



# Master in Life Sciences

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

<b>Module Title</b>	<b>Integrated Natural Resources Management</b>
<b>Module Code</b>	MSLS_AF-03
<b>Degree Programme</b>	Master of Science in Life Sciences (MSLS)
<b>ECTS Credits</b>	5
<b>Workload</b>	150 h: Online - Contact 60 h; Group Exercise 25 h; Self-study 65 h
<b>Module Coordinator</b>	<p><b>Name</b> Dr. Claude Garcia</p> <p><b>Phone</b> +41 31 848 55 72</p> <p><b>Email</b> claud.garcia@bfh.ch</p> <p><b>Address</b> Bern University of Applied Sciences, School of Agricultural, Forest and Food Sciences, Laenggasse 85, 3052 Zollikofen</p>
<b>Lecturers</b>	<ul style="list-style-type: none"> <li>▪ Dr. Claude Garcia</li> <li>▪ Dr. Patrick Waeber</li> <li>▪ Dr. Mariana Melnykovich</li> <li>▪ Dr. Sébastien-Pierre Boillat</li> </ul>
<b>Entry Requirements</b>	Fluent English (B2 equivalent).
<b>Learning Outcomes and Competencies</b>	<p>After completing the module, students will be able to:</p> <ul style="list-style-type: none"> <li>▪ understand the major challenges and underpinning concepts of managing landscape in a globally changing environment ;</li> <li>▪ recognise the key issues and problems of natural resources management (inc. sustainable land and forest management, land use, land use change and forests, and REDD+) from a disciplinary perspective and bring them into a wider interdisciplinary context;</li> <li>▪ develop and design scenarios and strategy games to elaborate sound recommendations for problem-solving and/or decision-making in natural resources management, using appropriate methods and tools;</li> <li>▪ 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 on the disciplinary results from such broader perspective.</li> <li>▪ develop a mutual understanding across disciplines toward solving complex problems in natural resources and environmental management.</li> </ul>
<b>Module Content</b>	<p>Lecturers give an introduction to the selected topic and make contributions from different disciplines to approach key issues related to that subject, including:</p> <ul style="list-style-type: none"> <li>• basic concept of and approaches to integrated resources and environmental management in the various anthromes of the world;</li> <li>• introduction to design principles for complex-system participatory modelling and multi-agent modelling;</li> <li>• objectives of sustainable use and conservation of natural resources as well as fair and equitable sharing of benefits from ecosystem goods and services;</li> </ul>

MSLS\_AF-03 – Integrated Natural Resources Management and Climate Change

	<ul style="list-style-type: none"> <li>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.</li> </ul> <p>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.</p>
<b>Teaching</b>	The module takes place during two weeks (calendar week 36 and 37).
<b>Teaching and Learning Methods</b>	A combination of lectures, individual work and team-work with disciplinary/topical subgroups, and interdisciplinary group-work for synthesis report and final seminar. Students will develop a strategy game based on the topic they have selected.
<b>Assessment of Learning Outcomes</b>	<ol style="list-style-type: none"> <li>1) A game designed and presented, and an integrated assessment/synthesis (team-work) in the form of a report (60%)</li> <li>2) An oral exam (40%)</li> </ol>
<b>Bibliography</b>	<p>An updated list of selected references and readings will be made available at the start of the course; students are expected to complement these sources with their individual research of literature and other information.</p> <p>Essential reading:</p> <ul style="list-style-type: none"> <li>▪ Carpenter SR et. al., (2009). Science for managing ecosystem services: beyond the millennium ecosystem assessment. (PNAS), 106 (5), 1305–1312.</li> <li>▪ Holling, C. S., &amp; Meffe, G. K. (1996). Command and control and the pathology of natural resource management. Conservation biology, 10(2), 328-337.</li> <li>▪ Sayer, Jeffrey, et al. "Ten principles for a landscape approach to reconciling agriculture, conservation, and other competing land uses." PNAS 110.21 (2013): 8349-8356.</li> <li>▪ Garcia, Claude A., et al. "Strategy games to improve environmental policymaking." Nature Sustainability (2022): 1-8.</li> </ul>
<b>Language</b>	English
<b>Comments</b>	<p>The module will be organised during two full weeks at the beginning of September. The exam will be organised later in September.</p> <p>All sessions are compulsory for students.</p>
<b>Last Update</b>	03.02.2025