



<b>Module</b>	<b>Holistic Assessment of Production Systems</b>
<b>Code</b>	MSLS_AF-22 AS
<b>Degree Program</b>	Master of Science in Life Sciences (MSLS)
<b>ECTS Credits</b>	5
<b>Workload</b>	150 h: Contact 65 h; Group Exercise 10 h; Self-study 75 h
<b>Module Coordinator</b>	<p><b>Name</b> Dr. Jan Grenz</p> <p><b>Phone</b> +41 31 910 21 99</p> <p><b>Email</b> <a href="mailto:jan.grenz@bfh.ch">jan.grenz@bfh.ch</a></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. Jan Grenz</li> <li>• Daria Reisch</li> <li>• Dr. Christian Thalmann</li> <li>• Guest lecturer</li> </ul>
<b>Entry Requirements</b>	Robust knowledge about agricultural production and basic understanding of the principles of sustainable development. Documents covering the latter aspects will be made available on Moodle, along with key questions students should be able to answer. A voluntary pre-test helps students to position their state of knowledge on sustainable development. Previous completion of the modules E3 and E5 is encouraged, but not compulsory.
<b>Learning Outcomes and Competences</b>	<p>After completing the module, students will be able to:</p> <ul style="list-style-type: none"> <li>• appraise the role and potential of holistic assessment in strategic planning and in putting sustainability into practice;</li> <li>• define and handle relevant and substantiated ecological, economic and social indicators of sustainability in agricultural production systems and food value chains;</li> <li>• select and apply methods and tools for agricultural production systems analysis.</li> </ul>
<b>Module Content</b>	<p>Students discuss the relevance and definition of sustainable agriculture and of competing approaches to agricultural development. They explore the intricacies of e.g. the delineation of system boundaries and the aggregation and weighting of information. They appraise the need for science-based, yet practically useful assessment criteria for putting sustainability into practice in agricultural production systems.</p> <p>A real-world case study, in which students do a farm sustainability analysis, is a central pillar of this module and shall serve to sensitize students for stakeholder perspectives involved in holistic assessment (producers, processor, retailer, consumer, government, research &amp; extension). Challenges of and approaches to establishing sustainability along food value chains are presented and discussed as well; this includes a guest lecture or excursion related to the food industry.</p>
<b>Teaching / Learning Methods</b>	Lectures provide the guiding structure for this module. Lecturers present multi-criteria methods from the administrative, business and the applied science and management domains Seminar-style learning units allow comparing approaches and appraising their potential and relevance. A farm sustainability analysis, combined with a group work on an aspect of farm sustainability provides hands-on impressions on how sustainable agriculture can be managed and made a reality. The didactical spectrum is completed by a visit to a project of farm where exemplary solutions for overcoming sustainability challenges are shown.

<b>Assessment of Learning Outcome</b>	<p>1) Group assignment (topic defined during RISE analysis; written assignment) (67%)</p> <p>2) Written exam at the end of the module (33%)</p>
<b>Bibliography</b>	<p>Agenda 21 and the Rio Declaration: Accessed on 07.01.2013, <a href="http://habitat.igc.org/agenda21/">http://habitat.igc.org/agenda21/</a></p> <p>Grenz J, Thalmann C, Stämpfli A, Studer C, Häni F, 2016. RISE 3.0 Scientific Manual. HAFL, Zollikofen.</p> <p>Ostrom E, 2009. A general framework for analyzing sustainability of social-ecological systems. <i>Science</i> 325, 419-422.</p> <p>Von-Wirén-Lehr S, 2001. Sustainability in agriculture — an evaluation of principal goal-oriented concepts to close the gap between theory and practice. <i>Agriculture, Ecosystems &amp; Environment</i> 84, 115-129.</p> <p>Zahm F, Viaux P, Vilain L, Girardin P, Mouchet C, 2008. Assessing farm sustainability with the IDEA method – from the concept of agriculture sustainability to case studies on farms. <i>Sustainable Development</i> 16, 271-281.</p> <p>These and further readings are available on Moodle during and after the module.</p>
<b>Language</b>	English
<b>Comments</b>	<p>Attending this module will add benefit to participation in AF-23 and AF-03: knowledge on holistic assessment methods and tools improves the capability to optimize production, which in turn contributes to integrated resources and environmental management.</p> <p>The following sequences are compulsory for students: farm visit with group formation in week 2, group presentation in week 4 and written exam in week 5 of the module. 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.</p>
<b>Last Update</b>	20.04.2020 / Jan Grenz