

COURSE OUTLINE

(1) GENERAL

SCHOOL	ANIMAL BIOSCIENCES		
ACADEMIC UNIT	DEPARTMENT OF ANIMAL SCIENCE		
LEVEL OF STUDIES	Undergraduate [Free Elective]		
COURSE CODE	229	SEMESTER	3 rd
COURSE TITLE	ALTERNATIVE CROPS		
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	CREDITS (ECTS)
Lectures and laboratory exercises		5	5
Total		5	5
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).			
COURSE TYPE <i>general background, special background, specialised general knowledge, skills development</i>	Field of Science		
PREREQUISITE COURSES:	-		
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek		
IS THE COURSE OFFERED TO ERASMUS STUDENTS:	No		
COURSE WEBSITE (URL):			

(2) LEARNING OUTCOMES

Learning outcomes
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. Consult Appendix A - Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area - Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B - Guidelines for writing Learning Outcomes The purpose of the course is to introduce students to the fundamental principles of alternative crop management, with emphasis on: a) Aromatic and medicinal plants, b) Industrial crops of particular importance to the national agricultural economy, and c) Other innovative crops, such as quinoa, chia, teff, etc., for both human and animal nutrition as well as for various industrial uses. The student acquires all the necessary knowledge so that, as an agronomist graduating from the Department of Animal Science, they can support Greek producers in the development and management of alternative crops. Specifically, upon successful completion of the course, the student will be able to: - Be familiar, both theoretically and practically, with the status and future prospects of alternative crop production, their nutritional and pharmaceutical value, the existing conditions, and the potential for reducing imports and increasing exports of these crops. - Possess thorough knowledge of the soil and climatic factors that affect the growth and development of the alternative crops under consideration. - Be proficient in modern management practices as well as in the processing of alternative crops. - Independently apply this knowledge to make optimal decisions regarding production and expected products.

- Prepare a technical study for alternative crop cultivation and provide advisory services to producers on their cultivation.

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

Through this course, students are expected to develop the following general competencies:

- The ability to search for, analyze, and synthesize data and information, utilizing the necessary technologies.
- Adaptation to new situations.
- Decision-making skills.
- Capacity for independent work.
- Respect for the natural environment.
- Promotion of free, creative, and inductive thinking.

(3) SYLLABUS

General Criteria for the Selection of Alternative/Innovative Crops

- Criteria related to soil, climate, equipment, and propagation material.
- Climate change and new crops.
- Production techniques.
- Methods of introducing an innovative crop.

A. Aromatic and Medicinal Plants (AMPs)

- Introduction (historical overview, global status, status in Greece).
- Classification, terminology, uses – New investment opportunities for major AMPs.
- The role of essential oils in industry and agriculture – Groups of plant chemical compounds.
- Adaptability – Design and establishment – Propagation material – Cultivation techniques – Harvesting/Processing – Storage of AMPs adapted to humid environments (basil, mint, lavender).
- AMPs adapted to dry and semi-arid environments (oregano, savory, thyme, dittany, marjoram, sage, rosemary).
- AMPs with specific requirements (mountain tea, saffron).
- Other AMPs (chamomile, lemon balm, St. John's wort, fennel, hops).
- Other innovative medicinal plants (hemp, black cumin, etc.).

B. Industrial Crops (Sugar- and Oil-Producing Crops)

- Introduction. Prospects.
- Botanical characteristics. Biology. Adaptability. Cultivation techniques.
- Stevia, sunflower, rapeseed, castor bean, black mustard.
- Sesame, peanut, soybean, camelina, fenugreek.

C. Other Innovative Crops (Characteristics and Selection Criteria)

- Innovative crops for human nutrition (quinoa, chia, sweet potato, etc.).
- Innovative crops for animal feed (teff, amaranth for fodder, etc.).
- Innovative crops for industrial use (hemp, flax, nettle for fiber, crops for natural rubber production, etc.).

(4) TEACHING and LEARNING METHODS - EVALUATION

TEACHING METHOD	In the classroom and in the field
<i>Face-to-face, Distance learning, etc.</i>	

USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY <i>Use of ICT in teaching, laboratory education, communication with students</i>	Use of PowerPoint presentations. Communication with students via e-mail and the course website. Support of the learning process through access to online databases, etc. Distance learning through Microsoft Teams or Webex.	
TEACHING METHODS <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>	Activity	Semester workload
	Lectures	39
	Laboratory exercises in groups of 4–5 students	26
	Independent study	60
	Course total (25 h of workload per ECTS)	125
STUDENT PERFORMANCE EVALUATION <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>	I. The language of assessment is Greek. II. The grade in the theoretical part is derived 50% from the written assignment and 50% from the written examinations. III. The grade in the laboratory part is derived 50% from progress assessments and 50% from the oral examination.	

(5) ATTACHED BIBLIOGRAPHY

Textbooks • <i>Aromatic and Medicinal Plants</i>, Synchroni Paideia Publications (Christos Dordas). • <i>Agriculture – FMC</i>, Pedio Publications (Bilalis – Papastylianou – Travlos). Journals & Books • <i>New Crops for Food and Industry</i>, Editors: Wickens, G. E., Haq, N., Day, P. (Eds.), Springer. • <i>Industrial Crops and Products</i>. • <i>Journal of Medicinal Plants Research</i>. • <i>Agricultural and Food Economics</i>.
