degree program of Infection Biology can be discussed personally at the Student Administration Office of the Swiss Tropical and Public Health Institute (registration via e-mail or phone).

## Contacts

### **Study counselors/course coordinators for the Master program Infection Biology**

Coordinator: Prof. Till Voss, T +41 61 284 81 61, e-mail: [till.voss@unibas.ch](mailto:till.voss@unibas.ch) / [till.voss@swisstph.ch](mailto:till.voss@swisstph.ch)

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### **Student Administration**

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

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### **Student Advice Center Basel**

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