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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 fascinated about the exploration of life at the molecular level.

This Master's programme provides in-depth teaching of current knowledge in genomics, molecular genetics, cellular, developmental and organismal biology—spanning studies of humans and other animals, plants and microorganisms—and the experimental and computational approaches used to acquire this knowledge.

One practical course, unique in Switzerland, allows you to sequence the genomes of microorganisms, providing the opportunity to learn state-of-the-art sequencing techniques and acquire skills in genome annotation and analyses. Another course will provide training in literature analysis, scientific writing and oral communication through the preparation of a review article and a research grant proposal.

### Career prospects

This Master will provide high-level training in the theory and practice of the molecular life sciences, analytical and critical thinking, written and oral communication abilities, as well as teamwork, project and time management, and other transversal skills.

As such, this programme serves as a foundation for potential careers in:

- Academic research
- Applied biomedical research and diagnostics
- Pharmaceutical and biotechnological industries
- Environmental technologies
- Science education and policy
- Science publishing and communication

Other examples of opportunities and alumni's profiles can be found here:

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

## GENERAL INFORMATION

### Organiser

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

### Degree awarded

Master of Science (MSc)  
in Molecular Life Sciences

### ECTS credits

120

### Duration

4 semesters

### Teaching language

English. Recommended level: C1.

### Contact

School of Biology  
Quartier UNIL-Sorge  
Amphipôle  
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### Additional information

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

## EDUCATIONAL CONTENT

### Description

The first semester aims at training you in fundamental skills for the MSc through compulsory courses in genome sequencing and analysis, data analysis and statistics, and a wide range of optional courses spanning the breadth of the molecular life sciences (some courses from the MSc in Behaviour, Evolution and Conservation may be chosen). You will also receive training in written and oral presentation skills, and prepare a scientific review article.

The second semester is largely dedicated to a short independent research project in an experimental and/or computational laboratory, allowing you to acquire diverse technical and organisational research skills, and hone your communication abilities through an oral presentation and written report on your project.

During the third and fourth semesters, you will proceed with your Master research project (in a different laboratory from the short project), beginning with the preparation of a grant proposal based upon the topic of your MSc research project.

The fourth semester is dedicated to the continuation and completion of your Master research project, the writing of your thesis and the oral defence before a jury.

### Possibilities of specialisation

Two specialisations can be chosen within the MSc: Bioinformatics and Microbiology. To obtain the specialisation, students will follow the same compulsory courses as other students, while their optional courses and MSc research project will focus on the chosen field. It is also possible to pursue the Master without a specialisation.

### Mobility

The Master research project can be conducted in a partner institution recognised by UNIL, including a non-academic research laboratory, elsewhere in Switzerland or abroad.

## SYLLABUS

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

#### Compulsory courses (15 ECTS):

Sequencing and analysis of microbial genomes; data analysis and statistics; preparation of a review article; written and oral communication skills.

#### Optional courses (15 ECTS):

- Molecular Genetics
- “-omics” and Genome-editing Technologies
- Bioinformatics and Programming
- Systems Biology
- Cell Biology
- Developmental Biology
- Microbiology
- Plant Biology
- Biotechnology
- Evolutionary Biology

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

#### First step research project (25 ECTS)

#### Optional courses (5 ECTS)

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

#### Compulsory course (5 ECTS):

Preparation of a research grant proposal

#### Personal Master research project (20 ECTS):

Initiation of a personal Master research project

#### Optional courses (5 ECTS)

### 4<sup>th</sup> semester - 30 ECTS

#### Personal Master research project (25 ECTS):

Continuation and conclusion of the personal Master research project

#### Optional courses (5 ECTS)

## PRACTICAL INFORMATION

### Admission requirements

Candidates must be holders of a Bachelor of Science (BSc) in Biology or in a field considered to be equivalent awarded by a Swiss university. Other degrees awarded by a foreign university may be considered equivalent and grant access to the programme with or without further conditions.

### Administrative information

Ms. Almudena Vazquez  
biologie-etudiants@unil.ch

### Director of the programme

Prof. Richard Benton  
Richard.Benton@unil.ch

### Enrolment and final dates

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

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

### Start of courses

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

### Part-time Master's degree

Under 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.

For more details concerning the required conditions:  
[www.unil.ch/formations/master-temps-partiel](http://www.unil.ch/formations/master-temps-partiel)

### General information on studies, guidance

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

### 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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