

Syllabus

Course Description

Course Title	Advanced geomatics and Landscape planning
Course Code	47075
Course Title Additional	
Scientific-Disciplinary Sector	
Language	English
Degree Course	Master in Environmental Management of Mountain Areas
Other Degree Courses (Loaned)	
Lecturers	dr. Michele Torresani, Michele.Torresani@unibz.it https://www.unibz.it/en/faculties/agricultural-environmental-food-sciences/academic-staff/person/37414
Teaching Assistant	
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	<p>The course introduces the principles, theories, methods, and decision-making processes of landscape and land-use planning, with particular reference to mountain landscapes. It examines the ecological, cultural, social, and gender dimensions of mountain landscapes, their functioning, and the interactions between natural processes, human activities, and landscape change. Students explore the concepts, objectives, methods, and instruments of landscape and land-use planning, including landscape assessment, environmental assessment, zoning, design control, stakeholder participation, and the implementation of planning strategies. Particular attention is devoted to landscape context, theories of</p>

	intervention, the critical evaluation of planning alternatives, and the role of planning in balancing environmental protection, landscape quality, ecosystem services, cultural values, and sustainable territorial development.
Course Topics	The Landscape planning module course introduces key concepts, methods and tools for landscape planning, with a particular focus on mountain and Alpine regions. Topics include landscape analysis and assessment, landscape change, governance, ecosystem services, climate change and natural hazards, land-use conflicts, participation and scenario planning. Comparative case studies and a planning workshop connect theoretical approaches with practical landscape strategies. The Advanced Geomatics module provides theoretical and practical knowledge of advanced geomatics methods for spatial and environmental analysis. It covers vector and raster data, coordinate systems and GPS, optical remote sensing using for example Sentinel-2 and Landsat imagery, drone based data acquisition, LiDAR and photogrammetry. Students learn data processing, spatial analysis and interpretation techniques, integrating multiple geospatial sources for landscape and territorial applications
Keywords	Landscape Ecology, Earth Observation, Land-Use Change, Territorial Planning, Geomatics
Recommended Prerequisites	
Propaedeutic Courses	Basic knowledge of environmental sciences, ecology, and human geography is recommended.
Teaching Format	Theoretical and practical activities
Mandatory Attendance	Attendance is recommended
Specific Educational Objectives and Learning Outcomes	The course aims to provide students with the theoretical foundations and practical skills required to understand, analyse, and contribute to landscape and land-use planning in mountain environments. Upon successful completion of the course, students will be able to interpret mountain landscapes as socio-ecological systems, considering their ecological, cultural, social, and gender dimensions; understand the concepts, theories, methods, and operational stages of landscape and land-use planning; analyse landscape context and evaluate planning alternatives using appropriate planning instruments, environmental assessment approaches, and participatory processes; assess the

	implementation of planning strategies in relation to environmental protection, landscape quality, and sustainable territorial development; and communicate planning concepts, analyses, and proposals effectively using appropriate scientific and technical terminology.
Specific Educational Objectives and Learning Outcomes (additional info.)	
Assessment	Students will present projects based on the theoretical and practical concepts introduced during the lectures
Evaluation Criteria	Quality of the project implementation (accuracy, completeness, and technical soundness) Innovation and originality of the proposed project Consistency and coherence of the project with the topics covered during the course
Required Readings	NA
Supplementary Readings	
Further Information	
Sustainable Development Goals (SDGs)	Good health and well-being, Quality education, Life on land, Sustainable cities and communities, Climate action, Clean water and sanitation

Course Module

Course Constituent Title	Advanced geomatics
Course Code	47075A
Scientific-Disciplinary Sector	AGRI-04/C
Language	English
Lecturers	dr. Michele Torresani, Michele.Torresani@unibz.it https://www.unibz.it/en/faculties/agricultural-environmental-food-sciences/academic-staff/person/37414
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	<p>The course introduces the principles, theories, methods, and decision-making processes of landscape and land-use planning, with particular reference to mountain landscapes. It examines the ecological, cultural, social, and gender dimensions of mountain landscapes, their functioning, and the interactions between natural processes, human activities, and landscape change. Students explore the concepts, objectives, methods, and instruments of landscape and land-use planning, including landscape assessment, environmental assessment, zoning, design control, stakeholder participation, and the implementation of planning strategies. Particular attention is devoted to landscape context, theories of intervention, the critical evaluation of planning alternatives, and the role of planning in balancing environmental protection, landscape quality, ecosystem services, cultural values, and sustainable territorial development.</p>
Course Topics	<p>The Advanced Geomatics module provides theoretical and practical knowledge of advanced geomatics methods for spatial and environmental analysis. It covers vector and raster data, coordinate systems and GPS, optical remote sensing using for example Sentinel-2 and Landsat imagery, drone based data acquisition, LiDAR and photogrammetry. Students learn data processing, spatial analysis and interpretation techniques, integrating multiple geospatial sources for landscape and territorial applications</p>
Teaching Format	Theoretical and practical activities
Required Readings	NA
Supplementary Readings	

Course Module

Course Constituent Title	Landscape planning
Course Code	47075B
Scientific-Disciplinary Sector	AGRI-03/B

Language	English
Lecturers	dr. Michele Torresani, Michele.Torresani@unibz.it https://www.unibz.it/en/faculties/agricultural-environmental-food-sciences/academic-staff/person/37414
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	<p>The course introduces the principles, theories, methods, and decision-making processes of landscape and land-use planning, with particular reference to mountain landscapes. It examines the ecological, cultural, social, and gender dimensions of mountain landscapes, their functioning, and the interactions between natural processes, human activities, and landscape change. Students explore the concepts, objectives, methods, and instruments of landscape and land-use planning, including landscape assessment, environmental assessment, zoning, design control, stakeholder participation, and the implementation of planning strategies. Particular attention is devoted to landscape context, theories of intervention, the critical evaluation of planning alternatives, and the role of planning in balancing environmental protection, landscape quality, ecosystem services, cultural values, and sustainable territorial development.</p>
Course Topics	<p>The Landscape planning module course introduces key concepts, methods and tools for landscape planning, with a particular focus on mountain and Alpine regions. Topics include landscape analysis and assessment, landscape change, governance, ecosystem services, climate change and natural hazards, land-use conflicts, participation and scenario planning. Comparative case studies and a planning workshop connect theoretical approaches with practical landscape strategies.</p>
Teaching Format	Theoretical and practical activities

Required Readings	NA
Supplementary Readings	