

COURSE OUTLINE

1. GENERAL

SCHOOL	AGRICULTURAL SCIENCES		
DEPARTMENT	FOOD SCIENCE AND TECHNOLOGY		
LEVEL OF COURSE	UNDERGRADUATE		
COURSE CODE	FST_E07	SEMESTER OF STUDIES	SPRING
COURSE TITLE	AGRICULTURAL PHARMACOLOGY		
INDEPENDENT TEACHING ACTIVITIES <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>	WEEKLY TEACHING HOURS	ECTS CREDITS	
Lectures	3		
Exercises	2		
Total	5	5	
<i>Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).</i>			
COURSE TYPE <i>general background, special background, specialised general knowledge, skills development</i>	Elective Course Specialized general knowledge, skills development		
PREREQUISITE COURSES:	There are no prerequisite courses		
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek.		
IS THE COURSE OFFERED TO ERASMUS STUDENTS	NO		
COURSE WEBPAGE (URL)	https://eclass.upatras.gr/		

2. LEARNING OUTCOMES

<p>Learning outcomes</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"> • <i>Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area</i> • <i>Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B</i> • <i>Guidelines for writing Learning Outcomes</i> <p>The objectives of the course "Agricultural Pharmacology" are the students after the successful completion of all educational stages of the course to have the necessary knowledge so that they can:</p> <ul style="list-style-type: none"> • Estimate the benefits and risks arising from the use of plant protection products • Describe the different categories of plant protection products based on the target organism and their biochemical mode of action. • Recognize and evaluate the various forms of standardization of plant protection products • Identify and understand the information written on the label of plant protection products
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- Perform necessary calculations for the precise application of plant protection products
- Know the means of Personal Protection and understand the necessity of their use

General Competences

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>Search for, analysis and synthesis of data and information, with the use of the necessary technology</i>	<i>Search for, analysis and synthesis of data and information, with the use of the necessary technology</i>
<i>Adapting to new situations</i>	<i>Adapting to new situations</i>
<i>Decision-making</i>	<i>Decision-making</i>
<i>Working independently</i>	<i>Working independently</i>
<i>Team work</i>	<i>Team work</i>
<i>Working in an international environment</i>	<i>Working in an international environment</i>
<i>Working in an interdisciplinary environment</i>	<i>Working in an interdisciplinary environment</i>
<i>Production of new research ideas</i>	<i>Production of new research ideas</i>

- Search for, analysis and synthesis of data and information, with the use of the necessary technology
- Production of new research ideas
- Respect for the natural environment
- Promotion of free, creative, and inductive thinking

3.SYLLABUS

LECTURES

Lesson 1: Nomenclature, definitions, and terminology in the Science of Agricultural Pharmacology.

Lesson 2: Historical review of the discovery and use of Plant Protection Products (PP) and biocides (pesticides).

Lesson 3: PP label and elements of legislation.

Lesson 4: Standardization of PP and methods of handling and applying them.

Lesson 5: Classification and description based on target organism (eg insecticides, fungicides, herbicides) and their uses (in the seed, in the soil, spraying, etc.).

Lesson 6: Toxicological properties of P.P. and personal protective equipment.

Lesson 7: Ecotoxicity of PP, environmental effects, and residues in agricultural products.

Lesson 8: Selectivity and toxicity of P.P. and biocides (entry into the target organism, activation, metabolism, time and method of application, biochemical mode of action).

Lesson 9: Classification and Description of Insecticides based on biochemical mode action (e.g. nervous system disruption, acetylcholinesterase inhibition, ion transport channels, chitin biosynthesis, muscular system, etc.).

Lesson 10: Classification and description of fungicides, based on their biochemical mode of action (e.g. inhibition respiration, biosynthetic pathways, etc.).

Lesson 11: Classification and description of herbicides, based on their biochemical mode of action (e.g. inhibition biosynthetic pathways, photosynthesis, etc.).

Lesson 12: Classification and description of phyto regulatory compounds.

Lesson 13: Classification and description of Biocides (mosquitocides, insecticides, etc.).

4.TEACHING AND LEARNING METHODS - EVALUATION

DELIVERY <i>Face-to-face, Distance learning, etc.</i>	Face-to-face
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY <i>Use of ICT in teaching, laboratory education, communication with students</i>	Use of Information and Communication Technologies (ICTs) (e.g. powerpoint) in teaching. Communication with students: through e-mail, department's website and platform e-class. The lectures content of the course for each chapter are uploaded on the internet, in the form of a series of .pdf files, where students can freely download them from the platform e-class.upatras.gr

TEACHING METHODS	Activities	Work Load per semester
<p><i>The manner and methods of teaching are described in detail.</i></p> <p><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></p> <p><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></p>	Lectures (3 hours per week x 13 weeks)	39
	Study and Literature Analysis	42
	Non-directed study	25
	Laboratory practice	13
	Total number of hours for the Course (25 hours of work-load per ECTS credit)	125
	<p>STUDENT PERFORMANCE EVALUATION</p> <p><i>Description of the evaluation procedure</i></p> <p><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></p> <p><i>Specifically-defined evaluation criteria are given, and if and where they are accessible to students.</i></p>	<p>Language of evaluation: GREEK</p> <p>Written examination after the end of the semester (100%) including:</p> <ul style="list-style-type: none"> • Multiple-choice questions • Short-answer questions • Open-ended questions <p>Grading scale: 1 to 10. Minimum passing grade: 5. Examination time: 3 hours.</p>

5. ATTACHED BIBLIOGRAPHY

<p>Suggested Bibliography:</p> <ul style="list-style-type: none"> • B. Ziogas and A. Markoglou, Agricultural Pharmacology, 2010 • E. Papadopoulou-Mourkidou, Agricultural Medicines, Methexis Publications, Thessaloniki, 2008 <p>Related scientific journals:</p> <ul style="list-style-type: none"> • JOURNAL OF PEST SCIENCE • PEST MANAGEMENT SCIENCE • PESTICIDE BIOCHEMISTRY AND PHYSIOLOGY
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