Freie Universität Bozen
Libera Università di Bolzano
Università Liedia de Bulsan

Syllabus
Course description

Course title	Sustainable farming systems in mountain areas
Course code	47044
Scientific sector	AGR/03 – AGR/19
Degree	Environmental Management of Mountain Areas
Semester	II
Year	/
Academic year	2019/20
Credits	9
Modular	Yes

Total lecturing hours	59 (24+35)
Total lab hours	
Total exercise hours	31 (16+15)
Attendance	Not compulsory, but recommended. Strongly recommended the attendance to the field activities.
Prerequisites	Students should have a basic knowledge of sustainable agriculture and animal production
Course page	https://next.unibz.it/en/faculties/sciencetechnology/master-environmental-management-mountain-areas/course-offering/

Specific educational objectives	The course delivers detailed information on crop and livestock production systems as well as on wildlife management that provide economic opportunities for the mountain farms. Students will be able to evaluate such production systems and to identify weaknesses and strengths. Furthermore, they will be able to design production systems for a given area and adapt their management in order to improve their ecological and economic sustainability, and integration with the surrounding environment.

Module 1	**Mountain Agriculture**
Lecturer	Dr. Damiano Zanotelli Piazza Università 5, 39100 Bolzano-Bozen, office room K-3.03 e-mail: damiano.zanotelli@unibz.it phone: 0471-017121
Scientific sector of the lecturer	AGR 03
Teaching language	English
Office hours	see timetable
Teaching assistant *(if any)*	NN
Office hours	-

List of topics covered	The Module will cover the following topics: 1. Overview of mountain agriculture (fact and figures, challenges and opportunities) 2. Natural resources supporting agricultural production: soil and climate 3. Agricultural practices suitable to mountain areas 4. Permanent crops: apple, grape and berries 5. Vegetable crops 6. Arable crops 7. Pastures and grasslands
Teaching format	Lectures, Excursions

Module 2	**Livestock management in mountain areas**
Lecturer	Prof. Dr. Dr. Matthias Gauly, Universitätsplatz 5, Room K 1.10, matthias.gauly@unibz.it, phone: 0471 017115, Webpage: https://www.unibz.it/en/faculties/sciencetechnology/academic-staff/person/34735-matthias-gauly N.N.
Scientific sector of the lecturer	AGR/19
Teaching language	English
Office hours	During semester, upon arrangement by email
Teaching assistant ***(if any)***	-
Office hours	
List of topics covered	The Module will cover the following topics: 1. Structures of animal production in mountain areas 2. Production and management systems in livestock (cattle, pigs, small ruminants, poultry, horses) 3. Production and management of non-domesticated species (e.g. deer) 4. Biology of selected wildlife species 5. Management of large carnivores (wolf, bear, lynx) and interactions with livestock farming
Teaching format	Lectures and excursions are followed by presentations of the students. Each student gives a presentation on a specific topic related to wildlife management.

Learning outcomes	**Knowledge and understanding** of the main characteristics of the agricultural and livestock production systems in mountain areas. **Applying Knowledge and understanding** to identify in a given area, the main environmental and economic constraints that affects plant and animal production. **Making judgments** to be able to identify for a given environment and production system, the most suitable management techniques in order to improve its economic

	and ecological sustainability. **Communication skills** Ability to present and discuss the acquired knowledge using a scientific terminology and sound arguments. **Learning skills** Ability to autonomously extend the knowledge acquired during the course by critically reading of scientific literature.
Assessment	The two modules of Agricultural Systems in Mountain areas (Mountain Agriculture and Livestock management in mountain areas) will be jointly assessed by oral exams on topics presented and discussed in classes and during the field activities, to be offered starting from the end of the course.
Assessment language	English
Evaluation criteria and criteria for awarding marks	The evaluation process takes place in the context of oral exam based on the correctness of the answers, on the language correctness, on the students' ability to argument their answers, to derive relationships and to create connections between the topics. In module 2 (Livestock management in mountain areas), the student presentation counts 30% and the oral exam 70% of the grade obtained in this module. The final grade for the entire course will be calculated as the weighted average (40% for module 1 and 60% for module 2) of the final grades obtained in the two modules.

Required readings	There is no single textbook that covers the content of the entire course. Selected chapters of the following textbooks: • Improved Grassland Management. John Frame. CSIRO publishing. 2011. ISBN: 9781847972613 • The Future of Mountain Agriculture. Mann, Stefan (Ed.). Springer Geography. 2013. ISBN 978-3-642-33584-6 • Fundamentals of Temperate Zone Tree Fruit Production. Tromp, Webster and Wertheim. Backhuys Publishers, 2005 Hand-outs from lessons
Supplementary readings	• Tierernährung. Leitfaden für Studium, Beratung und Praxis. Manfred Kirchgeßner, 13/2011. ISBN 978-3-7690-0803-6, DLG-Verlag. • Tierzucht. Alfons Willam, Henner Simianer, 2011.

	ISBN 978-3-8252-3526-0, UTB. • Nutztierhaltung und -hygiene. Grundwissen Bachelor. Steffen Hoy, Matthias Gauly, Joachim Krieter, 2006. ISBN 978-3-8252-2801-9, UTB. More references will be mentioned during the lectures. Selected papers from Journals: Animal, Livestock Science, Journal of Animal Science and Dairy Science, Applied Animal Behaviour Science, Crop and Pasture Science; Agriculture Ecosystems and Environment, etc.