University of Basel

Faculty of Science

Degree Profile

Master in Ecology

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

Program Goals

Students deepen their knowledge in the fields of ecology and conservation biology by conducting research in their area of specialization (responses to environmental stress, ecology and evolution of species distributions, climate change biology, conservation biology, invasion biology, species interactions, community ecology, biodiversity research). They acquire the ability to work as part of a larger team and to carry out research in the field, in plant growth facilities or in the molecular lab.

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 part of the Ecology course offerings).
Distinctive Features	The research and teaching of the involved units of the Department of Environmental Sciences focuses on diverse study organisms including plants, snails and butterflies and on several ecosystems such as lowland and alpine meadows, forests and streams. The research labs involved in the Master program offer collaborations with institutions practicing applied ecology and conservation management.

Career Opportunities

Employment	Fields of ecology and conservation biology; government services; higher education research; teaching; environmental NGOs
Further Studies	Doctorate, teaching diploma for secondary school

Teaching

Approaches	Problem-based learning, research-oriented learning, guided field research, practice based learning
Assessments	Oral and written examinations, written master's thesis, master's examination

Competences

Generic Attitude / Communication Approach / Management	Students acquire the skills to … – organize the scientific work process efficiently through prior planning and priority setting. – conduct question and hypothesis driven research. – critically read the literature and understand scientific concepts. – work independently as well as in a team environment. – write concise and well-structured scientific texts. – critically discuss and present their research findings. – communicate ideas and results effectively in English language. – formulate conclusions, present scientific results and research findings in context of relevant literature orally and in written form to lay audiences and scientists. – lead discussions and deal constructively with criticism. – deal responsibly with ethical aspects of scientific research.
Subject-related Knowledge / Understanding Application / Judgment Interdisciplinarity	Students acquire the skills to … – understand concepts and theories of ecology and conservation biology, in particular in their area of specialization. – design experiments in their area of specialization, use measurement techniques for data analysis and document results. – understand Western European flora and fauna. – collect, manage and statistically analyze empirical data sets with the statistics program R. – describe simple and complex biological systems qualitatively and quantitatively.

Learning Outcomes

Graduates of the master's program in Ecology...

- possess the scientific knowledge of the fundamental theory and empirical research in ecology and conservation biology, in particular in their area of specialization, and are able to appropriately apply this knowledge in their own research.
- are able to select theories, scientific concepts and appropriate techniques in ecology and conservation biology to systematically develop a scientific hypothesis and test through experimentation.
- possess good knowledge of Western European flora and fauna and are able to apply this knowledge adequately in their own research.
- are able to independently carry out a complete research project in the field of ecology and conservation biology, including literature searches, the framing of research questions in the context of current research in the field.
- 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 ethical aspects of their research work and can distinctly argue for the appropriate and responsible use of the scientific necessity of methods of ecology and conservation biology.