Freie Universität Bozen
Libera Università di Bolzano
Università Liedia de Bulsan

Syllabus
Course description

Course title	**Restoration Ecology and Economic appraisal of mountain areas**
Course code	47054
Scientific sector	BIO/03 and AGR/01
Degree	Environmental Management of Mountain Areas (EMMA)
Semester	2
Year	*I*
Academic year	2023/2024
Credits	6 (3+3)
Modular	Yes

Total lecturing hours	30 (8+22)
Total lab hours	-
Total exercise hours	30 (10+20)
Attendance	Recommended
Prerequisites	None
Course page	https://www.unibz.it/en/faculties/agricultural-environmental-food-sciences/master-environmental-management-mountain-areas/course-offering/

Specific educational objectives	Advanced Ecosystem Restoration will deepen the specific restoration experiences of mountain and other ecosystems and land-use types, which have been achieved in the past decades. Additionally, current research in restoration ecology and ecosystem restoration will be presented and discussed, taking the whole globe into account. By the end of the course, the student is expected to have acquired 1) knowledge on specific aspects of ecosystem restoration with regard to the natural as well as the social sciences; 2) the capacity to plan, manage, and monitor specific ecosystem restoration projects; 3) a deep and specific knowledge on approaches, methodologies, tools, and limitations of particular ecosystem restoration projects, in particular under current and future trends of environmental and societal changes; and 4) the capacity to critically reflect current research in restoration ecology. The course aims at teaching basic and applied concepts of rural (i.e. agricultural and forestry) appraisal. In particular the course provides students with the opportunity to: 1) understand factors influencing the value of farm and natural/forest resources; 2) become familiar with different appraisal methodologies and understand how to choose

	the most appropriate ones; 3) learn how to perform rural and forest appraisal procedures; 4) understand how to analyse rural and forest projects/investments and choose among project/investment alternatives; 5) understand basic aspects in the field of legal real estate appraisal; 6) acquire appropriate technical terminology to be adopted in both professional and research activities.

Module 1	**Advanced Restoration Ecology and Ecosystem Restoration**
Lecturer	Stefan Zerbe, Building K, Office K 2.02, 0471 017150
Scientific sector of the lecturer	BIO/03
Teaching language	English
Office hours	From Monday to Friday, upon arrangement by email
Teaching assistant	Katharina Alverà
Office hours	9
List of topics covered	The course will cover the following topics: 1) Approaches, methodologies, tools, and practical measures in specific ecosystem restoration projects throughout the world 2) Current trends and new frontiers in the research on restoration ecology 3) Specific ecosystem and land-use types and their restoration with case studies, such as e.g., forests, mountain grassland, heaths, peatlands, rivers, lakes, quarries, urban environments, and alpine ecosystems 4) Socio-economic aspects of specific ecosystem restoration projects
Teaching format	The teacher will offer lectures on the above stated topics. Selected topics are presented by the students and discussed by the class. The format of the presentation might be Power-point presentations, but also can be chosen freely by the students. In the lab part, if permitted by unibz, an excursion might be offered.

Module 2	**Rural appraisal**
Lecturer	**TBA**
Scientific sector of the lecturer	AGR/01
Teaching language	English
Office hours	
Teaching assistant (if any)	-
Office hours	
List of topics covered	The course will cover the following main topics: 1) Introduction to rural economics and appraisal 2) Farm and forest enterprise appraisal (accounting) 3) Fundamentals of financial mathematics for appraisal 4) Appraisal methodologies, including general

	appraisal issues (criteria, procedures, assumptions), farm and forest stand appraisal, and natural resources appraisal 5) Investment analysis and assessment
Teaching format	Theoretical topics will be presented in the class by the professor, through frontal lessons. Interaction and direct participation by students will be encouraged by means of exercises performed during classes and/or home assignments. Power Point (PPT) presentations of the lectures will be made available on the Moodle website of the University, along with links to additional materials/readings, external resources and exercises.

Learning outcomes	**Advanced Restoration Ecology and Ecosystem Restoration** **Knowledge and understanding** of i) specific aspects and approaches in ecosystem restoration with case studies; ii) current trends and new frontiers in restoration ecology; **Applying knowledge and understanding** to i) solving specific environmental problems by ecosystem restoration and sustainable management or within research projects, based on respective case studies **Making judgements** on ecosystem changes, human impact and ecosystem degradation as well as management and restoration options with regard to specific ecosystem and land-use types **Communication skills** to discuss critically specific aspects of restoration ecology and ecosystem restoration as well as to apply unambiguously with pertinent and adequate technical terminology **Learning skills** to autonomously deepen and update the knowledge acquired during the course seeking relevant information on scientific and technical literature, for their future professional and/or academic studies **Rural appraisal** **Knowledge and understanding** of: i) factors influencing the value of farm, forest and natural resources; ii) the process of identifying, gathering, and organizing information and data necessary for conducting an appraisal procedure; iii) project/investment analysis in the rural and forest sector.

	Applying knowledge and understanding to: i) analyse farm and forest enterprises; ii) perform basic farm/forest appraisal process, employing different valuation approaches; iii) analyse the economic feasibility, profitability, and repayment ability of alternative investments in the rural and forest sector. **Making judgments** on: i) farm/forest enterprise accounting and economic performances; ii) the identification and implementation of appropriate appraisal methodologies to farm, forest and natural resources; iii) the identification of the best investment alternatives in the rural and forest sector. **Communication skills** to present basic and applied aspects of rural and forest appraisal as well as economic evaluation of rural projects/investments by use of appropriate technical terminology. **Learning skills** to autonomously develop and update the knowledge acquired during the course for future professional career and/or academic studies.

Assessment	The assessment of students' outcomes will be carried out through a written exam (60%) and the student presentation (40%) in the part of Advanced Ecosystem Restoration The mark for Module 2 will be assigned based on the final written exam and class/home individual/group exercises as well as participation and proactive attitude during classes.
Assessment language	English
Evaluation criteria and criteria for awarding marks	The final grade for the entire course will be the final grades obtained in the two modules. The mark will be defined through a written exam (60%) and the student presentation (40%) in the part of Advanced Ecosystem Restoration. Relevant for the exam assessment and the students' presentation, respectively, are clarity of answers, mastery of language (with respect to teaching language), ability to summarize, evaluate, and establish relationships between topics and critically reflect and interpret scientific research. Relevant for assessment of student presentations (seminar): ability to extract the key messages, creativity, skills in critical thinking, ability to summarize and interpret

	in own words The mark for Module 2 will be assigned based on the final written exam (85%) and class/home individual/group exercises as well as participation and proactive attitude during classes (15%). Relevant for the written exam assessment are clarity of answers, mastery of technical terminology, ability to choose and use correct appraisal methodologies, and evaluate; Relevant for the class/home assignments and exercises are accuracy, timeliness, clarity, and mastery of the technical terminology.

Required readings	• Zerbe, S. (2023) Restoration of Ecosystems – Bridging Nature and Humans. A Transdisciplinary Approach. Springer • Zerbe, S. (2022) Restoration of Multifunctional Cultural Landscapes. Merging Tradition and Innovation for a Sustainable Future. Landscape Series 30, Springer • Scientific papers
Supplementary readings	• Teaching materials made available on the OLE e-learning platform and in the Reserve Collection