

Master of Science

Infection Biology



Master of Science Infection Biology

Host-Pathogen Interactions

Infection biologists study host-pathogen interactions and investigate why and how pathogens cause disease. They also consider how we can prevent or cure infectious diseases. Pathogens comprise viruses, bacteria, protozoa and helminths. Basic research on these pathogens (at genomic, proteomic and metabolic levels) allows us to understand their biology and to develop tools for better diagnosis as well as new and safe drugs and vaccines.

In the case of African trypanosomiasis (sleeping sickness), infection biologists study the pathogen in the human host and in its insect vector. They seek to understand the dynamics of infection and how the parasite can evade the host's defence mechanisms. For malaria, infection biologists study, for example, surface molecules as key players of pathology. For a bacterial disease like tuberculosis, they study the evolution of drug resistance. The knowledge gained through this work is used to design strategies and tools to interfere with such pathogens. Thus, research can be translated into action, providing the link 'from the bench to the bed'.

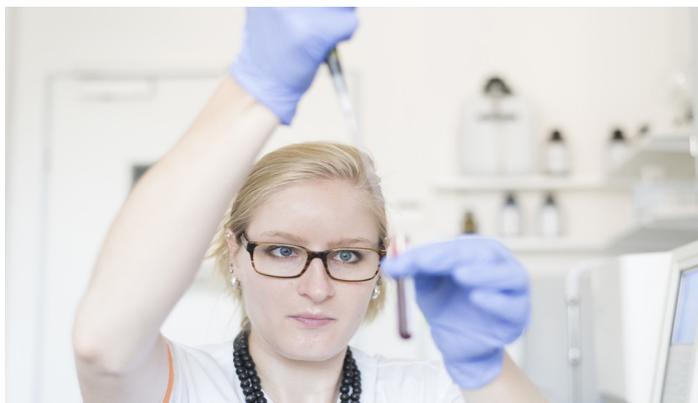
Infection biologists work in research institutions, in governmental agencies or in industry. They do laboratory work but are also involved in teaching and may engage in interdisciplinary jobs, e.g. technologists or scientific writers.

The optimal foundation for an MSc in Infection Biology is a basic training in biology, biochemistry or biotechnology. Fundamental knowledge of parasitology and infection biology is a prerequisite.

Course Description

The MSc programme in Infection Biology at the University of Basel is run by the Swiss Tropical and Public Health Institute (Swiss TPH), an internationally recognised centre for public health excellence. The course language is English.

The thesis work – which extends over a full year – is usually embedded in a research project in one of Swiss TPH's units, normally within the Department of Medical Parasitology and Infection Biology. The MSc thesis work is typically related to a laboratory-based project in Switzerland.



Admission Criteria

The following Swiss university degrees allow for direct admission to the master's degree programme in Infection Biology: Bachelor of Science (BSc) in biology, biochemistry, medicine, veterinary medicine or pharmaceutical sciences. A minimum average grade of 5 for all BSc degrees and basic knowledge of infection biology/microbiology equal to 4 CP are required.

Alternatively, students with an average BSc grade below 5 can pass the GRE subject test in "Quantitative Reasoning", "Biochemistry, Cell and Molecular Biology", or "Biology", with a score in the top 35%. Students with a BSc in a different field will be assessed individually.

Swiss TPH

The Swiss Tropical and Public Health Institute (Swiss TPH) was founded in 1943 as the Swiss Tropical Institute (STI). It is a world-renowned institution for teaching, research and services in the field of international health. Swiss TPH is an associated institute of the University of Basel, the first university in Switzerland.

Autumn Semester 1	Spring Semester	Autumn Semester 2	E X A M S
Lectures in Infection Biology and Parasitology	MSc Thesis		
	Optional Advanced Courses		

For Further Information

www.swisstph.ch/en/education-and-training

MSc Infection Biology Course Coordinators

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