



Master in Life Sciences

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

Module	Ecosystem restoration (natural, rural or urban environments)
Code	MLS_S20
Degree Program	Master of Science in Life Sciences (MSLS)
Cluster	Environment
Specialization	Natural Resource Management
ECTS Credits	4
Workload	120 h: Contact & Field work 56 h; Self-study 64 h
Module Coordinator	<p>Name Pierre-André Frossard</p> <p>Phone +41 22 546 68 86</p> <p>Email pierre-andre.frossard@hesge.ch</p> <p>Address HEPIA-Lullier, 150 route de Presinge, 1254 Jussy</p>
Lecturers	<ul style="list-style-type: none"> • Pascal Boivin (HEPIA) • Zsolt Vecsernyés (HEPIA)
Entry Requirements	Bachelor in LS, Agronomy or Natural resource management, or equivalent
Learning Outcomes and Competences	<p>After completing the module students will be able to restore ecosystems and their functions/services, from the local to the regional scale (catchment, landscape), especially:</p> <ul style="list-style-type: none"> • Identify stakes and the potential of restoration taking into account technical process and socio-economic uses. • Define the objectives of a restoration project. • Design the appropriate development options. • Develop and propose appropriate measures and put into action techniques with project details. Plan their implementation (work plan, maintenance, ...).
Module Content	<ul style="list-style-type: none"> • Remainder about legal context, restoration technics, choice of material • Eco-morphological restoration of ecosystems (renaturation and revalorisation of streams, creation and restoration of waterbodies, meadows, soils...). • Bio-engineering and revegetation of degraded sites (quarries, gravel pits, dumps, erosion control, etc.). • Landscape ecology and agro-environmental measures (network, ...).
Teaching / Learning Methods	<ul style="list-style-type: none"> • Lectures • Individual and group exercises • Case-studies / projects • Field trips (mandatory) • Active participation in the module is requested

MLS_S20 – Ecosystem restoration

Assessment of Learning Outcome	<p>Examination: Report(s) produced during the S-module, and oral defense</p> <ul style="list-style-type: none"> • Reassessment: oral/written exam within four weeks after the publication of the grades.
Bibliography	<ul style="list-style-type: none"> • Adam P. ; Debiais N. ; Gerber F. ; Lachat B. (2008) Le génie végétal, Un manuel technique au service de l'aménagement et de la restauration des milieux aquatiques. Ministère de l'écologie, du développement et de l'aménagement durables. • Coppin N.J. (1990) <i>Use of Vegetation in Civil Engineering</i>. Richards, I. G., London, 238 p. • Evette A. ; Balique C. ; Lavaine C. ; Rey F. (2009a) Using ecological and biogeographical features to achieve a typology of the plant species used in riverbank protection bioengineering in Europe. Geophysical Research Abstracts, vol. 11. • Faber R. (2004) <i>New techniques for urban river rehabilitation Specifications for new materials and techniques improve instream morphology soil-bioengineering</i>. IWHW-BOKU, Vienna, 33 p. • Falk DA, Palmer MA, Zedler JB (eds) (2006) <i>Foundations of restoration ecology</i>. Island Press, Washington DC. • Malavoi J.; Debiais N.; Adam P. (2007). Manuel de restauration hydromorphologique des cours d'eau. Agence de l'Eau Seine-Normandie. • Van Andel J, Aronson J (eds) (2006) <i>Restoration ecology</i>. Blackwell, Oxford. <p>Documentation: http://cyberlearn.hes-so.ch (requires a login)</p>
Language	English
Comments	
Last Update	02.07.2019/ Beat Oertli