

COURSE OUTLINE

1. GENERAL DESCRIPTION

School	School of Plant Sciences		
Department	Forestry and Natural Environment Management		
Studies level	Undergraduate		
Course Code	4514	Semester	5 th
Course Title	Forest Pathology		
INDEPENDENT TEACHING ACTIVITIES		Teaching hours per week	ECTS
Lectures		2	5
Lab exercises		2	
Course total		4	
Course type	General background or foundation in basic sciences		
Prerequisite courses:	No		
Language Of Teaching & Examination:	Greek		
The Course is Offered to Erasmus Students	No		
Course webpage (URL)	https://oeclass.aua.gr/eclass/courses/2675/		

2. LEARNING OUTCOMES

Learning Outcomes
<p>The subject of the course is the study of both biotic and abiotic diseases that affect the health of a forest ecosystem, mainly fungal pathogens and their insect vectors. It is a subfield of forestry and plant pathology. There are several abiotic factors that affect the health of a forest, such as moisture problems, drought, winter drying, wind, overflow resulting from excessive or lack of rainfall, hail, snow, rain.</p> <p>The aim of the course is to enable students to acquire the ability to distinguish diseases from the various symptoms they present in coniferous and broadleaf species of Greece and the Balkans, and the wider Mediterranean basin. In addition, knowledge is provided on the biotic and abiotic factors causing pathogens and when their combination adversely affects forest ecosystems and plant communities. Emphasis is placed on the effects of pollution on the physiology of forest trees. Understanding the biology and ecology of pathogens and basic ways of managing them.</p>
General skills
<ul style="list-style-type: none"> • Search, analysis and synthesis of data and information, using the necessary technologies. • Autonomous work. • Group work. • Respect for the natural environment. • Adaptation to new situations. • Decision-making. • Promotion of free, creative and deductive thinking. • Working in an interdisciplinary environment.

3. COURSE CONTENT

<u>Lectures (2 hours per week)</u>
<ol style="list-style-type: none"> 1. Introductory concepts, biology, morphology and classification of the most important pathogenic organisms (fungi, bacteria, viruses). 2. Pollution and its impact on forest species and plant communities.

3. Description of the main pathogens of coniferous (fir, pine, cypress, spruce, juniper, etc.) and broadleaf (oak, plane, beech, chestnut, elm, etc.) forest trees. Disease of metachromatic ulcer of sycamore. Cypress bark ulcer. Spruce necrosis. Needle diseases of conifers.
4. Diseases of nurseries and ways of control.
5. Diseases of roots / root diseases.
6. Rot and its control in the forest.
7. Abiotic agents as forest enemies.
8. Quarantine pathogens.
9. Damage to forest trees from pollution and adverse weather conditions.

Lab exercises (2 hours per week)

Taking and analysing samples. Pathogen identification. Use of specialised software to analyse the impact of pathogens on stands and individual trees.

4. TEACHING & LEARNING METHODS - EVALUATION

TEACHING METHODS	<p>In the classroom, in the Laboratory and in wooded areas adjacent to the Department's facilities. A combination of educational methods and techniques are applied, which aim at enhancing the active participation of students and which give the greatest possible effectiveness to face-to-face teaching:</p> <p>Enriched lectures, question-answering, discussion, exercises, working groups, laboratory application.</p>	
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	<p>Use, flexibly and alternatively, of supervisory media that make use of ICT: multimedia PC, video data projector, internet, asynchronous tele-education platform (e-class). Use of video for a better understanding of the theory. Communication with students via e-mail and one-to-one meetings with students for laboratory exercises.</p>	
ORGANISATION OF TEACHING	Activity	Semester workload
	Lectures	50
	Lab exercises	15
	Educational visits	15
	Personal - Group assignments	25
	Personal study and literature analysis	20
	COURSE TOTAL	125
STUDENT EVALUATION	<p>I. Written final examination on the theory of the course with a multiple-choice test, answers to critical and short-answer questions. The 20% of the grade may come from students' presence and participation during the lecture. Another 30% may come from an individual assignment. Students can also choose to give only final exams for the 100% of the grade.</p> <p>II. Assessment of the laboratory course will be done during the semester with assessment of individual assignments to be handed in on predetermined dates. Students must provide one written individual assignment for the 50% of the grade, while the other 50% will come from the final written examination.</p>	

	The examination includes the development of equally graded developmental questions or solving exercises that are communicated to students at the beginning of the course.
--	---

5. RECOMMENDED LITERATURE

1. Bakshi, B.K., 1976. Forest pathology: principles and practice in forestry. Forest pathology: principles and practice in forestry.
2. Edmonds RL, Agee JK, Gara RI. 2000. Forest Health and Protection. McGraw-Hill Co.
3. Garbelotto, M. and Gonthier, P. eds., 2018. Forest Pathology and Plant Health. MDPI.
4. Lundquist, J.E. and Hamelin, R.C., 2005. Forest pathology: from genes to landscapes. American Phytopathological Society (APS Press).
5. Lundquist, J.E., 2005. Landscape pathology-forest pathology in the era of landscape ecology. Forest pathology: From genes to landscapes, pp.155-165.
6. Pautasso, M., Schlegel, M. and Holdenrieder, O., 2015. Forest health in a changing world. Microbial Ecology, 69(4), pp.826-842.
7. Sinclair WA, Lyon HH. 2005. Diseases of trees and shrubs. Comstock Publishing Associates.
8. Smith, I.M., Dunez, J., Phillips, D.H., Lelliott, R.A. and Archer, S.A. eds., 2009. European handbook of plant diseases. John Wiley & Sons.
9. Tainter, F.H. and Baker, F.A., 1996. Principles of forest pathology. John Wiley & Sons.
10. Καϊλίδης Δ.Σ., 2005. Ασθένειες των Δέντρων, Δασών και Πάρκων. Εκδόσεις Χριστοδουλίδη