Syllabus
Course description

Course title	**Ecosystem restoration and rural appraisal**
Course code	47030
Scientific sector	BIO/03 and AGR/01
Degree	Environmental Management of Mountain Areas (EMMA)
Semester	2
Year	*I*
Academic year	2020/2021
Credits	6 (3+3)
Modular	Yes

Total lecturing hours	40 (20+22)
Total lab hours	-
Total exercise hours	18 (10+8)
Attendance	Recommended
Prerequisites	None
Course page	https://www.unibz.it/en/faculties/sciencetechnology/master-environmental-management-mountain-areas/course-offering/?academicYear=2020

Specific educational objectives	This course belongs to those characterizing the Master program, in the area of ecosystem restoration. The course aims at teaching basic and applied as well as socio-economic aspects of ecosystem restoration, in particular related to mountain areas, with regard to ecology, biology, and geography. The geographical focus will be Central Europe and the Alps, however not neglecting regions in other parts of the world. By the end of the course, the student is expected to have acquired 1) knowledge on basic and applied as well as socio-economic aspects of ecosystem restoration; 2) the capacity to plan and manage ecosystem restoration; 3) the knowledge on approaches, methodologies, tools, and limitations of ecosystem restoration, in particular under current and future trends of environmental and societal changes; and 4) the capacity to critically reflect current trends in ecosystem restoration and related measures.
	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	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 (if any)	Alverà Katharina
Office hours	9
List of topics covered	The course will cover the following topics: 1) Introduction to Restoration Ecology with history and concepts 2) Approaches, methodologies, tools, and practical measures in ecosystem restoration 3) Limitations in ecosystem restoration 4) Ecosystem and land-use types and their restoration, such as, e.g. forests, mountain grassland, heaths, peatlands, rivers, lakes, quarries, urban environments, and alpine ecosystems 5) Socio-economic aspects of restoration 6) Ethical aspects of restoration 7) Case studies of ecosystem restoration in Central Europe and the Alps, and the world.
Teaching format	Topics are presented by the professor by lectures. The students are expected to contribute actively to the critical discussion of the lecture issues. The format of this module combines lectures as Power-point presentations with an excursion. Teaching material will be provided by the professor. In the lab part, if permitted by unibz, an excursion might be offered.

Module 2	Rural appraisal
Lecturer	Mauro Masiero, mauro.masiero@unibz.it
Scientific sector of the lecturer	AGR/01
Teaching language	English
Office hours	1 hour just after class or upon arrangement by email
Teaching assistant (if any)	-
Office hours	9
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	**Knowledge and understanding** of i) basic and applied aspects and methodologies in Restoration Ecology; ii) ecosystem functioning and services as well as human impact on ecosystems and their restoration after degradation; **Applying knowledge and understanding** to i) ecosystem management and restoration, solving environmental problems by restoration and sustainable management or within research projects **Making judgements** on ecosystem changes, human impact and ecosystem degradation as well as management and restoration options **Communication skills** to discuss critically basic and applied aspects of restoration ecology and of management strategies 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 **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 The final grade for the entire course will be calculated as the average of the final grades obtained in the two modules. 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 calculated as the average of the final grades obtained in the two modules. The mark for Module 1 will be assigned based on the final written exam (100 %) Relevant for the written exam assessment are clarity of answers, mastery of language (with respect to teaching language), ability to summarize, evaluate, and establish relationships between topics; 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. (2019) Renaturierung von Ökosystemen im Spannungsfeld von Mensch und Umwelt. Ein interdisziplinäres Fachbuch. Springer • Van Andel, J.; Aronson, J. (2012): Restoration ecology. The new frontier. 2nd ed., Oxford, Blackwell Publ. • Web-based materials from the international Society of Ecosystem Restoration (SER) • Scientific papers provided in class
Supplementary readings	• Additional scientific papers provided in class • Teaching materials made available on the OLE e-learning platform