

Module	Natural Hazards and Risk Management
Code	MSLS_AF-52
Degree Program	Master of Science in Life Sciences (MSLS)
ECTS Credits	5
Workload	150 h: contact hours 70-80h h; of which 30h-40h excursions/ exercises in the field; Self-study 70-80 h
Module Coordinator	<p>Name Dr. Luuk Dorren</p> <p>Phone +41 31 910 29 78</p> <p>Email luuk.dorren@bfh.ch</p> <p>Address HAFL, Länggasse 85, 3052 Zollikofen</p>
Lecturers	<ul style="list-style-type: none"> • Dr. Luuk Dorren • Jean-Jacques Thormann • Dr. Massimiliano Schwarz • Dr. Michael Bründl, WSL-SLF, Davos • other guest lecturers (WSL-SLF & BAFU)
Entry Requirements	Principles of the integrated natural hazard and risk management and the sustainable protection forest management. This corresponds to the Module BLFf074 „Grundlagen Gebirgswald & Naturgefahren“ in the Bachelor “Forest sciences” at HAFL. Documents and literature will be provided.
Learning Outcomes and Competences	<p>After completing the module students will be able to :</p> <ul style="list-style-type: none"> • Know the principal components of the natural hazard risk management cycle • Understand different natural hazard processes • Asses the protective capacity of a forest regarding various natural hazard processes and to propose necessary measures • Complete a risk assessment in an area and to design risk-based protective measures • Have a general view of the relevant legal and spatial planning fundamentals
Module Content	<ul style="list-style-type: none"> • Principles of the gravitational natural hazard processes (avalanches, rockfall, landslides, debris flows and flooding), as well as earthquakes • Overview of the most important hazard process models • Methodology of the sustainable protection forest management NaiS and determination of the need for intervention in protection forests • Principles of risk management (Risk analysis, Risk evaluation, Measures, incl. forest) • Hazard and terrain assessment using examples • Fundamentals of hazard based spatial planning • Measures in the framework of the risk management cycle (event analysis, emergency planning, etc.)
Teaching / Learning Methods	The fundamentals are being transmitted during individual theory blocks in the classroom using problem-solving case studies. This knowledge is deepened during field excursions with the involvement of practitioners. In the self-study phase, students delve into a specific natural hazard process and develop a fact sheet for a given road section.
Assessment of Learning Outcome	<ol style="list-style-type: none"> 1) Natural hazard factsheet (short written report, 30%) 2) Oral examination (70%)
Bibliography	Bründl Michael (Ed.) 2009: Risikokzept für Naturgefahren - Leitfaden. Nationale Plattform für Naturgefahren, PLANAT, Bern. 420 p. , dt, fr, it

	<p>(http://www.planat.ch/de/infomaterial-detailansicht/datum/2010/10/22/planat-projekt-a11-risikokonzept-naturgefahren/)</p> <p>Frehner, M.; Wasser, B.; Schwitter, R., 2005: Nachhaltigkeit und Erfolgskontrolle im Schutzwald. Wegleitung für Pflegemassnahmen in Wäldern mit Schutzfunktion, Vollzug Umwelt. Bundesamt für Umwelt, Wald und Landschaft, Bern, 564 p. (dt, fr, it)</p>
Language	German and English (Students must be able to interact in German with practitioners)
Comments	The following sequences are compulsory for students: "Introduction – Risk management cycle", "natural hazard management international" and "Natural hazard excursions in Engadin". For details on compulsory sequences, please refer to the detailed schedule of the module, which will be uploaded on Moodle 4 weeks before the start of the module.
Last Update	26.02.2016 / Luuk Dorren