

## COURSE OUTLINE

### 1. GENERAL DESCRIPTION

School	School of Plant Sciences		
Department	Forestry and Natural Environment Management		
Studies level	Undergraduate		
Course Code	4913	Semester	9 <sup>o</sup>
Course Title	Forest fires		
INDEPENDENT TEACHING ACTIVITIES		Teaching hours per week	ECTS
Lectures		3	6
Lab exercises		2	
Course total		5	
Course type	Deepening / consolidating knowledge of the specialty of the scientific field		
Prerequisite courses:	No		
Language Of Teaching & Examination:	Greek		
The Course is Offered to Erasmus Students	Yes		
Course webpage (URL)	<a href="https://oeclass.aua.gr/eclass/courses/5291/">https://oeclass.aua.gr/eclass/courses/5291/</a>		

### 2. LEARNING OUTCOMES

Learning Outcomes
<p>The aim of the course is to introduce fire risk management issues such as prevention planning, operational organization, and impact management. In addition, concepts, parameters and systems on which forest fire prevention and control is based will be taught in relation to the overall planning of human and natural resource management.</p> <p>The aim of the course is for students to acquire theoretical and practical knowledge in order to:</p> <ul style="list-style-type: none"> <li>• Understand the phenomenon of forest fires and their ecological role in Greece and worldwide.</li> <li>• To acquire knowledge concerning the prevention of forest fires, their management and extinguishing, their socio-economic and environmental impacts, and the management of burnt areas.</li> <li>• To classify forest species by their ability to adapt to fires.</li> <li>• Describe and classify fuel types.</li> </ul>
General skills
<ul style="list-style-type: none"> <li>• Search, analysis and synthesis of data and information, using the necessary technologies</li> <li>• Autonomous work</li> <li>• Group work</li> <li>• Respect for the natural environment</li> <li>• Adaptation to new situations</li> <li>• Decision-making</li> <li>• Promoting free, creative and deductive thinking</li> <li>• Working in an international environment</li> <li>• Generating new research ideas</li> </ul>

### 3. COURSE CONTENT

The syllabus per week of the course - lectures and corresponding laboratory exercises - is the following:

**Lectures (3 hours per week)**

Forest and woodland fires in Greece and in the world. Impact of forest fires on the environment. Ecology and fires of forests and other ecosystems in Greece. Causes and prevention, behavior of forest fires, environmental impacts, legislation, fire prediction, extinguishing means and techniques, fire protection of settlements, fire ecology, handling and measures for protection and restoration of burnt areas. Fuel, its origin, types and properties. Behavior - properties of fire. Meteorological factors and forest fires. Fire risk and its assessment. Causes of forest fires. Prevention of forest fires. Detection of forest fires. Risk reduction measures. Prescribed (controlled) burning. Substances, tools and means of extinguishing. Tactics for extinguishing forest fires. Policies, training and coordination of stakeholders in responding to forest fires. Tactics and ways of using aerial and ground fire-fighting means. Prevention measures. Information - informing citizens. Protection of houses from forest fires. Fire response plans, investigative work. Presentation of the use of portable fire-fighting equipment and tools, fire-fighting vehicles, aircraft and helicopters of all types. Methods of arrangement and combinations of forest fire-fighting forces by type and number, depending on the fire environment (vegetation, topography, meteorology) and fire behavior. Personnel safety issues.

**Lab exercises (2 hours per week)**

Laboratory/tutorial exercises for the assessment of forest fire behavior with parallel analysis and consolidation of concepts, techniques and systems by the students.

**4. TEACHING & LEARNING METHODS - EVALUATION**

<b>TEACHING METHODS</b>	<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>	
<b>USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES</b>	<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. Use of computer software to carry out laboratory exercises. Use of GIS software.</p>	
<b>ORGANISATION OF TEACHING</b>	<b>Activity</b>	<b>Semester workload</b>
	Lectures	40
	Lab exercises	25
	Educational visits	10
	Assignment	25
	Personal study and literature analysis	40
	Progress evaluation/ exams	10
<b>STUDENT EVALUATION</b>	<b>COURSE TOTAL</b>	
		<b>150</b>
<p>I. Written final examination on the theory of the course with a multiple-choice test, answers to critical and short-answer questions (50% of the final grade). 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 can choose: a) to provide one written individual assignment for the 50% of</p>		

	<p>the grade, while the other 50% will come from the final written examination or b) three individual written assignments for the 100% of the grade.</p> <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.</p>
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## 5. RECOMMENDED LITERATURE

<ol style="list-style-type: none"> <li>1. Biswell, H.H., 1989. Prescribed Burning in California Wildlands Vegetation Management. University of California Press, Berkeley-Los Angeles.</li> <li>2. Brown A.A. and Davis, K.P., 1973. Forest Fire: Control and Use. McGraw Hill, New York.</li> <li>3. Cheney, P., and Sullivan, A., 1997. Grassfires: Fuel, Weather and Fire Behavior. CSIRO Publishing, Australia.</li> <li>4. Pyne, S.J., Andrews, P.L. and Laven, R.D., 1996. Introduction to Wildland Fire, 2nd edition. John Wiley &amp; Sons, Inc., New York.</li> <li>5. Schroeder, M.J., and Buck, C.C., 1970. Fire Weather. USDA Forest Service, Agriculture Handbook 360.</li> <li>6. Wright, H.A., and Bailey, A.W., 1982. Fire Ecology. John Wiley &amp; Sons, Inc., New York.</li> <li>7. Γκόφας, Α., 2008. Εγχειρίδιο Δασοπροστασίας. Εκδόσεις Γιαχούλη – Γιαπούδη, Θεσσαλονίκη, 342 σελ.</li> <li>8. Καϊλίδης, Δ., 1990. Δασικές Πυρκαγιές, 3η έκδοση. Εκδόσεις Γιαχούδη-Γιαπούδη, Θεσσαλονίκη.</li> <li>9. Καϊλίδης, Δ., και Καρανικόλα, Π., 2004. Δασικές Πυρκαγιές 1900-2000. Εκδόσεις Γιαχούδη, Θεσσαλονίκη.</li> <li>10. Καλαμποκίδης Κ., Ηλιόπουλος Ν., και Γλιγλίνος Δ., 2013. Πυρο-Μετεωρολογία και Συμπεριφορά Δασικών Πυρκαγιών σε ένα Μεταβαλλόμενο Κλίμα. Εκδοτικός Όμιλος ΙΩΝ, Αθήνα. ISBN: 978-960-508-045-7. 400 σελ.</li> <li>11. Κωνσταντινίδης, Π., 2003. Μαθαίνοντας να ζούμε με τις Δασικές Πυρκαγιές. Εκδόσεις Χριστοδουλίδη, Θεσσαλονίκη.</li> </ol>
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