

# DEGREE CURRICULUM ST IN LANDSCAPE ECOLOGY AND BIOLOGICAL CONNECTIVITY

Coordination: VEGA GARCIA, CRISTINA

Academic year 2023-24

## Subject's general information

Subject name	ST IN LANDSCAPE ECOLOGY AND BIOLOGICAL CONNECTIVITY					
Code	111008					
Semester	ANUAL CONTINUED EVALUATION					
Typology	Degree		Course	Character	<sup>r</sup> Modality	
	Master's Degree Erasmus Mundus in Spatial and Ecological Modelling in European Forestry		2	OPTIONA	Attendance- based	
	Master's Deg in Spatial and Modelling in I	ree Erasmus Mundus I Ecological European Forestry	us OPTIONAL Attendance- based			
Course number of credits (ECTS)	5					
Type of activity, credits, and groups	Activity type	PRACAMP	PRA	ALAB	TEORIA	
	Number of credits	1.5	1	.5	2	
	Number of groups	1		1	1	
Coordination	VEGA GARCIA, CRISTINA					
Department	AGRICULTURAL AND FOREST SCIENCES AND ENGINEERING					
Teaching load distribution between lectures and independent student work	1 ects is 10h work in the class/lab, and 15h personal work					
Important information on data processing	Consult this link for more information.					
Language	English only					
Distribution of credits	30% Theory, 70% Practice					

Teaching staff	E-mail addresses	Credits taught by teacher	Office and hour of attention
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## Subject's extra information

Students taking this course will develop their expertise in the application of spatial analysis techniques to characterize the structure of forest/land cover patches and their changes at the landscape level, informing landscape management for conservation goals.

## Learning objectives

To analyze ecological and cultural landscape shaping factors in the Mediterranean Region.

### Competences

To acquire hands-on experience in the diagnosis of landscape structure and landscape dynamics.

To be able to apply relevant quantitative tools that allow incorporating landscape ecological objectives in forest and protected area management and nature conservation.

#### Subject contents

1. Landscape definition. Spacing and Perception. Structure: patch, matrix, corridor. Classification principles. Models and theories in LE.

- 2. Processes: Disturbance. Fragmentation. Connectivity.
- 3. Heterogeneity and biological diversity. Space, time and function.
- 4. Landscape pattern. Quantitative methods in LE (metrics).
- 5. Scale of patterns and processes.
- 6. Landscape dynamics.
- 7. Landscape evaluation methods. Public participation.
- 8. Landscape management and conservation: quantitative tools for decision-making support.
- 9. Landscape design.

## Methodology

The classes are organized by the students according to flipped learning strategies with materials provided by the

instructors. Study cases are analysed, individually and jointly, for formative evaluation. Lab exercises are conducted, and field trips allow exploring Med landscapes.

### Development plan

Scheduling is by agreement with the students at the beginning of the course.

#### **Evaluation**

Grading is based on the resolution of individual study cases and collaborative work, presentations and other activities (seminars, labs, etc.).

### Bibliography

Basic Bibliography for Landscape Ecology: Books

ASHTON DREW, C., WIERSMA, Y.F., HUETTMANN F., editors. 2011. Predictive species and habitat modeling in landscape ecology: concepts and applications. Springer, New York.

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DALE, V.H. & R.A. HAEUBER (Eds.). 2001. Applying ecological principles to land management. Springer-Verlag, New York.

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FORMAN, R.T.T. 1998. Land Mosaics. The Ecology of landscapes and regions. Cambridge University Press, Cambridge.

GERGEL, S.E. & M.G. TURNER. 2002. Learning landscape ecology. A practical guide to concepts and techniques. Springer-Verlag, New York.

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HARRIS, L.D. 1984. The fragmented forest: island biogeography and the preservation of biotic diversity. University of Chicago Press.

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LAFORTEZZA, R., J. CHEN, G. SANESI & T.R. CROW (Eds.). 2008. Patterns and processes in forest landscapes. Multiple use and sustainable management. Springer.

LIU, J. HULL V., MORZILLO, A.T., & WIENS, J.A. (Eds.). 2011. Sources, Sinks and Sustainability Cambridge Studies in Landscape Ecology. Cambridge University Press.

LUCAS, O.W.R. 1991. The design of forest landscape. Oxford University Press. Oxford.

MCGARIGAL, K., and B.J. MARKS. 1995. FRAGSTATS: spatial pattern analysis program for quantifying landscape structure. General Technical Report PNW-GTR-351, USDA Forest Service, Pacific Northwest Research Station, Portland, Oregon.

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PERERA A.H., BUSE L., and CROW T. (EDS.). 2007. Forest Landscape Ecology: Transferring Knowledge to Practice. Springer-Verlag New York Inc.

TURNER, M.G. 1987. Landscape heterogeneity and disturbance. Springer-Verlag, Berlin.

TURNER, M.G. AND R.H. GARDNER. 1991. Quantitative methods in landscape ecology: the analysis and interpretation of landscape heterogeneity. Springer-Verlag, Berlin.

TURNER M.G., R.H. GARDNER and R.V. O'NEILL. 2001. Landscape Ecology in Theory and Practice. Pattern and Process. Springer-Verlag, New York.

WIENS, J., MOSS M.R., Turner, M.G. and Mladenoff D.J. 2006. Foundation Papers in Landscape Ecology. Columbia University Press.

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Journals: Landscape Ecology, Landscape and Urban Planning, Landscape Research.

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Series: Cambridge Studies in Landscape Ecology

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