

## Master of Science in Biology

### ● An integral and transversal curriculum with five fields of specialization

The Master of Science in Biology offers a programme that lets students select their area of specialization and acquire a diverse range of transferable skills. This MSc begins with a core of courses covering key topics in biology, with particular emphasis on methodological and quantitative aspects. The Master's programme extends into courses in six specialized areas, representing the research topics for which the Institute of Biology at UniNE is particularly renowned. Students choose two of the five specializations, of which one corresponds to the topic of their Master's thesis.

### ● Structure of the programme

The first part of the Master programme consists of a common core that focuses on fundamental concepts and methods in biology. Particular emphasis is placed on laboratory methods (molecular and chemical), quantitative tools (statistics, modelling and bioinformatics), scientific writing, and ethical aspects. Students also have the opportunity to participate in field excursions (alpine, marine, Mediterranean and tropical ecosystems) or to do internships to get workplace experience.

The second part of the Master programme involves coursework, research mini-projects and internships in two of the six areas of specialization. Students develop research plans in one of these areas, which form the basis of their Master thesis during the second year of the programme.

The Master's thesis research project (60 ECTS) lets students develop their abilities in critical thinking, their organizational skills, and their intellectual and scientific independence.

### ● Professional perspectives

The Master of Science in Biology prepares students for a career in research, teaching, public administration (environmental protection, public health, agricultural and forestry sectors), media, industry and other sectors (environmental consulting, urban planning), or non-governmental organizations focusing on the environment and sustainable development.



### Degree awarded

Master of Science in Biology  
with two chosen fields of specialization

### Credits

120 ECTS, 4 semesters

### Teaching language

English

### Six fields of specialization

- Microbial interaction
- Animal behaviour
- Biodiversity
- Ecology and conservation
- Chemical ecology

### Conditions for admission

This Master's programme is open to students with a Bachelor's degree in Biology from an accredited university or any other degree deemed equivalent.

### Application deadline

April 30 for the autumn semester  
Start date: autumn semester (mid-September)

### Registration

Bureau des immatriculations  
Av. du 1<sup>er</sup>-Mars 26  
CH-2000 Neuchâtel  
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[www.unine.ch/immatriculation](http://www.unine.ch/immatriculation)

### Information

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## ● Fields of specialization

### ● Microbial interaction

Through four specialized courses, students will acquire knowledge of the applications of the microbiome, environmental mycology, microbial ecology and plant pathology. This module offers an in-depth exploration of the role of microorganisms in various environments, focusing on their interactions, diversity and applications. Each of these courses develops the analytical and experimental skills essential for understanding microbial ecosystems and exploiting them in biotechnological and environmental contexts.

### ● Animal behaviour

This specialization studies the ultimate causes and the proximal (physiological and cognitive) mechanisms in the evolution of animal behaviour. We consider the emergence and evolution of a wide range of animal behaviours such as cooperation, the establishment of social hierarchies, the resolution of social conflicts, sexual behaviour, and parental behaviour. Our focus is on vertebrates (primates in particular), tropical fish and birds.

### ● Biodiversity

This specialization offers a multidisciplinary approach to understanding the diversity of living organisms, their evolution and their role in ecosystems. Through five specialized courses, students will explore soil biodiversity, plant systematics and evolution, and Switzerland's natural ecosystems. The acquisition of analytical skills will be reinforced by a course dedicated to the analysis of biodiversity data, as well as an in-depth look at the links between biodiversity and ecosystem functioning. This module provides an integrated understanding of the issues involved in conserving and managing biodiversity in a scientific and applied context.

### ● Ecology and conservation

This specialization offers an in-depth approach to ecological dynamics, using modern methods of study and analysis. It includes specialized courses covering key aspects such as methods in vegetation ecology, population ecology and ecological genomics, which explore the adaptation and evolution of organisms in their environment. In addition, an applied approach is integrated through animal population monitoring practices, providing students with essential field experience for biodiversity management and conservation. This module thus provides a comprehensive grounding in understanding ecological interactions and their impact in a changing world.

### ● Chemical ecology

This multidisciplinary field explores the oldest form of communication between living beings: how organisms, from bacteria to primates, use chemical substances to interact with each other and with their environment. This focus lies at the interface between ecology, behavior, animal and plant physiology, analytical chemistry and molecular genetics. We will explore how this field of research can be applied to agriculture, parasitology and the fragrance and flavor industry

## For further information

[www.unine.ch/master](http://www.unine.ch/master)

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