

Syllabus

Kursbeschreibung

Titel der Lehrveranstaltung	Environmental data analysis
Code der Lehrveranstaltung	47068
Zusätzlicher Titel der Lehrveranstaltung	
Wissenschaftlich-disziplinärer Bereich	NN
Sprache	Englisch
Studiengang	Master in Umweltmanagement in Bergregionen
Andere Studiengänge (gem. Lehrveranstaltung)	
Dozenten/Dozentinnen	Prof. Enrico Tomelleri, Enrico.Tomelleri@unibz.it https://www.unibz.it/en/faculties/agricultural-environmental-food-sciences/academic-staff/person/38848
Wissensch. Mitarbeiter/Mitarbeiterin	
Semester	Erstes Semester
Studienjahr/e	1
KP	3
Vorlesungsstunden	20
Laboratoriumsstunden	10
Stunden für individuelles Studium	45
Vorgesehene Sprechzeiten	9
Inhaltsangabe	- Ability to manage, analyse and interpret data and to present them graphically - Learn specialised statistical software and functions to perform data analysis - Ability to apply theoretical and empirical models to a real-world context - Ability to interpret the results of environmental analysis and draw

	appropriate conclusions
Themen der Lehrveranstaltung	Research questions and experimental design in environmental science Reproducible scientific programming in R Environmental data collection, organisation and quality control Data ownership, FAIR principles and responsible data sharing Analysis of meteorological, microclimate, phenocam and dendrometer data Visualisation, interpretation and presentation of scientific results
Stichwörter	Environmental data analysis; experimental design; scientific programming; reproducibility; environmental monitoring; data visualisation; uncertainty; FAIR data; open science; scientific communication.
Empfohlene Voraussetzungen	Basic knowledge of environmental science and introductory statistics is recommended. Previous experience with R or another programming language is helpful but not required.
Propädeutische Lehrveranstaltungen	No
Unterrichtsform	Interactive lectures combined with guided computer practicals in R, case-based discussions and problem-oriented analysis of environmental datasets. Students work in small groups to formulate research questions, analyse data, and communicate their findings.
Anwesenheitspflicht	No
Spezifische Bildungsziele und erwartete Lernergebnisse	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. 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. 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.
Spezifisches Bildungsziel und erwartete Lernergebnisse (zusätzliche Informationen)	
Art der Prüfung	Written/oral exam and/or project work.
Bewertungskriterien	Assessment will focus on the ability to apply methods, critical thinking, and clarity of technical communication.
Pfichtliteratur	Provided via Open Learning Environment or MS Teams.

Weiterführende Literatur	Provided via Open Learning Environment or MS Teams.
Weitere Informationen	
Ziele für nachhaltige Entwicklung (SDGs)	Hochwertige Bildung, Leben an Land, Maßnahmen zum Klimaschutz, Industrie, Innovation und Infrastruktur