



DEGREE CURRICULUM  
**ST IN DECISION SUPPORT SYSTEMS FOR  
RESOUCCE MANAGEMENT**

Coordination: COLL MIR, LLUIS

Academic year 2019-20

## Subject's general information

<b>Subject name</b>	ST IN DECISION SUPPORT SYSTEMS FOR RESOUCCE MANAGEMENT			
<b>Code</b>	111012			
<b>Semester</b>	ANUAL CONTINUED EVALUATION			
<b>Typology</b>	Degree	Course	Character	Modality
	Master's Degree Erasmus Mundus in Spatial and Ecological Modelling in European Forestry	2	COMPULSORY	Attendance-based
<b>Course number of credits (ECTS)</b>	3			
<b>Type of activity, credits, and groups</b>	<b>Activity type</b>	PRACAMP	PRALAB	TEORIA
	<b>Number of credits</b>	0.6	1.2	1.2
	<b>Number of groups</b>	1	1	1
<b>Coordination</b>	COLL MIR, LLUIS			
<b>Department</b>	AGRICULTURAL AND FOREST ENGINEERING			
<b>Teaching load distribution between lectures and independent student work</b>	Traditional (face-to-face), blended learning. The course will include lectures, group discussions and field trips.			
<b>Language</b>	English			
<b>Distribution of credits</b>	Theoretical: 70 Practical: 30%			

## Teaching staff

Teaching staff	E-mail addresses	Credits taught by teacher	Office and hour of attention
COLL MIR, LLUIS	lcoll@eagrof.udl.cat	3	

## Subject's extra information

Introductory course to the principles of forest management oriented to the provision of different goods and services and to the role of participatory processes in support of decision-making tools.

## Learning objectives

The course will introduce the students to the main techniques used to quantify and manage forest resources for ecosystem services provision. It will also provide information on: (1) the existing interactions between different management options, (2) the methods to address multi-criteria forest management and (3) the basis of scenario participatory planning tools in support of decision-making processes.

## Subject contents

- 1) Introduction and principles to natural forest resources and ecosystem services provision
- 2) Forest management strategies for the provision of different forest ecosystem services
- 3) Quantification of ecosystem services provision and tradeoffs
- 4) Multi-criteria decision-making frameworks for forestry management in a context of environmental uncertainty
- 5) Overview of theories of participation and principles
- 6) Models of participatory planning to support decision-making processes in forestry.

## Methodology

The course will be based on:

- Lectures and discussions based on the latest scientific literature and research programs
- Workshop on the use multi-criteria decision-making frameworks
- One-day field trip to forest areas managed for the joint provision of different forest ecosystem services
- Group work: design of participatory scenarios
- Debates about how the use of social science can enable transdisciplinary approaches and learning in decision-making processes in forestry and forest conservation.

## Development plan

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

## Evaluation

Grading will be based on (i) participation on lectures, seminars and debates, (ii) completion of practical exercises and (iii) public presentation of the results from exercises

## Bibliography

(additional literature will be supplied during the course)

Ameztegui A., Cabon A., de Cáceres M., Coll L. (2017) Managing stand density to enhance the adaptability of Scots pine stands to climate change: a modelling approach. *Ecological Modelling* 356: 141-150.

Borges, J. G., J. Garcia-Gonzalo, V.A. Bushenkov, M. E. McDill, S. Marques and M.M.

Oliveira 2014 Addressing multi-criteria forest management with Pareto Frontier methods: an application in Portugal *Forest Science* 60: 63-72.

Brien, L. O., Brien, L. O., Morris, J., & Raum, S. (2017). Ecosystem services, values and benefits in Review of methods for integrating cultural ecosystem services, values and benefits in forestry, (June).

Currie, M., James, C., & Macleod, A. (2016). Working together for better outcomes: good practice for interdisciplinary researchers Working together for better outcomes: good practice for interdisciplinary researchers, (February). <https://doi.org/10.13140/RG.2.1.1677.5443>

Fish, R., Burgess, J., Chilvers, J., Footitt, A., Haines-Young, R., Russel, D., & Winter, D. M. (2011). Participatory and Deliberative Techniques to Embed an Ecosystems Approach into Decision Making: An Introductory Guide, (May), 107. Retrieved from <http://scholar.google.com/scholar?hl=en&btnG=Search&q=intitle:Participatory+and+deliberative+techniques+to+embed+an+ecosystems+approach+into+decision+making+:++An+introductory+guide#3>

Hatzilacou, D., Kallis, G., Mexa, A., Coccosis, H., & Svoronou, E. (2007). Scenario workshops: A useful method for participatory water resources planning? *Water Resources Research*, 43(6), 1–12.

Reed, M. S., Hubacek, K., Bonn, A., Burt, T. P., Holden, J., Stringer, L. C., ... Worrall, F. (2013). Anticipating and managing future trade-offs and complementarities between ecosystem services. *Ecology and Society*, 18(1).

Reed, M. S., Kenter, J., Bonn, A., Broad, K., Burt, T. P., Fazey, I. R., ... Ravera, F. (2013). Participatory scenario development for environmental management: A methodological framework illustrated with experience from the UK uplands. *Journal of Environmental Management*, 128(February), 345–362.

Roces-Diaz J., Vayreda J., Banqué-Casanovas M, Díaz-Varela E, Bonet JA, Brotons L, De Miguel S., Herrando S., Martínez-Vilalta J. 2018. The spatial level of analysis affects the patterns of forest ecosystem services supply and their relationships. *Science of the Total Environment* 626C, 1270-1283

Vilà-Cabrera A., Coll L., Martínez-Vilalta J., Retana J. (2018) Forest management for adaptation to climate change in the Mediterranean basin: A synthesis of evidence

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