

## COURSE OUTLINE

### (1) GENERAL

<b>SCHOOL</b>	School of Agricultural Sciences		
<b>ACADEMIC UNIT</b>	Biosystems & Agricultural Engineering		
<b>LEVEL OF STUDIES</b>	Undergraduate		
<b>COURSE CODE</b>	BAE_650	<b>SEMESTER</b>	6 <sup>th</sup>
<b>COURSE TITLE</b>	<b>AGRICULTURAL PHARMACOLOGY</b>		
<b>INDEPENDENT TEACHING ACTIVITIES</b> <i>if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits</i>	<b>WEEKLY TEACHING HOURS</b>	<b>CREDITS</b>	
<b>Lectures</b>	3		
<b>Tutorials</b>	2		
Laboratory	0		
<b>TOTAL</b>	<b>5</b>	<b>5</b>	
<i>Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).</i>			
<b>COURSE TYPE</b> <i>general background, special background, specialised general knowledge, skills development</i>	Scientific area background		
<b>PREREQUISITE COURSES:</b>	There are no prerequisite courses.		
<b>LANGUAGE OF INSTRUCTION and EXAMINATIONS:</b>	Greek .-For Erasmus students in English		
<b>IS THE COURSE OFFERED TO ERASMUS STUDENTS</b>	Yes		
<b>COURSE WEBSITE (URL)</b>			

### (2) LEARNING OUTCOMES

<p><b>Learning outcomes</b></p> <p><i>The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.</i></p> <p><i>Consult Appendix A</i></p> <ul style="list-style-type: none"> <li>• <i>Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area</i></li> <li>• <i>Descriptors for Levels 6, 7 &amp; 8 of the European Qualifications Framework for Lifelong Learning and Appendix B</i></li> <li>• <i>Guidelines for writing Learning Outcomes</i></li> </ul>										
<p>After the successful completion of all the educational stages of the course to have the necessary knowledge so that they are able to:</p> <ul style="list-style-type: none"> <li>• To judge the benefits and risks arising from the use of plant protection products</li> <li>• Describe the different categories of plant protection products based on the target organism and their biochemical mode of action.</li> <li>• Recognize and evaluate the various forms of standardization of plant protection products</li> <li>• Identify and understand the information on the label of plant protection products</li> <li>• To perform calculations necessary for the accurate application of plant protection products</li> <li>• To know the Personal Protection Means and to have understood the necessity of their use</li> </ul>										
<p><b>General Competences</b></p> <p><i>Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?</i></p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none;"><i>Search for, analysis and synthesis of data and information, with the use of the necessary technology</i></td> <td style="width: 50%; border: none;"><i>Project planning and management</i></td> </tr> <tr> <td style="border: none;"><i>Adapting to new situations</i></td> <td style="border: none;"><i>Respect for difference and multiculturalism</i></td> </tr> <tr> <td style="border: none;"><i>Decision-making</i></td> <td style="border: none;"><i>Respect for the natural environment</i></td> </tr> <tr> <td style="border: none;"><i>Working independently</i></td> <td style="border: none;"><i>Showing social, professional and ethical responsibility and sensitivity to gender issues</i></td> </tr> <tr> <td style="border: none;"></td> <td style="border: none;"><i>Criticism and self-criticism</i></td> </tr> </table>	<i>Search for, analysis and synthesis of data and information, with the use of the necessary technology</i>	<i>Project planning and management</i>	<i>Adapting to new situations</i>	<i>Respect for difference and multiculturalism</i>	<i>Decision-making</i>	<i>Respect for the natural environment</i>	<i>Working independently</i>	<i>Showing social, professional and ethical responsibility and sensitivity to gender issues</i>		<i>Criticism and self-criticism</i>
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<i>Working independently</i>	<i>Showing social, professional and ethical responsibility and sensitivity to gender issues</i>									
	<i>Criticism and self-criticism</i>									

<i>Team work</i>	<i>Production of free, creative and inductive thinking</i>
<i>Working in an international environment</i>	.....
<i>Working in an interdisciplinary environment</i>	<i>Others ...</i>
<i>Production of new research ideas</i>	.....

In general, upon completion of this course the student will have further developed the following general skills (from the list above):

*Search, analysis and synthesis of data and information, using the necessary technologies*

*Adaptation to new situations*

*Decision making*

*Autonomous work*

*Teamwork*

*Respect for the natural environment*

*Exercise criticism and self-criticism*

### (3) SYLLABUS

<p>Μάθημα 1: Ονοματολογία, ορισμοί και ορολογία στην Επιστήμη της Γεωργικής Φαρμακολογίας.</p> <p>Μάθημα 2: Ιστορική αναδρομή στην ανακάλυψη και χρήση Φυτοπροστατευτικών Προϊόντων (Φ.Π.) και βιοκτόνων (παρασιτοκτόνων).</p> <p>Μάθημα 3: Ετικέτα Φ.Π. και στοιχεία νομοθεσίας.</p> <p>Μάθημα 4: Τυποποίηση Φ.Π. και μέθοδοι χειρισμού και εφαρμογής τους.</p> <p>Μάθημα 5: Κατάταξη και περιγραφή με βάση τον οργανισμό-στόχο (π.χ. εντομοκτόνα, μυκητοκτόνα, ζιζανιοκτόνα) και τις χρήσεις τους (στο σπόρο, στο έδαφος, ψεκασμός κλπ).</p> <p>Μάθημα 6: Τοξικολογικές ιδιότητες Φ.Π. και μέσα ατομικής προστασίας.</p> <p>Μάθημα 7: Οικοτοξικότητα Φ.Π., επιπτώσεις στο περιβάλλον και υπολείμματα στα γεωργικά προϊόντα.</p> <p>Μάθημα 8: Εκλεκτικότητα και τοξικότητα Φ.Π. και βιοκτόνων (είσοδος στον οργανισμό στόχο, ενεργοποίηση, μεταβολισμός, χρόνος και τρόπος εφαρμογής, βιοχημικός τρόπος δράσης).</p> <p>Μάθημα 9: Κατάταξη και περιγραφή εντομοκτόνων (ακαρεοκτόνων και νηματοδοκτόνων) με βάση το βιοχημικό τρόπο δράσης (π.χ. διατάραξη νευρικού συστήματος, παρεμπόδιση ακετυλχολινεστεράσης, κανάλια μεταφοράς ιόντων, βιοσύνθεση της χιτίνης, μυϊκό σύστημα κλπ).</p> <p>Μάθημα 10: Κατάταξη και περιγραφή μυκητοκτόνων, με βάση το βιοχημικό τρόπο δράσης τους (π.χ. παρεμπόδιση αναπνοής, βιοσυνθετικών μονοπατιών κλπ).</p> <p>Μάθημα 11: Κατάταξη και περιγραφή των ζιζανιοκτόνων, με βάση το βιοχημικό τρόπο δράσης τους (π.χ. παρεμπόδιση βιοσυνθετικών μονοπατιών, φωτοσύνθεσης κλπ).</p> <p>Μάθημα 12: Κατάταξη και περιγραφή Φυτορυθμιστικών ενώσεων.</p> <p>Μάθημα 13: Κατάταξη και περιγραφή Βιοκτόνων (κουνουποκτονία, απεντομώσεις κλπ).</p>
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### (4) TEACHING and LEARNING METHODS - EVALUATION

<b>DELIVERY</b> <i>Face-to-face, Distance learning, etc.</i>	Face to face deliveries.	
<b>USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY</b> <i>Use of ICT in teaching, laboratory education, communication with students</i>	<ul style="list-style-type: none"> <li>• Use of ICT (power point) in Teaching</li> <li>• Use of ICT (power point) in Laboratory Training</li> <li>• Use of ICT in Communication with students (Learning process support through the electronic platform e-class).</li> </ul>	
<b>TEACHING METHODS</b> <i>The manner and methods of teaching are described in detail.</i> <i>Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc.</i> <i>The student's study hours for each learning activity are given as well as the hours of non directed study according to the principles of the ECTS</i>	<b>Activity</b>	<b>Semester workload</b>
	Lectures	39
	Tutorials	26
	Final Exams	26
	Study hours and preparation for tutorials and the final examination	44
Course total		<b>125</b>

<p><b>STUDENT PERFORMANCE EVALUATION</b></p> <p><i>Description of the evaluation procedure</i>  <i>Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other</i>  <i>Specifically-defined evaluation criteria are given, and if and where they are accessible to students.</i></p> <p>1</p>	<p>1. The main assessment criteria focus on understanding and correlating the knowledge that students gain from the course with other knowledge. Particular emphasis is placed on whether they have developed the ability to apply this knowledge their field of study. Emphasis is also placed on demonstrating critical ability and justifying the choices they make in each problem.</p> <p>2. Evaluation is dynamic. It mainly involves problem solving. is done orally or in writing or with a combination of the two, with or without pre-examination on the basic principles of the course, with or without exculpatory advances and with other test or inventive methods, depending on the composition of the dynamics and the needs of the audience.</p> <p>3. The above are done in the Greek language. For foreign language students (eg Erasmus students) conducted in English</p>
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### (5) RECOMMENDED LITERATURE

<ul style="list-style-type: none"> <li>▪ <i>B. Ζιόγας και Α. Μαρκόγλου, Γεωργική Φαρμακολογία, 2010</i></li> <li>▪ <i>Ε. Παπαδοπούλου-Μουρκίδου, Γεωργικά Φάρμακα, Εκδόσεις Μέθεξις, Θεσσαλονίκη, 2008</i></li> </ul> <p><i>-Συναφή επιστημονικά περιοδικά:</i></p> <ul style="list-style-type: none"> <li>▪ <i>JOURNAL OF PEST SCIENCE</i></li> <li>▪ <i>PEST MANAGEMENT SCIENCE</i></li> <li>▪ <i>PESTICIDE BIOCHEMISTRY AND PHYSIOLOGY</i></li> </ul>
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