

Syllabus

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Titul dl curs	Advanced ecological restoration and protection forestry
Codesc dl curs	47074
Titul suplementar	
SSD	
Lingaz	Inglese
Curs de laurea	Corso di laurea magistrale in Gestione sostenibile dell'ambiente montano
D'autri cursc de laurea (cursc deberieda)	
Dozenc	prof. dr. Camilla Wellstein, Camilla.Wellstein@unibz.it https://www.unibz.it/en/faculties/agricultural-environmental-food-sciences/academic-staff/person/33786 prof. Roberto Tognetti, Roberto.Tognetti@unibz.it https://www.unibz.it/en/faculties/agricultural-environmental-food-sciences/academic-staff/person/47243
Assistent didatich	dott. Luca Da Ros
Semester	Secondo semestre
Ann/Agn de stude	1
Credic universitars	6
Ores de insegnament	36
Ores de laboratorio	24
Ores de stude individual	90
Ores de riceviment prevedudes	18
Ressumé di contegnus	The Protection forestry module aims to provide students with knowledge of the role of mountain forests in mitigating and preventing natural hazards, while ensuring the continued provision of other ecosystem services. The module focuses on forest management strategies specifically designed to enhance the

	protective functions of mountain forests. For each type of natural hazard and forest category in the Alpine region, the most suitable management approaches will be discussed, with reference to real-world case studies.
Argomenc dl curs	- Definition of protection forests and hazards - Recalls about tree characteristics and organs - Extreme events and return period - Target profile - Landslides, avalanches, rockfalls - Soil stability and bioengineering - Approaches, methodologies, tools, and practical measures in specific ecosystem restoration projects throughout the world - Current trends and new frontiers of restoration ecology - Specific ecosystem and land-use types - Socio-economic aspects of specific ecosystem restoration projects
Paroles clef	Extreme events, Disturbance, Land use change, Restoration ecology, Protection forestry
Prerequisic aconsiés	
Cursc propedeutics	No
Modalité de enseignament	Lectures shall introduce fundamental concepts in protection forestry and ecological restoration with particular emphasis on the scientific foundations of environmental change restoration, adaptation, and mitigation. Field excursions shall provide direct experience in observing and understanding forest ecophysiological and ecosystem restoration processes. Laboratory exercises shall enable students to apply theoretical concepts through the analysis of empirical data. Supporting materials, including PowerPoint presentations, shall be made available on Teams.
Oblianza de frecuencia	No
Obietifs formatifs y competenzes da arjonje	Knowledge and understanding --> - incorporate socio-economic aspects into mountain rural development, including the promotion of tourism and local products - identifying and finding sources of funding, and managing rural development projects - apply knowledge of landscape ecology, spatial planning and

	environmental rehabilitation in the sustainable management of mountain environments - assess the natural hazards typical of mountain environments and their impact on society, identifying the most appropriate mitigation strategies - assess the natural hazards typical of mountain environments and their impact on society, identifying the most appropriate mitigation strategies - collaborate with other professionals in the fields of architecture, engineering and natural sciences Ability to apply knowledge and understanding --> Knowledge and learning abilities are achieved through course attendance, practical activities both in the field and in the laboratory and through personal study. The achievement of the learning objectives will be tested through oral and/or written examinations, as well as through the guided preparation of seminars on topics specific to the Master's degree. In addition to having acquired a solid scientific-technological basis, the graduate of the Master's degree in "Environmental Management of Mountain Areas" acquires the ability to tackle and solve new problems. Thanks to a technical-scientific education, integrated with technological-managerial subjects, he or she is able to analyse, design, plan and manage the mountain territory and its specificities, vulnerabilities and characteristics. The graduate must also be able to coordinate interdisciplinary teams in the fields of ecology, restoration and functional maintenance of mountain ecosystems, agro-forestry management and socio-economic development. The tests (written and oral examinations, reports) and exercises involve the performance of specific tasks in which the student demonstrates mastery of tools, methodologies and critical autonomy. The final thesis will play a central role in assessing the students' ability to design, plan, and manage forest ecosystems, with particular reference to the mountain environment. Autonomy of judgement --> The didactic approach envisages that theoretical training in courses is accompanied by individual and group work that encourages
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	active participation, a proactive attitude and the capacity for autonomous elaboration. The writing of the thesis, which is experimental in nature, will follow the editorial style of a scientific publication, further consolidating the student's critical skills. Other key training moments for the development of independent judgement include educational visits and internships in companies and public or private institutions. Communication skills --> Graduates will be able to work professionally and scientifically in one or more foreign languages, since in addition to English (the official language of the course) in which all compulsory and part of the optional courses are offered, they will be able to follow optional courses offered in Italian or German. The Language Centre of the Free University of Bozen/Bolzano also offers students, in accordance with the policy for trilingualism that characterises the profile of the Free University of Bozen/Bolzano, the possibility of taking extracurricular courses at level (A1-C1) in Italian and German. Finally, the graduate will be able to effectively communicate what he or she has learnt to the different professional categories with which he or she works and has the ability, given the international nature of the degree course, to share projects with foreign interlocutors. Written and oral communication skills are developed in seminars, tutorials and training activities, which also include the preparation of written reports and documents and the oral presentation of these, compulsorily in English and possibly in Italian and German for optional courses. The acquisition and assessment/verification of the achievement of communication skills is also envisaged through the writing of the final dissertation and its discussion in English. The Master's degree course promotes the acquisition of additional language skills (Italian/German), which are also aimed at increasing the ability of graduates to effectively market themselves on the labour market in part of the Alpine region (Austria-Switzerland-Italy-Germany). Learning capacity --> The graduate will have the ability to learn by synthesising the
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	notions learnt in the course of studies, in order to address complex design issues, by expanding and updating the knowledge and technical skills acquired by using analysis, design and management tools appropriate to the situations in which the graduate operates. The graduate will be able to manage the different information networks in order to be able to continue to learn and thus to update himself/herself for his/her own cultural improvement and professional advancement. In addition, the graduate will be able to identify the appropriate training tools and paths for the development of their own cultural and specialist knowledge. Learning skills are attained during all phases of the course of study. The Master's degree course enables students to consolidate their self-study skills, especially when they carry out group work on proposed topics; again, this ability is enhanced during a compulsory course, which involves group work, and subsequently in the preparation of the final thesis of an experimental nature. In particular, this practical course requires students to work in small groups (3-5) on a project (e.g., rural development plan for a mountainous area, rehabilitation project for a degraded terrestrial or river ecosystem) from its initial stages (identification of objectives, conceptual development of actions, collection of available data) through to interaction with the various stakeholders and communication activities towards society. The projects will take place under the supervision of two or more professors from the two universities involved, but also by having the students interact with professional firms and/or public technical offices that have already expressed interest and willingness to do so. Learning ability is assessed through continuous forms of verification during the training activities and during the conduct of the activity related to the final examination.
Obietifs formatifs y competenzes da arjonje (informazioni supplementares)	
Sort de ejam	The final grade shall be determined on the basis of course activities, including exercises and field work, written essays, and oral presentations. The final assessment for this course represents the weighted average of the marks obtained in the two modules.
Criters de valutazion	Evaluation shall focus on the student's capacity to undertake

	research activities both independently and in collaboration with peers. The final assessment shall place particular emphasis on the ability to synthesize, critically evaluate, and establish connections among the topics addressed in the course.
Bibliografia obbligatora	Recent scientific literature shall be provided throughout the course to support lectures, field activities, and group exercises.
Bibliografia aconsiada	
Deplù informaziuns	
OSS	Utilizzo sostenibile della terra, Lotta contro il cambiamento climatico

Modul

Titul	Advanced ecological restoration and protection forestry
Codesc dl curs	47074A
SSD	BIOS-01/C
Lingaz	Inglese
Dozenc	prof. dr. Camilla Wellstein, Camilla.Wellstein@unibz.it https://www.unibz.it/en/faculties/agricultural-environmental-food-sciences/academic-staff/person/33786
Assistent didatich	
Semester	Secondo semestre
Credic universitars	3
Dozent/a responsabel/bla	
Ores de ensegnament	18
Ores de labore	12
Ores de stude individual	45
Ores de riceviment prevedudes	9
Ressumè di contegnus	- Approaches, methodologies, tools, and practical measures in specific ecosystem restoration projects throughout the world - Current trends and new frontiers of restoration ecology - Specific ecosystem and land-use types - Socio-economic aspects of specific ecosystem restoration projects

Argomenc dl curs	
Modalité de enseignement	Lectures shall introduce fundamental concepts in ecological restoration with particular emphasis on the scientific foundations of environmental change restoration. Field excursions shall provide direct experience in observing and understanding ecosystem restoration processes. Laboratory exercises shall enable students to apply theoretical concepts through the analysis of empirical data. Supporting materials, including PowerPoint presentations, shall be made available on Teams.
Bibliografia obligatoria	Recent scientific literature shall be provided throughout the course to support lectures, field activities, and group exercises.
Bibliografia aconsieda	

Modul

Titul	Protection forestry and natural hazards
Codesc dl curs	47074B
SSD	AGRI-03/B
Lingaz	Inglese
Dozenc	prof. Roberto Tognetti, Roberto.Tognetti@unibz.it https://www.unibz.it/en/faculties/agricultural-environmental-food-sciences/academic-staff/person/47243
Assistent didatich	dott. Luca Da Ros
Semester	Secondo semestre
Credic universitars	3
Dozent/a responsabel/bla	
Ores de enseignement	18
Ores de laboratore	12
Ores de stude individual	45
Ores de riceviment prevedudes	9
Ressumé di contegnus	- Definition of protection forests and hazards - Recalls about tree characteristics and organs - Extreme events and return period

	- Target profile - Landslides, avalanches, rockfalls - Soil stability and bioengineering
Argomenc dl curs	The Protection forestry and natural hazards module provides students with advanced knowledge of the role of mountain forests in preventing and mitigating natural hazards while maintaining other essential ecosystem services. It examines the ecological and silvicultural principles underlying the protective function of forests and the management strategies used to strengthen their effectiveness and resilience. For the principal natural hazards and forest types of the Alpine region, students will evaluate suitable management approaches through scientific evidence, practical applications, and real-world case studies.
Modalité de enseignament	Teaching will combine lectures, field excursions, and group exercises. Lectures will introduce the fundamental concepts of protection forestry, with particular emphasis on the scientific principles underlying the prevention and mitigation of natural hazards. Field excursions will provide direct experience in observing and assessing forest structure, protective functions, and forest responses to natural hazards. Group exercises will enable students to apply theoretical concepts by analysing empirical data and evaluating forest management options. Supporting materials, including PowerPoint presentations, shall be made available on MS Teams.
Bibliografia obligatora	Recent scientific literature shall be provided throughout the course to support lectures, field activities, and group exercises.
Bibliografia aconsieda	