



Master in Life Sciences

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

Module	Integrated Natural Resources Management and Climate Change
Code	MSLS_AF-03
Degree Program	Master of Science in Life Sciences (MSLS)
ECTS Credits	5
Workload	150 h: Contact 60 h; Group Exercise 25 h; Self-study 65 h
Module Coordinator	<p>Name Claude Garcia</p> <p>Phone +41 31 848 55 72</p> <p>Email claud.garcia@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"> • Claude Garcia • Oliver Gardi • Guest lecturers
Entry Requirements	None.
Learning Outcomes and Competences	<p>After completing the module students will be able to:</p> <ul style="list-style-type: none"> • understand the major challenges and underpinning concepts of managing landscape in a changing environment globally; • recognize the key issues and problems of climate change and natural resources management (incl. sustainable land and forest management, Land-use, Land Use change and Forests, and REDD+) from a disciplinary perspective and bring them in a wider interdisciplinary context; • elaborate sound recommendations for problem solving and/or decision making in natural resources management, using adequate methods and tools; • collaborate in a multi-disciplinary team and participate in the elaboration of recommendations for decision making from an interdisciplinary perspective (integrated assessment, “synthesis”) and reflect the disciplinary results from such broader perspective. <p>Students develop a mutual understanding across disciplines toward solving complex problems in natural resources and environmental management under particular consideration of climate change and climate variability.</p>
Module Content	<p>Lecturers give an introduction of the selected topic and contributions from different disciplines to approach key issues related to that subject, including:</p> <ul style="list-style-type: none"> • Basic concept and approaches of integrated resources and environmental management and concepts in the various anthromes of the world • Climate change policies, adaptation to climate change and mitigation of greenhouse gases in agriculture, forestry and landscape management (globally and with particular reference to the Central European context) • Objectives of sustainable use and conservation of natural resources as well as fair and equitable sharing of benefits from ecosystem goods and services • Integration of economic, ecological, societal, institutional, managerial and technical perspectives on a selected current topic of natural resources and environmental management in agricultural, forestry and agro-food systems.

	Students elaborate an assessment of policy and management recommendations from (i) different disciplinary perspectives and (ii) an integrated (cross-disciplinary) perspective in the context of sustainable development.
Teaching Learning Methods	<p>The module takes place during two weeks (calendar week 36 and 37). In calendar week 36, the module will be offered in a hybrid format allowing students to select to attend either on-site (in Zollikofen, Switzerland) or from home. In calendar weeks 37, students are required to attend lessons on-site in Zollikofen.</p> <p>A combination of lectures, individual work and team work with disciplinary/topical subgroups, and seminars with individual presentations and interdisciplinary group work for synthesis report and final seminar; a one-day excursion to a Swiss rural landscape</p>
Assessment of Learning Outcome	<ol style="list-style-type: none"> 1) Preparation of an individual sectoral review paper (30%) 2) An integrated assessment/synthesis (team work) in form of a report, presented on a poster (30%) 3) A written exam (40%)
Bibliography	<p>An updated list of selected references and readings will be made available one month before the start of the course; students are expected to complement these sources with their individual research of literature and other information. General literature includes:</p> <p>Carpenter SR, Mooney H, Agard J, Capistrano D, DeFries R, Diaz S, Dietz T, Duraiappah AK, Oteng-Yeboah A, Pereira HM, Perring C, Reid WV, Scholes RJ, Whyte A, 2009. Science for managing ecosystem services: beyond the millennium ecosystem assessment. Proceedings of the National Academy of Sciences of the United States (PNAS), 106 (5), 1305–1312.</p> <p>Groot RS, Alkemade R, Braat L, Hein L, Willemsen L, 2010. Challenges in integrating the concept of ecosystem services and values in landscape planning, management and decision making. Ecological Complexity, 7 (3), September 2010, 260-272.</p> <p>IPCC (Intergovernmental Panel on Climate Change), 2019, 2018, 2013, 2009 Reports.</p> <p>SDGs 2015. Sustainable Development Goals. www.undp.org</p> <p>TEEB (The Economics of Ecosystems and Biodiversity), 2010. The Economics of Ecosystems and Biodiversity: Mainstreaming the Economics of Nature: A synthesis of the approach, conclusions and recommendations of TEEB, 36 p. Accessed on 07.01.2013, http://www.unep.org/pdf/LinkClick.pdf</p>
Language	English
Comments	<p>The module will be organized during two full weeks in the beginning of September. The exam will be organized later in September.</p> <p>The following sequences are compulsory for students: One full week (lectures and exercises) and first three days of the second week. 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.</p>
Last Update	08.04.2022