



# Master in Life Sciences

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

<b>Module</b>	<b>Sustainable use of the natural resources in agroecosystems</b>
<b>Code</b>	MLS_S21
<b>Degree Program</b>	Master of Science in Life Sciences (MSLS)
<b>Cluster</b>	Environment
<b>Specialization</b>	Natural Resource Management
<b>ECTS Credits</b>	4
<b>Workload</b>	120 h: Contact & Field work 56 h; Self-study 64 h
<b>Module Coordinator</b>	<p>Name           Pascal Boivin</p> <p>Phone          +41 22 546 68 17</p> <p>Email          pascal.boivin@hesge.ch</p> <p>Address       HEPIA-Lullier, 150 route de Presinge, 1254 Jussy</p>
<b>Lecturers</b>	<ul style="list-style-type: none"> <li>• Pascal Boivin; Emmanuel Lierdeman (HEPIA)</li> </ul>
<b>Entry Requirements</b>	Bachelor in LS, Agronomy or Natural resource management, or equivalent
<b>Learning Outcomes and Competences</b>	<p>After completing the module students will be able to:</p> <ul style="list-style-type: none"> <li>• Identify the strengths and weaknesses of agricultural practices with respect to natural resources</li> <li>• Balance the relative impact of mechanical and chemical inputs on soil resources</li> <li>• Evaluate the potential for improving the ecoservices of cropping systems at farm and regional levels</li> <li>• Negotiate with farmers in the frame of agri-environmental management schemes</li> </ul>
<b>Module Content</b>	<ul style="list-style-type: none"> <li>• Biodiversity in land management: integrated vision</li> <li>• Soil quality in land management</li> <li>• Ecosystem services of cropping systems: goals and issues, an overview</li> <li>• Sustainable agriculture: contribution of agro ecological cropping systems</li> <li>• Actors, their interests, motivations and strategies in land use planning</li> <li>• Conservation agriculture: methods, potential, trends and issues</li> </ul>
<b>Teaching / Learning Methods</b>	<ul style="list-style-type: none"> <li>• Lectures</li> <li>• Individual and group exercises</li> <li>• Case-studies / projects</li> <li>• Field trips (mandatory)</li> </ul>

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	<ul style="list-style-type: none"> <li>• Active participation in the module is requested</li> </ul>
<b>Assessment of Learning Outcome</b>	<p>Examination: Report(s) produced during the S-module, 100% of grade</p> <ul style="list-style-type: none"> <li>• Reassessment: oral/written exam within four weeks after the publication of the grades.</li> </ul>
<b>Bibliography</b>	<ul style="list-style-type: none"> <li>- Barbault R., J. Weber (2010). La Vie, quelle entreprise! Seuil.</li> <li>- Blandin P. (2009). De la protection de la nature au pilotage de la biodiversité. Quae, Paris.</li> <li>- Brahic E., Terreau, J. –P. (2009), Evaluation économique de la biodiversité. Editions Quae. Paris.</li> <li>- Gaston K. J., Spicer J. I. (2004). Biodiversity: An Introduction. Blackwell. 208 pp.</li> <li>- Gobat J.-M., Aragno, M., Matthey, W. (2004). The Living Soil. Fundamentals of Soil Science and Soil Biology. Science Publishers, Enfield (NH), USA. 602 pp.</li> <li>- Lévêque, C. (2008). La biodiversité au quotidien. Quae, Paris.</li> <li>- Redford K. H., Adams W. M. (2009). Payment for ecosystem services and the challenge of saving nature. Conservation Biology, 23:785-787.</li> <li>- Sumner M. E. (2000). Handbook of Soil Science. CRC Press. 2148 pp.</li> <li>- Wratten S., Sandhu H., Cullen R., Costanza R. (2013). Ecosystem Services in Agricultural and Urban Landscapes. Wiley-Blackwell. 218 pp.</li> </ul> <p>Documentation: <a href="http://cyberlearn.hes-so.ch">http://cyberlearn.hes-so.ch</a> (requires a login)</p>
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