



Module Title	Biological Cycles: Natural Resources and Ecosystem Services
Code	MCCf123
Degree Programme	Master of Science – Circular Innovation and Sustainability
ECTS Credits	3
Workload	90 hours <ul style="list-style-type: none"> • 14 hours contact teaching and excursions • 76 hours self-study and guided exercises
Module Coordinator	Name: Dr. Mélanie Feurer Phone: +41 (0) 31 910 29 33 Email: melanie.feurer@bfh.ch Address: BFH – HAFL, Länggasse 85, 3052 Zollikofen
Lecturers	<ul style="list-style-type: none"> • Veronika Sandra Zbinden; HAFL • Dr. Gaspard Dumollard; HAFL • Célia Bühler; HAFL
Entry Requirements	Prerequisite: <ul style="list-style-type: none"> • MCCf036 Bridging Life Sciences
Competencies upon Completion	<p>Competencies</p> <p>After completing the module, students will be able to:</p> <ul style="list-style-type: none"> • assess potential impacts of management choices for the sustainable use of natural resources; • communicate and cooperate with specialists in the field of resource management, to ensure the sustainability of resource use in circularity projects and processes. <p>Outcomes</p> <p>After completing the module, students will be able to:</p> <ul style="list-style-type: none"> • analyse the potential benefits and risks of natural resource management choices on ecosystem quality and resilience; • analyse the effects of resource management choices on sustainable ecosystem functioning by applying the concept of ecosystem services, using case studies from agriculture and forestry.
Content	<p>This course centres on the functioning and cycles of ecosystems, the potential and limitations of natural resource use, and the implications of management choices on natural resources and the ecosystem services they provide.</p> <p>Using case studies and following a step-by-step approach, students discover the natural resource base (forests, agricultural land) and the natural cycles taking place. Using the concept of ecosystem services, they investigate the way in which management choices influence these cycles and the resource base.</p>

Teaching and Learning Methods	<ul style="list-style-type: none"> • Case studies • Group exercises • Excursions • Learning videos
Competency Assessment	<ul style="list-style-type: none"> • Group work report (40%) • Oral presentation (30%) • Personal reflection on learnings (30%)
Mode of Repetition	<p>Should a student fail the module, they have one more attempt. They may either:</p> <ul style="list-style-type: none"> • Submit a new assignment (100%), defined by the <i>Module Coordinator</i>, for the next resit examination session. • Repeat the full module next time it is offered.
Format	2 lessons per week over 7 weeks and 2 excursions
Attendance	Mandatory on date of oral presentation (part of assessment)
Module Type	Compulsory
Timing of the Module	Autumn Semester, Calendar Weeks 47 to 51 and 02 to 03
Venue	<p>Onsite Brückenstrasse 73, 3005 Bern</p> <p>Onsite Länggasse 85, 3052 Zollikofen (excursions)</p>
Literature	<ul style="list-style-type: none"> • Millennium Ecosystem Assessment, 2005. <i>Ecosystems and Human Well-being: Synthesis</i>. Island Press, Washington, DC., http://millenniumassessment.org/en/Synthesis.html • The Economics of Ecosystems and Biodiversity (TEEB) (2018). <i>Measuring what matters in agriculture and food systems: a synthesis of the results and recommendations of TEEB for Agriculture and Food's Scientific and Economic Foundations report</i>. Geneva: UN Environment. • Nair P. K. R. et al., <i>An Introduction to Agroforestry</i>, https://doi.org/10.1007/978-3-030-75358-0_2 • Ashton, Mark S. / Kelty, Matthew J., 2018. <i>The Practice of Silviculture, Applied Forest Ecology</i>, ISBN: 978-1-119-27095-9 • Hochschule für Agrar-, Forst- und Lebensmittelwissenschaften (BFH-HAFL): <i>tutorials Meinwald</i> https://meinwald.ch/#/tutorial
Language	English
Links to Other Modules	<ul style="list-style-type: none"> • MCCf113 Technological Cycles: Materials and Processes • MCCf133 Pathways to Net Zero GHG Emissions in the Food Sector • MCCf173 Circular Use of Materials • MCCf323 Society and Environment
Last Update	June 2024