

## Syllabus

### Course description

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| <b>Course title</b>      | Management of forest and agriculture resources in mountain areas |
| <b>Course code</b>       | 47051  |
| <b>Scientific sector</b> | AGR/03 – AGR/05  |
| <b>Degree</b>            | Environmental Management of Mountain Areas                       |
| <b>Semester</b>          | I  |
| <b>Year</b>              | I  |
| <b>Academic year</b>     | 2022/23  |
| <b>Credits</b>           | 9  |
| <b>Modular</b>           | Yes  |

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| <b>Total lecturing hours</b> | 54 (36+18)   |
| <b>Total lab hours</b>       |  |
| <b>Total exercise hours</b>  | 36 (24 +12)  |
| <b>Attendance</b>            | Not compulsory but recommended. Strongly recommended the attendance to the excursions.             |
| <b>Prerequisites</b>         | Students should have a basic knowledge of sustainable forest and agriculture production            |
| <b>Course page</b>           | <a href="#">Course Offering - enrolled from 2021 / Free University of Bozen-Bolzano (unibz.it)</a> |

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| <b>Specific educational objectives</b> | The course belongs to the class "characterizing" and specifically to the scientific area disciplinary area of forestry and crop production. It is aimed to provide knowledge and the scientific basis for the understanding of the ecological functioning and management of natural and artificial ecosystems in mountain regions. |
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| <b>Module A</b>                          | <b>Management of mountain forests</b>   |
| <b>Lecturer</b>                          | <p>Enrico Tomelleri</p> <p>K building, office 4.02</p> <p>e-mail: <a href="mailto:enrico.tomelleri@unibz.it">enrico.tomelleri@unibz.it</a></p>  |
| <b>Scientific sector of the lecturer</b> | AGR/05  |
| <b>Teaching language</b>                 | English   |
| <b>Office hours</b>                      | By appointment  |
| <b>Teaching assistant (if any)</b>       | -   |
| <b>List of topics covered</b>            | <p>The Module will cover the following topics:</p> <ul style="list-style-type: none"> <li>• Introduction to mountain forests</li> <li>• Mountain forests and disturbances</li> <li>• Silvicultural systems</li> <li>• Forest types</li> </ul> |

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|                        | <ul style="list-style-type: none"> <li>• Forests and biogeochemical cycles</li> <li>• Multi-objective Forestry</li> <li>• Fundamentals of Climate Smart Forestry</li> </ul>   |
| <b>Teaching format</b> | This is a lecture and field course. Lectures are combined with focus seminars and field excursions, using problem-based learning techniques. Presentations, reading material and links to additional resources will be made available on the Open Learning Environment. |

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| <b>Module B</b>                          | <b>Management of agricultural resources</b>   |
| <b>Lecturer</b>                          | <p>Dr. Damiano Zanotelli</p> <p>Piazza Università 5, 39100 Bolzano-Bozen,</p> <p>office room K-3.03</p> <p>e-mail: <a href="mailto:damiano.zanotelli@unibz.it">damiano.zanotelli@unibz.it</a></p> <p>phone: 0471-017121</p>   |
| <b>Scientific sector of the lecturer</b> | AGR/03 (Damiano Zanotelli)  |
| <b>Teaching language</b>                 | English   |
| <b>Office hours</b>                      | see timetable   |
| <b>Teaching assistant</b>                | Dott. Francesco Gubert  |
| <b>Office hours</b>                      | -   |
| <b>List of topics covered</b>            | <p>The Module will cover the following topics:</p> <ol style="list-style-type: none"> <li>1. Overview of mountain agriculture (fact and figures, challenges and opportunities)</li> <li>2. Ongoing trends and challenges, sustainable production protocols, principles of agroecology for resource management</li> <li>3. Management of soil and water resources in mountain agriculture</li> <li>4. Management of main climatic variables in agricultural systems (Temperature, Radiation, wind etc)</li> <li>5. Case studies: practical examples of resource management in different crop production systems of mountain areas (horticultural crops, vegetable and arable crops, pasture and meadow)</li> </ol> |
| <b>Teaching format</b>                   | Lectures, Excursions  |
| <b>Required readings</b>                 | <p>There is no single textbook that covers the content of the entire course.</p> <p>Selected chapters of the following textbooks:</p>   |

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|                               | <ul style="list-style-type: none"> <li>• The Future of Mountain Agriculture. Mann, Stefan 2013, Springer Geography. ISBN 978-3-642-33584-6</li> </ul> <p>Hand-outs from lessons</p>  |
| <b>Supplementary readings</b> | <ul style="list-style-type: none"> <li>• Principles of Agronomy for Sustainable Agriculture. Villalobos F.J., Fereres E., 2016. Springer ISBN 978-3-319-46115-1</li> <li>• Fundamentals of Temperate Zone Tree Fruit Production. Tromp, Webster and Wertheim. Backhuys Publishers, 2005</li> </ul> <p>More references will be mentioned during the lectures as selected papers from Scientific Journals.</p> |

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| <b>Assessment</b>  | <p>Management of Mountain Forests:<br/>the assessment will be carried out either by i) written student assignments or ii) oral exam.</p>  |
| <b>Assessment language</b>                                 | English   |
| <b>Evaluation criteria and criteria for awarding marks</b> | <p>The final grade for the entire course will be calculated as the weighted average of the final grades obtained in the two modules (67% for module A and 33% for module B).</p> <p>Management of Mountain Forests:</p> <ul style="list-style-type: none"> <li>• The evaluation criteria for the written assignments include soundness of the proposed approach, critical thinking, clarity and originality in the presented solution, mastery of the technical language, quality of presentation.</li> <li>• Relevant for the oral exam assessment are correctness of the answers, mastery of the technical language, ability to produce critical judgment, capability to create connections between the topics of the course.</li> </ul> <p>Management of agricultural resources:</p> <ul style="list-style-type: none"> <li>• The student presentation counts 30% and the oral exam 70% of the grade obtained in this module.</li> <li>• The evaluation process takes place in the context of oral exam based on the correctness of the answers, on the language correctness, on the students' ability to argument their answers, to derive relationships and to create connections between the topics.</li> </ul> |