



will you  
ever stop  
learning  
about life?

## Master of science (MSc) in molecular life sciences

### GENERAL OUTLINE

#### Objectives

The Master of Science in Molecular Life Sciences is intended for students who are curious, motivated, and enthusiastic about the exploration of life through the application of methods in experimental biology.

This course provides in-depth knowledge of molecular genetics, genomics, cellular and developmental biology. It offers in particular specialist courses exploring the interactions of molecules within networks that control the life of microorganisms, plants, animals and humans.

A practical course unique in Switzerland allows you to sequence the genome of a microorganism, giving you an opportunity to apply the most recent sequencing techniques and acquire skills in genome annotation. Another course enables you to learn how to write a literature review article and a grant application.

#### Career prospects

University studies develop a great many transverse skills: communication, critical, analytical and summarising faculties, abilities in research, management of bibliographical resources and familiarisation with scientific literature relating to the field.

This range of skills, combined with advanced training in cutting-edge experimental biology and in scientific communication, is ideal for a number of career prospects:

- Academic research
- Pharmaceutical industry
- Diagnostic and biomedical research
- Swiss Federal research stations
- Biotechnology firms
- Environmental technologies

Examples of opportunities and alumni's profiles:

[www.unil.ch/perspectives/biologie](http://www.unil.ch/perspectives/biologie)

### GENERAL INFORMATION

#### Organiser

School of Biology, Faculty of Biology and Medicine:  
[www.unil.ch/ecoledebiologie](http://www.unil.ch/ecoledebiologie)

#### Degree awarded

Master of Science (MSc) in Molecular Life Sciences

#### ECTS credits

90

#### Duration

3 semesters

#### Teaching language

English. Recommended level: C1.

#### Contact

School of Biology  
Quartier UNIL-Sorge, Amphipôle  
CH-1015 Lausanne  
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[biologie-etudiants@unil.ch](mailto:biologie-etudiants@unil.ch)

#### Additional information

[www.unil.ch/eb-mls](http://www.unil.ch/eb-mls)

## EDUCATIONAL CONTENT

### Description

The first semester aims at teaching you how to work in a pluridisciplinary way, both alone and in a group. You attend classes in genome sequencing and annotation, and in literature searching, scientific writing and oral presentation skills. Through optional courses, you acquire a solid understanding of molecular genetics, cellular and developmental biology, genomics, bioinformatics and biotechnology. Preparation of a review article and a short independent research project complete the activities of the semester.

In the second semester, you use methods in comparative genomics in order to annotate the genome sequenced in the first semester. You also write a mock application for a research grant. The programme offers a wide range of optional modules with the possibility of choosing certain courses from the MSc in Behaviour, Evolution and Conservation. Depending on the subjects chosen, you can specialise in the following research fields: Genomics, Bioinformatics, Plant Biology, Microbiology, Biotechnology and Development Biology. You begin your Master research project.

Research work continues in the third semester. You prepare your written dissertation which is defended orally before a jury.

### Possibilities of specialisation

Three specialisations can be chosen to complete the Master: Bioinformatics, Microbiology or Integrative Biology. Interested students will follow the same compulsory courses as other students taking the MSc in Molecular Life Sciences while their optional courses will focus on the chosen field to obtain the specialisation.

### Mobility

The Master research project can be conducted in a partner institution, including industrial research lab, recognised by UNIL.

## SYLLABUS

### 1<sup>st</sup> semester - 30 ECTS credits

**Common activities:** sequencing & annotation of a genome, writing a review article.

Optional classes in:

- Microbiology
- Plant Biology
- Biotechnology
- Developmental Biology
- Bioinformatics and Systems Biology

### Personal Short Research Project

### 2<sup>nd</sup> semester - 30 ECTS credits

**Common activities:** annotation & analysis of a genome, writing a grant application.

Optional classes in:

- Genomics
- Plant Biology and Biochemistry
- Developmental Biology
- Signaling and Gene Regulation
- Microbiology
- Bioinformatics

### Start of Master Research Project

### 3<sup>rd</sup> semester - 30 ECTS credits

#### Master Research Project

- Continuation and conclusion of research project

## PRACTICAL INFORMATION

### Admission requirements

Candidates must be holders of a Bachelor of Science 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 course, with or without further conditions.

### Administrative information

Ms Almudena Vazquez  
biologie-etudiants@unil.ch

### Head of studies

Prof. Richard Benton  
Richard.Benton@unil.ch

### Enrolment and final dates

Applications must be submitted to the Admissions Service before 30<sup>th</sup> April:  
[www.unil.ch/immat](http://www.unil.ch/immat)

Candidates requiring a visa to study in Switzerland: 28<sup>th</sup> February.

### Start of courses

Mid-September. Academic calendar:  
[www.unil.ch/central/calendar](http://www.unil.ch/central/calendar)

### Part-time Master's degree

Subject to certain conditions, Master's studies can be followed part-time. In this case they correspond to semi-continuous studies (50%) for the entire duration of the course: all theoretical teaching in the first and second semester and then all practical work (research projects). For more details concerning the requisite conditions:  
[www.unil.ch/formations/master-temps-partial](http://www.unil.ch/formations/master-temps-partial)

### General information on studies, guidance

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

### Career prospects

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

### Accommodation and financial assistance

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

### International

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



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