

| le savoir vivant |

Master of Science (MSc) in Behaviour, Evolution and  
Conservation  
specialisation in

# computational ecology and evolution



*Unil*

UNIL | Université de Lausanne

Faculté de biologie  
et de médecine

[www.unil.ch/ecoledebiologie](http://www.unil.ch/ecoledebiologie)

## OBJECTIVES / ASSETS

The study of ecology and evolution has long relied on mathematical modelling and computational analysis. As models become more elaborate and data becomes bigger (from GPS tracking to genomes), biologists studying biodiversity must be able to fully harness the theory, concepts and methods necessary to explore these new types of data.

This programme aims to train ecologists and evolutionary biologists to master statistics and programming as useful tools and as ways of thinking about scientific questions. For this, fundamental programming and statistics training are combined with advanced courses in the mathematical and computational aspects of spatial analysis and of population biology.

You are encouraged to pursue Master projects that either combine field or experimental work with advanced modelling or analysis, or aim to develop new methods and tools for the study of ecology and evolution.

We aim for students who can continue both as researchers in ecology and evolution, and work to manage and analyse data in industry or NGOs. You will be able to pursue either a purely computational career, or combine field or lab with analyses and modelling.

## CONTENT

- Advanced training in Data analysis, Statistics, and Bioinformatics.
- A selection of computational, evolutionary and ecological courses to choose from. The specialisation requires a First-step research project and a Master project that must be conducted on an approved Computational, Ecology and Evolution topic.

### MANDATORY COURSES

- Advanced Data Analysis in Biology
- Population Genetics and Dynamics
- Programming for Bioinformatics
- Spatial Analysis and GIS in Ecology

### PROJECTS

- First step project in the field of specialisation (purely computational)
- Master thesis in the field of bioinformatics (either purely computational, or combined with field or experiments)

### OPTIONAL COURSES

- Large choice of courses in biology and computational biology

## GENERAL INFORMATION

The Master of Science (MSc) in Behaviour, Evolution and Conservation (BEC) amounts to 90 ECTS credits and is taught entirely in English. BEC students may obtain the Master without specialisation, or with specialisation Computational Ecology and Evolution (CEE), Behaviour, Economics and Evolution (BEE), or Geoscience, Ecology and Environment (GEE).

## ADMISSION REQUIREMENTS

Candidates to the Master BEC must hold a Bachelor of Science (BSc) in Biology, or in a field considered to be equivalent, awarded by a Swiss university. Another degree or academic title may be judged equivalent and give access to the Master's degree programme, with or without further conditions. No prior level in programming is required.

## CONDITIONS FOR OBTAINING THE QUALIFICATIONS OF MASTER'S DEGREE WITH SPECIALISATION

[www.unil.ch/eb-bec](http://www.unil.ch/eb-bec) > Study programme > Regulations and directives

To obtain the CEE specialisation, you must choose and pass your Master's project within the field of the specialisation.

If you want to obtain the Master's degree with a specialisation, you must indicate your choice to the School of Biology when enrolling for the Master's thesis.

### Head of studies

Prof. Tadeusz Kawecki

### Responsible for the specialisation

Prof. Marc Robinson-Rechavi

### Further information

[www.unil.ch/eb-bec](http://www.unil.ch/eb-bec) > Specialisations > Computational Ecology and Evolution