

| le savoir vivant |

Master of Science in Environmental Science  
Orientation in

# Aquatic science



*Unil*

UNIL | Université de Lausanne

Faculté des géosciences  
et de l'environnement

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## The Master of Science in Environmental Science has another two orientations:

- **Earth surface processes in mountain environments**
- **Natural Hazards and Risk**

## OBJECTIVES

The orientation « Aquatic Science » offers a multidisciplinary training in issues relating to freshwater. It has been created and developed in terms of global-scale issues, but integrating a focus on the continuum of freshwater processes typical of the Swiss landscape where the mountains play a critical role as the « water towers » of Europe.

The training integrates explicitly the hydrological linkages between glaciers and high mountain environments, soils and the subsurface, and the rivers and lakes of the piedmont zone. Such a perspective, unique in the Swiss University landscape, allows treatment of issues relating to surface and subsurface water at the scale of river basins, these being the entities that unite environmental management with the basic understanding of the impacts of humans on the quantity and quality of water.

Having followed this Master's programme, students should:

- Have mastered the basic tools used to study the fluxes of water; to trace their origins and residence times in the soil, rivers, and lakes; and to study their chemical and biological quality, both in the laboratory and in the field.
- Be able to address issues related to the availability and quality of surface and subsurface water in a multidisciplinary manner.
- Have integrated the different spatial and temporal scales of enquiry implicated in water-related issues.
- Have developed and applied data collection programmes related to these issues, including the quantitative analysis of these data.
- Be able to identify governance issues and associated policy needs in a Swiss context and beyond.

## CONTENT AND APPROACH

The curriculum followed to complete the Master of Science (MSc) in Environmental Science is based upon a first year of compulsory courses (two modules common to all orientations; one module related to the chosen orientation); and a second year containing two modules (one involving free-choice courses, and the other related to the Master's thesis).

## POTENTIAL CANDIDATES

The specialisation is open primarily to those with a Bachelor of Science (BSc) in Environmental Science or Geology. Other candidates with a Bachelor's degree, such as in other quantitative programmes in the Natural Sciences or Engineering, may be eligible after consideration of their application.

## Enrolment and admission requirements

The means of registering an application for such students, as well as any requirements necessary to become eligible for admission, are available in the study rules for the Master of Science (MSc) in Environmental Science at UNIL: [www.unil.ch/masterenvi](http://www.unil.ch/masterenvi) > Master's program > How to register

## COURSE STRUCTURE

### Modules common to all orientations (30 ECTS total):

Foundations in Environmental Science; Environmental data and systems analysis.

**Orientation « Aquatic Science » (30 ECTS total):** Courses addressing subsurface fluid flow; freshwater biogeochemistry and toxicology; tracing fluid flow; aquatic ecosystems in glaciers, rivers and lakes; field and laboratory methods, excursions

**Free-choice courses (20 ECTS):** Courses intended to enhance the orientation, chosen by the student and approved by the director of the programme.

### Master's thesis (40 ECTS)

## TEACHING LANGUAGE

All compulsory courses are given in English. Students have to choose optional courses, and these may be given in English or French according to their choice. The recommended level of English is C1. All assessed work, including exams, reports and the Master's thesis, may be written in English or French.

## Coordinator for the orientation

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## Contact

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