Master of Science in Environmental Science
Orientation in
natural hazards
and risk

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The Master of Science in Environmental Science has two orientations:
• Natural Hazards and Risk
• Aquatic Science

OBJECTIVES
The orientation « Natural Hazards and Risk » offers a training in the analysis of natural hazards from the study of physical processes through to their management, via the quantification of their probability of occurrence.

The main elements of this orientation are:
• The study of physical processes: data acquisition, mapping, analysis, modelling, monitoring methods. In this part of the course, focus is upon gravitationally driven hazards (landslides, rockfalls, floods, avalanches, etc.).
• The estimation of risk and its different elements (hazards, vulnerability, resilience, quantitative risk assessment).
• Risk management, warning systems, development and evaluation of strategies for risk reduction.
• Risk communication.

Having followed this Master’s programme, students should:
• Understand the processes behind the principal natural hazards; acquiring and analysing data related to these phenomena, both in the field and in the laboratory.
• Construct conceptual models of hazards; mastering the basic tools for the numerical modelling of these phenomena.
• Undertake a quantitative analysis of the risk associated with natural hazards.
• Propose options for risk reduction.
• Identify the wider issues linked to risk management and their communication.

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).