



Master in Life Sciences

A cooperation between
BFH, FHNW, HES-SO, ZFH

Module Title	Natural Hazards and Risk Management
Module Code	MCLs185
Module	AF-52
ECTS Credits	5
Workload	150 h: Contact 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 Bern University of Applied Sciences, School of Agricultural, Forest and Food Sciences, Laenggasse 85, 3052 Zollikofen</p>
Lecturers	<ul style="list-style-type: none"> • Prof. Dr. Luuk Dorren • Dr. Christine Moos • Prof. Dr. Massimiliano Schwarz • Jean-Jacques Thormann
Entry Requirements	Principles of integrated natural hazard and risk management and the sustainable protection forest management. This corresponds to the Module BLFf074 „Grundlagen Gebirgswald & Naturgefahren“ in the BFH-HAFL BSc Forest Science. Documents and literature will be provided.
Learning Outcomes and Competencies	<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 propose required measures; • complete a risk assessment in an area.
Module Content	<ul style="list-style-type: none"> • Principles of gravitational natural hazard processes (avalanches, rockfall, landslides, debris flows and flooding) and earthquakes • 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, inc forest) • Hazard and terrain assessment using examples
Teaching and Learning Methods	The fundamentals will be 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 natural hazard fact sheet for a given road section.
Assessment of Learning Outcomes	<ol style="list-style-type: none"> 1) Natural hazard factsheet (6-page written report, 30%) 2) Oral examination (70%)
Bibliography	<p>Bründl Michael (Ed.) 2009: Risikokzept für Naturgefahren - Leitfaden. Nationale Plattform für Naturgefahren, PLANAT, Bern. 420 p. , dt, fr, it (http:// http://www.planat.ch/de/infomaterial-detailansicht/datum/2010/10/22/planat-projekt-a11-risikokzept-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”, “International natural hazard management” 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 four weeks before the start of the module.
Last Update	January 2026