



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, etc.

This panoply 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

GENERAL INFORMATION

Organiser

School of Biology, Faculty of Biology and Medicine:
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

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Additional information

www.unil.ch/eb-mls

EDUCATIONAL CONTENT

Description

The first semester aims at teaching you how to work in a pluridisciplinary way, either alone or in a group. You attend classes in genome sequencing and annotation, and in scientific writing and presentation. Through optional courses, you acquire a solid understanding of molecular genetics, cellular and developmental biology, genomics, bioinformatics and biotechnology. An initial placement in a laboratory, participation in seminars and an introduction to bibliographical work complete the development of research work.

In the second semester, you use methods in comparative genomics in order to annotate the genome sequenced in the first semester. You also draft an 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 personal research work.

Research work continues in the third semester. It leads to the writing of a 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 personal research project can be conducted in a partner institution recognised by UNIL.

SYLLABUS

1st semester - 30 ECTS credits

Common activities: sequencing - annotation of a genome and scientific authoring work

Optional classes in:

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

Personal Research Project

Introduction

2nd semester - 30 ECTS credits

Common activities: RNA sequencing and writing of a grant application.

Optional classes in:

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

Start of Personal Research Project

3rd semester - 30 ECTS credits

Personal 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 30th April:
www.unil.ch/immat

Candidates requiring a visa to study in Switzerland: 28th February.

Start of courses

Mid-September. Academic calendar:
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 (introduction to research and Master's dissertation).

For more details concerning the requisite conditions:

www.unil.ch/formations/tempspartiel

General information on studies, guidance

www.unil.ch/soc

Career prospects

www.unil.ch/perspectives

Accommodation and financial assistance

www.unil.ch/sasme

International

www.unil.ch/international



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Faculté de biologie
et de médecine