

Guía docente de la asignatura

Asignatura	FOREST PEST AND DISESASES		
Materia			
Módulo	Specialization		
Titulación	Erasmus Mundus Mediterranean Forestry and Natural Resources Management		
Plan	428	Código	3-309-506-53028-1-2015
Periodo de impartición	1erº cuatrimestre (1º Periodo)	Tipo/Carácter	OP
Nivel/Ciclo	MASTER	Curso	2
Créditos ECTS	6		
Lengua en que se imparte	Inglés		
Profesor/es responsable/s	Julio Javier Díez Casero Juan Alberto Pajares Alonso		
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Horario de tutorías	http://www.uva.es/export/sites/uva/2_docencia/2.02_mastersoficiales/2.02.01.ofertaeducativa/2.02.01.01.alfabetica/Mediterranean-Forestry-and-Natural-Resources-Managemeent-Medfor-Erasmus-Mundus/		
Departamento	Producción Vegetal y Recursos Forestales/Ciencias Agroforestales		

1. Situación / Sentido de la Asignatura

1.1 Contextualización

Insect pests, diseases and other biotic agents have considerable impacts on forests and the forest sector. They can adversely affect tree growth and the yield of wood and non-wood products. Damage caused by forest pests can significantly reduce wildlife habitat thereby reducing local biodiversity and species richness. They can alter natural forest landscapes by decimating one or more tree species as has been observed in eastern American forests as a result of chestnut blight and throughout the Northern Hemisphere because of Dutch elm disease. Some pests have necessitated changes in management regimes often forcing forest managers to switch to alternative tree species in plantations; for example, the failed attempts in many parts of the world to establish mahogany plantations because of the presence of mahogany shoot borers (*Hypsipyla* spp.). Pathogens may also limit the sites on which species can be grown successfully outside their natural range as has been experienced with red band needle blight (*Mycosphaerella pini*) and western gall rust (*Endocronartium harknessii*) infecting *Pinus radiata*.

Understanding the state of global forest health requires international cooperation and the gathering and dissemination of accurate and timely information. The information provided in this issue will assist students, as forest health specialists to make informed decisions worldwide.

1.2 Relación con otras materias

Knowledge of the basic concepts in Forest Pest and Diseases, and a overview of the main problems associated with global change. Thus, Seminar of Model forest concept, Annual young resercher meeting, both included in the Winter School Module, and Forest Biological Threats and Climate Change are related curses.

1.3 Prerrequisitos

None

2. Competencias

2.1 Generales

General competences will be

Ability to apply knowledge to practice. Organize, synthesize and planning

Ability to communicate spoken and written

Ability to take decisions and work within a multi-scale context

Ability to compromise to sex equality, either within academic and personal

Ability to develop inter personal relationships, other peoples, cultures and costumes

Develop creativity and ability of leadership

2.2 Específicas

Ability to identify the main Forest Pest worldwide.

Ability to identify the main Forest Diseases worldwide.

Ability to know on the biology of the main forest pest and diseases.

Ability to know the damages caused by the main forest pest and diseases worldwide.

Ability to know main principles of sustainable forest pest and diseases management.

Ability to search for, analyze, discuss, synthesize and present knowledge related to management of forest invasive agents.

3. Objetivos

-To provide the student the knowledge to identify the main forest pests worldwide.

-To provide the student the knowledge to identify the main forest diseases worldwide.

To provide the student the knowledge for the management of the main forest pests and diseases.

To develop in the student its ability to efficiently and orderly to present concepts and results.

4. Tabla de dedicación del estudiante a la asignatura

ACTIVIDADES PRESENCIALES	HORAS	ACTIVIDADES NO PRESENCIALES	HORAS
Theoretical lectures	20	Independent study	45
Practical lectures	15	Individual Report	45
Laboratory	16		
External practices and field trips	6		
Seminars	2		
Other activities	1		
Total presential	60	Total non-presential	90

5. Bloques temáticos

Bloque 1:

Diagnostico y control de patologías forestales

Carga de trabajo en créditos ECTS:

a. Contextualización y justificación

Described in 1.1

b. Objetivos de aprendizaje

Described in 3

c. Contenidos

1. Forest pests.

Principles of population dynamics. Factors affecting dynamics. Population patterns of forest pests.

2. Forest Pests sustainable Management

Monitoring. Silvicultural method. Obtention of information using semiochemicals. Management by mating disruption. Population removal and manipulation. Lure and kill and lure and infect. Biological control strategies. Methods in chemical ecology.

3. International Forest Health Management.

Data bases, European network for forest damage. International advisory organizations. Invasive forest pests and diseases. Quarantine organisms

4- Diagnosis of Forest Diseases

Diagnosis in the Field.Symptoms Diagnosis in the Lab. Signs. Microscopic Observation of signs. Keys useful for the fungal diagnosis. Identification of forest pathogens.

5-Biology of forest pathogens and its influence in on the diseases

6. Management of Forest Diseases.

Management strategies: Integrated control.
Biological control of forest diseases. Useful strategies for control.

d. Métodos docentes

- . Presentation in the classroom of concepts, contents, and practical cases
- . Presentation of cases in smart board
- . Group discussion in the classroom

- . Seminars on current forest health problems by forest pest managers
- . Field trip visits to forest health centers and forest health experiences
- . Preparation on a written report on invasive species from searching on forest health websites

e. Plan de trabajo

Presential:

Attendance and discussion of concepts, contents and cases in the classroom: 24 hours

Attendance and participation on seminars: 6 hours

Attendance, participation and discussion on issues during external visits and field trips: 30 hours

Non Presential:

Personal study of material and bibliographic references provided:

Research on websites and preparation of individual report: 75 hours

f. Evaluación

Evaluation will be based on the one hand on attendance and active participation (questioning, discussion, debate) in presential activities in the classroom, seminars and field trips (50%). On the other hand, qualification will be completed by individual report prepared by the students on assigned cases on invasive agents threatening forests worldwide (50%). In the report, quality and suitability of contents and formal aspects of the report (editing, graphical information) will be valued.

g. Bibliografía básica

- Baker, K., Cook, R. J. 1983. Biological control of plant pathogens. 433pp. APS Press. 0-7167-0589-3.
- Bourtzis, K.; Millar, T.A. 2003. Insect symbiosis. Contemporary topics in Entomology series. CRC Press.
- Ciesla W.M. 2011. *Forest Entomology. A Global perspective*. Wiley-Blackwell. Oxford.
- De Bach P., Rosen D. (1991). *Biological control by natural enemies*. 2nd ed. Cambridge.
- FAO (2009). Global Review of Forest Pests and Diseases. Communication División FAO. Rome. 15 pp.
- Fernández, M.M.; García, A.E., Lieutier, F., 2004. Effects of various densities of *Ophiostoma ips* inoculations on *Pinus sylvestris* in north-western Spain. *For. Path.*, 34:213-223.
- Gil L., Solla A., Iglesias S (eds). (2003). *Los olmos Ibéricos. Conservación y mejora frente a la grafiosis*. M° de Medio Ambiente. Madrid.

- Hermes D.A., Mattson W.J. (1992). *The dilemma of plants: to grow or defend*. The Quarterly Review of Biology, vol. 67, nº 3, 283-335.
- Kostas, B.; Miller, T.A.,(Eds.) 2003. *Insect symbiosis*. CRC Press.
- Lieutier, L.; Day, K.R., Battisti, A., Grégoire, J.C., Evans, H.F. (2004): *Bark and wood boring insects in living trees in Europe, a synthesis*. Kluwer Academic Press.
- Mackauer M., Ehler L.E., Roland J. (eds) (1990). *Critical issues in biological control*. Intercept.
- Pérez, G.; Díez J.J.; Ibeas, F.; Pajares, J.A. (2008). Modelling Pine Wilt Disease Risk under a climate change scenario in North Western Spain. 269-282. En: *Managing forest ecosystems: the challenge of climate change* (Bravo F., LeMay V. and V Gadow K, eds.) Kluger Academic Publishers.
- Schowalter, T.D., Filiip, G.M. (eds.) (1993). *Beetle-pathogen interactions in conifer forests*. Academic Press.
- Wagner, M.R. et col., 2002. *Mechanisms and deployment of resistance in trees to insects*. Kluwer Academic Publishers.
- Wainhouse D. 2005. Ecological methods in forest pest management. Oxford University Press.
- Wingfield, M.J.; Seifert, K.A., Webber, J.F., 1999. *Ceratocystis and Ophiostoma*. Taxonomy, Ecology and Pathogenecity. APS Press.
- Zhao B.G., Futai K., Sutherland J.R. y Takeuchi (eds). 2009. *Pine wilt Disease*. Springer. Berlín.

h. Bibliografía complementaria

- www.ippc.int Convención Internacional de Protección a los Vegetales
- www.forestry-quarantine.org Grupo de Investigación Internacional en Cuarentenas Forestales
- www.iefc.net Institute Européen de la Fôret Cultivée
- www.icp-forests.org Estado de los Bosques en Europa
- www.eppo.org Organización Europea y Mediterránea de Protección a los Vegetales
- www.iobc-wprs.org Organización Internacional de Lucha Biológica (OILB- IOBC/WPRS)
- www.forestpests.org Forest Pest and Diseases
- www.fs.fed.us/foresthealth Forest Plant Health
- www.iufro.org International Union of Forest Research Organizations
- www.cabi.org Commonwealth Agricultural Bureaux International CABI
- www.mma.es/secciones/biodiversidad/montes_politica_forestal/redes_europeas_bosque/estado_bosques_europa.htm Ministerio de Medio Ambiente, y Medio Rural y Marino. Informe sobre el Estado de los Bosques

i. Recursos necesarios

- . Virtual Campus
- . Classroom with audiovisuals (digital board, projector)
- . Forest sites containing forest health experiences and cases
- . Forest health facilities in the Autonomous Community
- . Tutorial support during the course within the assigned timetable

6. Temporalización (por bloques temáticos)

BLOQUE TEMÁTICO	CARGA ECTS	PERIODO PREVISTO DE DESARROLLO
Forest Pests and Diseases	6	November-December 2016

7. Sistema de calificaciones – Tabla resumen

INSTRUMENTO/PROCEDIMIENTO	PESO EN LA NOTA FINAL	OBSERVACIONES
Attendance to and participation in lectures and seminars	50%	70% minimum attendance
Individual Report	50%	Written and oral presentation

8. Consideraciones finales

The ability: to analyze and synthesize information and contents (G3), critical reasoning and to communicate and express in written form (G5) will be evaluated by participation in the classroom and by the preparation of a written report

Those student that did no pass and require a 2nd chance, will be asked to present an additional written report on the curse contents.

More information is offered on the webpage of the Sustainable Management Research Institute: <http://sostenible.palencia.uva.es/gfs/formacion/maestrias/7/default.aspx>