Syllabus

Course Description

Course Title	Nature conservation and management
Course Code	47073
Course Title Additional	
Scientific-Disciplinary Sector	
Language	English
Degree Course	Master in Environmental Management of Mountain Areas
Other Degree Courses (Loaned)	
Lecturers	dr. Fiona Jane White, FionaJane.White@unibz.it https://www.unibz.it/en/faculties/agricultural-environmental-food-sciences/academic-staff/person/50468 dr. Gianmarco Tavilla, Gianmarco.Tavilla@unibz.it https://www.unibz.it/en/faculties/agricultural-environmental-food-sciences/academic-staff/person/52426
Teaching Assistant	Dott. Franziska Zimmermann
Semester	Second semester
Course Year/s	1
CP	6
Teaching Hours	36
Lab Hours	24
Individual Study Hours	90
Planned Office Hours	18
Contents Summary	- Theory and concepts of botany - Plant systematics and plant determination - Methods in plant ecology - Methods in vegetation ecology - Vegetation ecology in mountain and grassland environments - Habitat conservation - Plants under climate and land-use change

	- Frontiers of research in applied botany
Course Topics	The course provides a comprehensive overview of plant biology, ecology, and conservation. It covers fundamental concepts and theories of botany, methods in plant and vegetation ecology, the ecology and dynamics of key species and mountain and grassland vegetation. Additionally, it addresses the historical and contemporary perceptions of nature, types of protected areas, causes and consequences of biodiversity loss such as climate and land-use change, conservation and restoration methods.
Keywords	Alpine vegetation; Biodiversity management; Biodiversity loss; Conservation Strategies; Grassland ecology; Plant ecology; Restoration Ecology
Recommended Prerequisites	General knowledge of ecology, botany, and zoology is required.
Propaedeutic Courses	No
Teaching Format	The format of this module combines lectures with group work (student presentations) and excursions.
Mandatory Attendance	No
Specific Educational Objectives and Learning Outcomes	Knowledge and understanding --> - collaborate with other professionals in the fields of architecture, engineering and natural sciences Ability to apply knowledge and understanding --> 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 --> Autonomy of judgement is developed by means of training aimed at stimulating students' critical analysis. This includes the use of case studies, simulations using spreadsheets and videos, the critical reading and discussion of scientific articles, as well as specialised seminars conducted by experts from the forestry and environmental sector. Another fundamental means of developing independence and critical awareness is through the drafting of the final thesis, in which the student must demonstrate that he or she has acquired autonomy of choice and design skills. 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 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.

Specific Educational Objectives and Learning Outcomes (additional info.)	
Assessment	The assessment of students' outcomes will be carried out through a written exam.
Evaluation Criteria	The final grade for the entire course will be calculated as the average of the final grades obtained in the two modules.
Required Readings	Material will be provided by the professor.
Supplementary Readings	
Further Information	
Sustainable Development Goals (SDGs)	Responsible consumption and production, Life on land, Climate action

Course Module

Course Constituent Title	Grassland and alpine vegetation ecology and management
Course Code	47073A
Scientific-Disciplinary Sector	BIOS-01/C
Language	English
Lecturers	dr. Fiona Jane White, FionaJane.White@unibz.it https://www.unibz.it/en/faculties/agricultural-environmental-food-sciences/academic-staff/person/50468
Teaching Assistant	Dott. Franziska Zimmermann
Semester	Second semester
CP	3
Responsible Lecturer	
Teaching Hours	18
Lab Hours	12
Individual Study Hours	45
Planned Office Hours	9
Contents Summary	- Theory and concepts of botany - Plant systematics and plant determination - Methods in plant ecology - Methods in vegetation ecology

	- Vegetation ecology in mountain and grassland environments - Vegetation dynamics in mountain environments - Plants under climate and land-use change - Frontiers of research in applied botany
Course Topics	
Teaching Format	The professor provides an introduction to the module in the first lesson. The format of this module combines lectures with exercises and excursions. Power-point presentations, group work and student presentations are used as methods.
Required Readings	Material will be provided by the professor.
Supplementary Readings	

Course Module

Course Constituent Title	Nature conservation and protected areas
Course Code	47073B
Scientific-Disciplinary Sector	BIOS-01/C
Language	English
Lecturers	dr. Gianmarco Tavilla, Gianmarco.Tavilla@unibz.it https://www.unibz.it/en/faculties/agricultural-environmental-food-sciences/academic-staff/person/52426
Teaching Assistant	
Semester	Second semester
CP	3
Responsible Lecturer	
Teaching Hours	18
Lab Hours	12
Individual Study Hours	45
Planned Office Hours	9
Contents Summary	- Theory and concepts of botany - Plant systematics and plant determination - Methods in plant ecology - Methods in vegetation ecology - Vegetation ecology in mountain and grassland environments

	- Habitat conservation - Plants under climate and land-use change - Frontiers of research in applied botany
Course Topics	The course will cover the following topics: 1) Conservation and conservation biology; 2) Types of nature protection areas; 3) Causes and consequences of biodiversity loss; 4) Evaluation methods in nature conservation and Restoration Ecology; 5) Regional, national and international initiatives for nature conservation; 6) Habitat classification and monitoring; 7) Biodiversity assessment and new frontiers in conservation; 8) Sampling design, how to collect unbiased data.
Teaching Format	The professor provides an introduction into the module in the first lesson. The format of this module combines lectures (18 h) with exercises and excursions (12 h). Power-point presentations as well as practical work, group work and student presentations are used as methods.
Required Readings	• Primack R.B. (2018): Essentials of conservation biology. 6th edition. Sinauer Associates
Supplementary Readings	• Sodhi, Navjot S., and Paul R. Ehrlich (eds), Conservation Biology for All (Oxford, 2010; online edn, Oxford Academic, 1 Feb. 2010) • Hunter, M. L., Jr., Gibbs, J. P., & Popescu, V. D. (2021). *Fundamentals of conservation biology* (4th ed.). Wiley-Blackwell.