



Degree Profile

Master in Animal Biology

Organizational unit	Department of Environmental Sciences
Degree	MSc Animal Biology
Range, Duration, Start	90 ECTS, 3 semesters (if full-time), spring or autumn semester
Language of instruction	English

Program Goals

Students develop a solid theoretical and practical knowledge in animal biology, development and diversity, with a strong emphasis on evolutionary and genetic principles. They acquire the ability to carry out research and to work as professionals in all fields of animal biology.

Program Characteristics

Orientation	Scientific education
Subject area	Biology
Majors	–
Program structure	The curriculum consists of the modules: Master's thesis (50 ECTS); Master's examination (10 ECTS); courses (30 ECTS, of which 18 ECTS must be taken within the field of animal biology).
Distinctive Features	The zoology section within the Department of Environmental Sciences promotes higher education and research in organismal animal biology, particularly in the fields of zoology, evolutionary biology, genetics, behavior, and developmental biology. It forms strong synergies with existing strengths in the life sciences, the largest focal area of the University of Basel. Research is strongly supported with bioinformatics and statistics.

Career Opportunities

Employment	Fields of basic and applied zoology; basic and applied science; genomics; statistics; government service; NGOs; conservation biology; teaching; higher education; outreach
Further Studies	Doctorate, teaching diploma for secondary schools

Teaching

Approaches	Individual learning, problem-based learning, autonomous learning, research-oriented learning
Assessments	Oral and written examinations, Master's thesis, oral Master's examination

Competences

Generic Attitude / Communication Approach / Management	Students acquire the skills to ... <ul style="list-style-type: none"> - carry out independent and creative scientific research. - work in an international research team. - analyze and document experimental data. - use their curiosity to analyze, synthesize and evaluate scientific evidence. - communicate ideas and results effectively in English. - lead discussions and deal constructively with criticism. - present scientific results and theories orally and in written form to specialists as well as general audiences. - deal responsibly with ethical aspects of the scientific work. - write a concise and well-structured scientific text. - study scientific literature and understand scientific concepts. - organize scientific work efficiently through prior planning and priority setting.
Subject-related Knowledge / Understanding Application / Judgment Interdisciplinarity	Students acquire the skills to ... <ul style="list-style-type: none"> - understand main concepts in animal biology, evolutionary biology, population biology and developmental biology. - understand the diversity of animals. - develop quantitative skills and perform statistical data analysis. - plan and conduct scientific experiments with animals, both in the laboratory and in the field. - understand advanced biological laboratory practices, analysis and experimental methods. - apply software programs to describe biological systems quantitatively. - understand the mechanisms of evolution as the driving force for biological diversity.

Learning Outcomes

Graduates of the master's program in Animal Biology...

- know and understand the current concepts and research methods in the fields of zoology, evolutionary biology, genetics, developmental biology and ecology and apply this knowledge appropriately to a given experimental research approach in their discipline of specialization.
- are able to independently carry out a complete research project in the field of Animal Biology, including literature searches, the framing of research questions in the context of current research in the field.
- can conduct appropriate experimental work and laboratory practices and can clearly and concisely present their results to peers as well as to the public in written and oral form according to scientific standards.
- can appropriately manage and analyze scientific data and use the results in order to provide scientifically grounded work on a new research question or experimental research.
- understand the mechanisms of evolution as the fundamental basis for biological diversity and are able to apply this knowledge adequately and correctly.
- understand the ethical aspects of their research and can distinctly argue for the appropriate and responsible use of the scientific necessity of the applied methods, such as animal experiments, handling of pathogenic organisms, genetic modification of organisms or embryonic stem cell research.
- are able to select independently appropriate advanced techniques, theories and scientific concepts in Animal Biology to systematically develop a scientific hypothesis and test through experimentation.