Module title	**Biodiversity**
Code	E5
Degree Programme	Master of Science in Life Sciences
Group	Environment
Workload	3 ECTS (90 student working hours: 42 lessons contact = 32 h; 58 h self-study)
Module Coordinator	**Name**: Dr Andreas Stampfli (BFH) **Phone**: +41 (0)31 910 21 98 **Email**: andreas.stampfli@bfh.ch **Address**: Berner Fachhochschule, HAFL, Länggasse 85, 3052 Zollikofen
Lecturers	• Dr. Christine Flury, BFH • Dr. Alessandra Giuliani, BFH • Dr. Thibault Lachat, BFH • Dr. Astrid Zabel von Felten, BFH • Dr. Silvia Zingg, BFH • Guest lecturers
Entry requirements	To be able to successfully participate in this module, students need to: • know the basic concepts related to biodiversity (diversity within and between species and of ecosystems, options for characterization of diversity, natural versus human-influenced ecosystems) • have down-to-earth experience with measures to preserve biodiversity or to make use of it in production systems • be familiar with the drivers of biodiversity loss and maintenance and identify them in a specific case Documents covering these aspects will be made available on Moodle, along with key questions that the students should be able to answer. Respective skills and knowledge will be assessed in the end-of-module exam.
Learning outcomes and competences	After completing the module, students will be able to: • relate issues of biodiversity to their specific fields of expertise • assess the impact of interventions in natural resource management on biodiversity design effective measures for maintaining and enhancing biodiversity in their specific field of expertise.
Module contents	Starting with concepts and a theoretical ecological framework related to biodiversity, the module will illustrate biodiversity maintenance and ecological applications using selected cases from both human-influenced and natural ecosystems. Students will work on specific cases in problem-solving classes and present these cases in a seminar. <u>Introduction</u> • Global change, species loss, rise of the concept, status and trends of biodiversity • Biodiversity and the functioning of ecosystems • Biodiversity products and ecosystems services • International conventions and policies aiming at sustainable management of biodiversity and their impact <u>Management for biodiversity maintenance</u> • Land use and biological conservation in the Alps • Examples for biodiversity maintenance in forest, grassland and aquatic ecosystems

	• Sustainable management and development of value chains to maintain biodiversity • Genetic resources for food and agriculture, their use and conservation strategies • Molecular techniques for optimizing conservation: The case of local animal breeds <u>Ecological applications in natural resources management – agrobiodiversity</u> • Species diversity in production: intercropping, permaculture • Enhancing productivity and resilience and mitigating climate change by agroforestry • Effects of interventions in habitat diversity on pest control • Linking ecological principles and sustainable resource use Seminar: cases of biodiversity maintenance and use
Teaching / learning methods	Contact teaching: • Lectures • Joint development of conceptual framework • Presentation and discussion of case studies • Seminar-style workshop with students presenting cases • Exercises Self-study: • Pre-course assignments • Analyzing case studies during the module • Studying documents on conceptual frameworks • Preparing for the workshop
Assessment of learning outcome	1. Presentation of a case study in class, groups of 2 (50%) 2. Written end-of-module exam (50%)
Format	7-weeks
Timing of the module	Spring semester, CW 8-14
Venue	Bern
Bibliography	For preparation of entry requirements and lectures: Mittelbach GG, 2012. Biodiversity and ecosystem functioning. In: Community ecology, pp. 41-62. Sinauer, Sunderland, MA, USA. For preparation of lectures: TEEB, 2010. The Economics of Ecosystems and Biodiversity: mainstreaming the economics of nature: a synthesis of the approach, conclusions and recommendations of TEEB. During the course, more selected references and an extensive list of papers for the workshop and for further reading will be available on Moodle
Language	English
Links to other modules	There is a link to specialisation modules dealing with production systems (agro-biodiversity, diversity in forests) or with management of natural areas. There will be close coordination with the CS-module E4 “Ecological Infrastructure in Landscapes”. Both modules are designed to be complementary.
Comments	In teams of two, students choose the topic for their case study from a list of topics provided, covering the vast array of biodiversity studies. They can thus pursue their specific interests and learn from well selected scientific papers for their case.

Last Update	17.09.2019