

## Syllabus

### Course description

<b>Course title</b>	<b>Ecosystem restoration</b>
<b>Course code</b>	47050 B
<b>Scientific sector</b>	BIO/03
<b>Degree</b>	Environmental Management of Mountain Areas (EMMA)
<b>Semester</b>	1
<b>Year</b>	I
<b>Academic year</b>	2023/2024
<b>Credits</b>	3
<b>Modular</b>	Yes

<b>Total lecturing hours</b>	18
<b>Total lab hours</b>	-
<b>Total exercise hours</b>	12
<b>Attendance</b>	obligatory
<b>Prerequisites</b>	None
<b>Course page</b>	<a href="https://www.unibz.it/en/faculties/agricultural-environmental-food-sciences/master-environmental-management-mountain-areas/course-offering/">https://www.unibz.it/en/faculties/agricultural-environmental-food-sciences/master-environmental-management-mountain-areas/course-offering/</a>

<b>Specific educational objectives</b>	<p>The course teaches basic and applied as well as socio-economic aspects of ecosystem restoration and restoration ecology. Basic ecological concepts will be applied for ecosystem restoration. The geographical focus will be Central Europe and the Alps, however not neglecting regions (and mountains) 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 taking examples of specific land-use types; 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.</p>
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<b>Lecturer</b>	Stefan Zerbe, Building K, Office K 2.02, 0471 017150
<b>Scientific sector of the lecturer</b>	BIO/03
<b>Teaching language</b>	English
<b>Office hours</b>	Upon request
<b>Teaching assistant</b>	Dr. Uta Fritsch
<b>List of topics covered</b>	<p>The course will cover the following topics:</p> <p>1) Introduction to Restoration Ecology with history and</p>

	<p>concepts</p> <ol style="list-style-type: none"> <li>2) Ecological concepts for ecosystem restoration</li> <li>3) Practical measures in ecosystem restoration</li> <li>4) References for ecosystem restoration</li> <li>5) Monitoring and success control</li> <li>6) Examples of ecosystems and land-use types and their restoration</li> <li>7) Re-introduction of animals and plants</li> </ol>
<b>Teaching format</b>	<p>Topics are presented by the professor with lectures, applying mainly Power Point tools. The slides will be available in the UNIBZ reserve collection and additional teaching material might be provided by the professor. In the seminar part, students will shortly present topics related to ecosystem and landscape restoration.</p>

<b>Learning outcomes</b>	<p><b>Knowledge and understanding</b> 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;</p> <p><b>Applying knowledge and understanding</b> to i) ecosystem management and restoration, solving environmental problems by restoration and sustainable management or within research projects</p> <p><b>Making judgements</b> on ecosystem changes, human impact and ecosystem degradation as well as management and ecosystem restoration options</p> <p><b>Communication skills</b> 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</p> <p><b>Learning skills</b> 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</p>
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<b>Assessment</b>	<p>The assessment of students' outcomes will be carried out through a written exam (70 %) and the students' presentations (30 %).</p>
<b>Assessment language</b>	<p>English</p>
<b>Evaluation criteria and criteria for awarding marks</b>	<ul style="list-style-type: none"> <li>• 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</li> <li>• Relevant for assessment of student presentations (seminar): ability to extract the key messages,</li> </ul>

	creativity, skills in critical thinking, ability to summarize and interpret in own words
<b>Required readings</b>	<ul style="list-style-type: none"> <li>• Zerbe, S. (2023) Restoration of Ecosystems – Bridging Nature and Humans. A Transdisciplinary Approach. Springer</li> <li>• Van Andel, J.; Aronson, J. (2012): Restoration ecology. The new frontier. 2nd ed., Oxford, Blackwell Publ.</li> <li>• Web-based materials from the international Society of Ecosystem Restoration (SER)</li> </ul>
<b>Supplementary readings</b>	<ul style="list-style-type: none"> <li>• Additional scientific papers provided in class</li> </ul>