

**Proyecto docente de la asignatura**

Subject name	INTRODUCTION TO MEDITERRANEAN FORESTRY AND NATURAL RESOURCES		
Subject area			
Module			
Qualification	MASTER ERASMUS MUNDUS: MEDITERRANEAN FORESTRY AND NATURAL RESOURCES MANAGEMENT		
Plan	506	Code	54093
Teaching period	First Semester	Tyep/Nature	
Level/Stage	Master	Curso	1º
ECTS Credits	6		
Language of Instruction	English		
Lecturers in charge	Felipe Bravo Oviedo, José Reque Kilchenmann and Pablo Martín Pinto		
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Office hours	www.uva.es >Grados o Masteres>Título correspondiente>Tutorías or by appointment		
Department	Producción Vegetal y Recursos Forestales		
Knowledge area	Producción Vegetal		



1. Course justification

1.1 Context of the subject

Introduction to Mediterranean forestry and natural resources is a blended course based on University of Valladolid eCampus and interaction with professors during Winter School that allows student to have a base background on forestry. The course is planned as blended course integrating e-learning activities (60 hour of personal work: readings, video watching, exercises, ... and online interaction) plus 15 hours of face-to-face interaction in Palencia (during the time of Winter School)

1.2 Relationship with Academic Program

The course will develop the basic concepts of Forestry.

1.3 Pre-requisites

None

2. College Learning Outcomes

2.1 Generals

The General competences (G1 to G27) will be addressed on a global basis, and, particularly, efforts will be made to the compliance of:

G3 Be able to analyze and synthesize.

G4 To be capable of organizing and of planning.

G5 Be able to communicate effectively, orally and in writing, with both internal audiences.

G15 To show critical reasoning.

3. Course Outcomes and Objectives

Students who successfully complete this course will be able to:

- Explain or describe in their own words the basic elements of Mediterranean environment and forests and its implication for forestry and natural resources management
- Understand the main drivers of forestry and natural resource management in the Mediterranean
- Be ready to go in depth on advance topics in Mediterranean forestry and natural resource management in further courses.



4. Thematic sections

Block 1: INTRODUCTION TO MEDITERRANEAN FORESTRY AND NATURAL RESOURCES

Carga de trabajo en créditos ECTS: 6 ECTS

a. Context

See above

b. Objectives

See above

c. Contens

1. **Mediterranean Forest Systems: historical and environmental framework:** A brief history of forestry and natural resource management in the Mediterranean. From uncontrolled harvesting to sustainable forestry Environmental limitations and opportunities for forest and natural resources management. Development of forest and forestry in different socio-economical situations.
2. **Silvics of Mediterranean tree species:** Environmental adaptations of Mediterranean forest species: hardwoods, conifers, shrubs. Total and individual adaptations. Shade tolerance, flowering characteristics, germination, epigeal or hypogeal growth, natural regeneration. The special case of: *Quercus ilex*, *Q. suber*, *Q. pubescens* and other marcescent oaks, *Pinus halepensis*, *P. brutia*, *P. pinea*, *P. pinaster*, *Cedrus atlantica*, *C. libanii*, *Juniperus sps.*, *Abies cephalonica*.
3. **Forest landowners and other stakeholders: objectives, goals and constraints:** Types of stakeholders. Objectives, goals and constraints in decision making processes. Trade-offs in decision making.
4. **Ecosystem services:** What are Ecosystem Services? Types of Ecosystem Services? Trade-offs when managing for different forest Ecosystem services. Payment for Environmental Services (PES). Forest products: wood and non-wood products.
5. **Forest diagnosis:** Stand and forest. Structural descriptors. Quantiative and qualitative assessment, Forest typing and diagnosis. GPS and GIS in forest mensuration.
6. **Forest measurements and forestry related data:** Basic forest mensurations: tree and stand level. Remote sensing: Satellite and LiDAR. Basic forest sampling methods. Forest Growth and Yield: Basic concepts.
7. **Common forestry practices:** Possibilities and constraints in Mediterranean forestry. The practice of Mediterranean silviculture. Afforestation, Artificial and natural (sexual and vegetative) regeneration, Specific silvicultural techniques, Silvicultural systems, Silvicultural strategies for non-wood production, Forest planification. Range management integration in forestry.
8. **Forest and Natural Resources: economic and social perspectives:** Market, efficiency and government. The time value of money. Basic investment evaluation criteria. Economics of a forest rotation. Non Market forest products. Introduction to Model Forests. Forest policies:



international and selected national examples. Forest certification schemes. Forest carbon sequestration and markets.

9. **Forest disturbances and risks:** Erosion and soil conservation, Wildfire: risk and natural disturbance, Open range grazing: risk or opportunity? Climate change Pests and diseases. Invasive species. Wind and other extreme weather events
10. **Careers and forestry organizations:** National and international forestry organization, NGOs and private initiatives

Lecture videos, recommended readings and assignments will be posted on the e-campus (UVa campus virtual)

d. Methods of Instruction

A combination of e-campus activities, field trips and interaction with professors are used in this course. Students will be encouraged to share thoughts and opinions. Participation and interaction with other will be required.

e. Work plan

Topics 1, 4, 6 and 8 will be led by Prof. Felipe Bravo, topics 2, 5 and 7 will be led by Prof. José Reque and topics 3, 9 and 10 will be led by Prof. Pablo Martín Pinto.

f. Evaluación

See below.

g. Textbooks

- FUJIMORI, T., 2001. Ecological and Silvicultural Strategies for Sustainable Forest Management. Elsevier, Amsterdam.*
- PUETMANN, K., COATES, D., MESSIER, CH. 2009. A critique of silviculture. Managing for complexity. Island Press, Washington.*
- PYNE, S.J., ANDREWS, P.L. & LAVEN, R.D. 1996. Introduction to wildland fire. Second edition. John Wiley & Sons, Inc., New York, NY, USA. 455 pp.*
- TRABAUD, L. & PRODON, R., 1993. Fire in Mediterranean ecosystems. CEC, Brussels.*
- WHELAN, R.J. 1995. The ecology of fire. Cambridge University Press, 343 pp*
- WRIGHT, H.A., BAILEY, A.W., 1982. Fire ecology. J. Wiley & Sons, New Cork*

h. Other references

- Davis et al., 2017. Comparison of USDA Forest Service and Stakeholder Motivations and Experiences in Collaborative Federal Forest Governance in the Western United States. Environmental Management DOI 10.1007/s00267-017-0913-5*
- Paletto et al., 2017. Effects of different thinning systems on the economic value of ecosystem services: A case-study in a black pine peri-urban forest in Central Italy . Ann. For. Res. 60(2): _-, 2017 DOI: 10.15287/afr.2017.799*
- Frank et al., 2015. Cross-Sectoral Resource Management: How Forest Management Alternatives Affect the Provision of Biomass and Other Ecosystem Services. Forests 6: 533-560*
- Daily et al., 2009. Ecosystem services in decision making: time to deliver. Front Ecol Environ 7(1): 21-28*
- Ananda and Herath, 2009. A critical review of multi-criteria decision making methods with special reference to forest management and planning. Ecological Economics 68 (2009) 2535-2548*



Seidl et al., 2014. Increasing forest disturbances in Europe and their impact on carbon storage. *Nat Clim Chang*. 1; 4(9): 806–810

Helman et al., 2017. Relationships between climate, topography, water use and productivity in two key Mediterranean forest types with different water-use strategies . *Agricultural and Forest Meteorology* 232 : 319–330

Haynes et al., 2014. Forest defoliator outbreaks under climate change: effects on the frequency and severity of outbreaks of five pine insect pests. *Global Change Biology* 20: 2004–2018

García Ruíz et al., 2013. Erosion in Mediterranean landscapes: Changes and future challenges. *Geomorphology* 198 (2013) 20–36

De Lucía et al., 2012. Climate Change: Resetting Plant-Insect Interactions. *Plant Physiology* 160: 1677–1685

Pausas, 2004. Changes in fire and climate in the eastern iberian peninsula (Mediterranean Basin) *Climatic Change* 63: 337–350

Sample et al., 2017. The Promise and Performance of Forestry Education in the United States: Results of a Survey of Forestry Employers, Graduates, and Educators. *J. For.* 113(6):528–537

Suominen et al., 2015. Higher Forestry Education in Kenya: Bridging the Gap between Educational Training and Job Market Competencies. *International Forestry Review*, 18(1):56-67

Straka and Childers, 2006. Consulting Foresters' View of Professional Forestry Education *J. Nat. Resour. Life Sci. Educ.* 35:48–52

Langin et al, 2004. Internet-based learning in higher forestry Education. *Unasilva* 216: 1-10

i. Resources

Virtual tours: <http://sostenible.palencia.uva.es/content/virtual-forest-tours>

j. Timing

CARGA ECTS	PERIODO PREVISTO DE DESARROLLO
6 ECTS	1st Semester

5. Didactic methods

Video recorded lectures, field trips, writing assessment and on field discussions.

6. Student dedication to the Course

In Class	Hours	Outside Class	Hours
Lectures (e-campus)	45	Preparation for assessment	50
Field trips	15	Preparation of writing assignments.	20
		Test, quizzed and other Works on the e-campus	20
Total in class	60	Total outside class	90

7. Grading Criteria

Student Evaluation	Percentage on the final course	Comments



	grade	
Test on the ecampus	50	
Final Exam	50	

Grading Criteria

Ecampus activities are mandatory. It is not possible to pass the course with final examination only.

Course Policies

- **Attendance:**
Lectures on the ecampus form a core component of this course. Students must ensure that they are available to made the activities. They are welcome to share new ideas during class and are encouraged to read related papers.
- **Technology in the fieldtrips:**
No cellphones are allowed. Please, turn-off your cell phone prior to the start of fieldtrip. You will be asked to leave the course for the day if you are using your phone.
- **Policy on Academic Ethics and Honesty:**
The University of Valladolid (UVa) regards cheating as a serious academic offence. Anyone caught cheating will automatically receive a 0/10 for the quiz/exam/assignment, and will be reported to the dean. Your responsibility, besides maintaining a high standard of personal honesty, includes taking precautions to prevent others from copying your work. A student's assessed work may be reviewed against electronic source material using computerized detection mechanisms.

8. Final considerations

In case a student fails in the first call of the academic year in second round the written exam will stand alone for grading.