

OLIVE CULTURE

1. GENERAL

SCHOOL	AGRICULTURAL SCIENCES		
ACADEMIC UNIT	CROP SCIENCE		
LEVEL OF STUDIES	UNDERGRADUATE		
COURSE CODE	CRS_604	SEMESTER OF STUDIES	6 th
COURSE TITLE	Olive Culture		
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
	Lectures	2	
	Tutorials		
	Lab exercises	2	
	Total	4	5
COURSE TYPE <i>general background, special background, specialised general knowledge, skills development</i>	<i>General background, Specialized general knowledge,</i>		
PREREQUISITE COURSES:	Typically, there are no prerequisite courses		
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek. Teaching may be performed in English in case foreign students attend the course.		
IS THE COURSE OFFERED TO ERASMUS STUDENTS	Yes (English)		
COURSE WEBPAGE (URL)			

2. LEARNING OUTCOMES

<p>Learning outcomes</p> <ul style="list-style-type: none"> • 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
<p>Olive culture course aims to train students on entrepreneurial cultivation of olive trees. Lectures are covering topics from A-Z on olive culture, from tree origin and geographical distribution, to olive tree biology, propagation, varieties, orchard establishment and frost protection strategies. Cultivational practices in addition to modern irrigation techniques and nutritional arrangement of the olive orchard will be projected with emphasis to innovation. Extensive analysis is provided for olive harvest timing, postharvest technology (table olives) and qualitative olive oil production.</p> <p>By the end of this course the student will have developed the following skills:</p> <ul style="list-style-type: none"> • Understanding the olive culture, its entrepreneurial aspect and its value on the local and global market. • Understanding of environmental requirements of olive tree cultivation and in-depth knowledge of olive tree physiology. • Be able to plan (new) and manage (old/new) olive orchards. • Be familiar with the latest cultivation systems developed for olive orchards • Be able to use natural resources in a sustainable way for olive culture.

- Be able to produce (or provide guidance) for excellent quality of table olives and olive oil.
- Be able to optimize and use new technologies for olive culture *in silico*, *in vitro* and *in situ* either for propagation of olive trees or for olive tree cultivation.
- Be able to find/discover proper parental propagation material with emphasis to environmentally resilient olive culture.
- Be able to optimize and synchronize the use of specific growth-related agrochemicals (biostimulants, microbial fertilizers, etc.) with frontline technology in order to achieve high quality olive products.
- Be able to understand patent management for olives and the potential of patent development for olive orchards.

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?

Search for, analysis and synthesis of data and information, with the use of the necessary technology

Adapting to new situations

Decision-making

Working independently

Team work

Working in an international environment

Working in an interdisciplinary environment

Production of new research ideas

Project planning and management

Respect for difference and multiculturalism

Respect for the natural environment

Showing social, professional and ethical responsibility and sensitivity to gender issues

Criticism and self-criticism

Production of free, creative and inductive thinking

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Others...

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- Autonomous (Independent) work
- Team work
- Project planning and management
- Respect for the environment
- Adaptation to environmental changes under optimum, suboptimum and extreme conditions.
- Production of new research ideas
- Promotion of free, creative and inductive thinking

3. SYLLABUS

Lectures

1. History of olive growing; anthropocene cultivation practices origin and classification of olive tree; economic data and projection for olive table fruits and olive oil at local and international stage.
2. Morphology and taxonomy of olive tree; bud induction, differentiation and flowering; pollination and fruit setting; alternate bearing; structure and synthesis of olive fruit.
3. Climate and soil condition requirements for olive culture.
4. Olive propagation.
5. Olive orchard establishment.
6. Pruning
7. Irrigation techniques in olive orchards – Water management and stress indicators.
8. Olive tree nutrition; arid soils and soil salinity management for olives.
9. Varieties; fruit maturity; harvest planning techniques and technology
10. Olive oil mill technology, management and qualitative productivity standards.
11. Pharmaceutical and non-pharmaceutical metabolites in olive orchards.
12. Weed control and crop protection of olive trees; biological and IPM management plans.
13. Contemporary issues on olive culture.

Laboratory exercises

1. Characteristics of olive tree varieties; Management and development of patents in entrepreneurial olive culture.
2. Modes of olive tree propagation; nursery startup and operational business plans.
3. Phenotype plasticity in olive orchards; identification tools for olive plant material discrepancies.
4. Postharvest technology in olives. Estimating yield loss due to environmental factors.
5. Olive culture and environmental protection; circular economy in olive culture and fruit production.
6. 6. Research and discovery business plans for olive biopharmaceuticals.

4. TEACHING AND LEARNING METHODS - EVALUATION

DELIVERY <i>Face-to-face, Distance learning, etc.</i>	Face to face lectures in the classroom and laboratory.	
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES <i>Use of ICT in teaching, laboratory education, communication with students</i>	Use of Information and Communication Technologies (ICTs) in teaching. Scenarios <i>in silico</i> and evaluation of olive culture data will be integrated in the course. Exemplary solutions will be provided.	
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 nondirected study according to the principles of the ECTS</i>	Activity	Semester workload
	Lectures (2 conduct hours per week x 13 weeks)	26
	Tutorials (1 conduct hour per week x 13 weeks)	13
	Lab Practice (2 conduct hour per week x 6 weeks)	12
	lab reports	6
	Assignments	3
	Hours for private study of the student, preparation and attendance mid-term or/and final examinations.	65
	Total number of hours for the Course (25 hours of work-load per ECTS credit)	125 hours (total student work-load)
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>	<p>Student performance evaluation will be explained to the students at the beginning of the course/beginning of the semester.</p> <ol style="list-style-type: none"> 1. Mandatory final written examination for lectures / theoretical part of the course, comprises 60% of the final mark of the student. 2. Mandatory final written examination for the transferred laboratory skills of the course, comprises 40% of the final mark of the student. <p>Minimum pass mark: 5 (full scale: 0-10)</p> <ol style="list-style-type: none"> 1. The above mentioned process will be taking place in Greek and for foreign students (eg ERASMUS students) in English. Examination will be based on full length questions and / or multiple choice questions. 2. Oral examination could take place if permitted by the legal/regulatory framework under which the student is affiliated (or enrolled) to the department. If permitted, oral examination will take place simultaneously with written exams. 	

5. ATTACHED BIBLIOGRAPHY

- *Proposed literature* (indicative and not restrictive):

1. Therios I. (2009).Olives. CABI Publishing, 409p.
2. Fabbri A., Bartolini G., Lambardi M., Kailis S.G. (2004). Olive Propagation Manual. 141p.
3. Monteleone E., Langstaff S. (2014). Olive Oil Sensory Science. Wiley-Blackwell, 388p.
4. Rugini E., Baldoni L., Muleo R., Sebastiani L. (2016). The Olive Tree Genome. Springer Editions 204p.
5. Peri C. (2014). The Extra-Virgin Olive Oil Handbook. Wiley-Blackwell, 380p.

6. Θεριός Ι. (2007). Ελαιοκομία. Εκδόσεις Γαρταγάνη, 518 σελ.
7. Κυριτσάκης Α. (2017). Ελαιόλαδο. Εκδόσεις CoryCity Publish, 704σελ.
8. Μπαλατσούρας Γ. (2004). *Η Επιτραπέζια Ελιά*. Ιδιωτική εκδοση, 670 σελ.
9. Φωτόπουλος Χ., Κάνταρος Η., Παπαδόπουλος Π., Κωνσταντόπουλος Ι., Βεηκώντης Γ. (2010). *Βιολογική Καλλιέργεια Ελιάς*. Εκδόσεις Σταμούλης, 160 σελ.

- *Proposed research journals for further reading* (indicative and not restrictive):

1. Scientia Horticulturae
2. Acta Horticulturae
3. Tree physiology
4. Plant Physiology and Biochemistry
5. HortScience