

## COURSE OUTLINE

### 1. GENERAL INFORMATION

<b>FACULTY/SCHOOL</b>	1. SCHOOL OF FOOD AND NUTRITIONAL SCIENCES 2. SCHOOL OF APPLIED ECONOMICS AND SOCIAL SCIENCES		
<b>DEPARTMENT</b>	1. Department of Food Science and Human Nutrition (DFSHN) 2. Department of Natural Resources Development & Agricultural Engineering (DNRDAE) 3. Department of Agricultural Economics and Rural Development (DAERD) 4. Department of Biotechnology (DB)		
<b>LEVEL OF STUDY</b>	Undergraduate		
<b>COURSE UNIT CODE</b>	775	<b>Semester:</b>	2 <sup>nd</sup> DFSHN 4 <sup>th</sup> DNRDAE 8 <sup>th</sup> DAERD 6 <sup>th</sup> DB (choice)
<b>COURSE TITLE</b>	VEGETABLE PRODUCTION		
<b>INDEPENDENT TEACHING ACTIVITIES</b> <i>in case credits are awarded for separate components/parts of the course, e.g. in lectures, laboratory exercises, etc. If credits are awarded for the entire course, give the weekly teaching hours and the total credits</i>	<b>WEEKLY TEACHING HOURS</b>	<b>ECTS</b>	
Lectures	3	5	
Practical Exercises	2		
<i>Add rows if necessary. The organization of teaching and the teaching methods used are described in detail under section 4</i>			
<b>COURSE TYPE</b> <i>Background knowledge, Scientific expertise, General Knowledge, Skills Development</i>	Academic subject area		
<b>PREREQUISITE COURSES:</b>			
<b>LANGUAGE OF INSTRUCTION:</b>	Greek/English		
<b>LANGUAGE OF EXAMINATION/ASSESSMENT:</b>			
<b>THE COURSE IS OFFERED TO ERASMUS STUDENTS</b>	Yes		
<b>COURSE WEBSITE (URL)</b>	<a href="http://www.ekk.aua.gr/index.php?sec=lessons&amp;item=16">http://www.ekk.aua.gr/index.php?sec=lessons&amp;item=16</a>		

### 2. LEARNING OUTCOMES

<b>Learning Outcomes</b>
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The course learning outcomes, specific knowledge, skills and competences of an appropriate (certain) level, which students will acquire upon successful completion of the course, are described in detail. It is necessary to consult:

**APPENDIX A**

- Description of the level of learning outcomes for each level of study, in accordance with the European Higher Education Qualifications' Framework.
- Descriptive indicators for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and

**APPENDIX B**

- Guidelines for writing Learning Outcomes

After successfully completing the course, attendees will be able to:

- have a sound overview of the current status and perspectives of vegetable production in Greece and at global level, the nutritional value, and the economic aspects of producing vegetables both in open field and in greenhouse, as well as their marketing,
- select the most appropriate crops and cropping systems for a particular cultivation site,
- understand the major interactions between vegetable production, root and air environment, including climatic conditions,
- advise growers about the most appropriate cropping practices and new technological developments in the sector of vegetable production and marketing,
- understand the different links of the vegetable supply chain after harvesting, including harvesting technologies and their economics, package, transport, post-harvest storage and marketing.
- apply good agricultural practices based on integrated crop management in the vegetable production sector.
- support as advisors or inspectors certification procedures in vegetable production enterprises
- compile technical studies on vegetable production
- support research projects related to the vegetable supply chain.
- establish and manage a vegetable production or marketing enterprise.

## General Competences

Taking into consideration the general competences that students/graduates must acquire (as those are described in the Diploma Supplement and are mentioned below), at which of the following does the course attendance aim?

Search for, analysis and synthesis of data and information by the use of appropriate technologies,  
Adapting to new situations  
Decision-making  
Individual/Independent work  
Group/Team work  
Working in an international environment  
Working in an interdisciplinary environment  
Introduction of innovative research

Project planning and management  
Respect for diversity and multiculturalism  
Environmental awareness  
Social, professional and ethical responsibility and sensitivity to gender issues  
Critical thinking  
Development of free, creative and inductive thinking  
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(Other.....citizenship, spiritual freedom, social awareness, altruism etc.)  
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- Independent work and development of economic thought on issues concerning vegetable production and supply.
- Adaptation to changing conditions in the vegetable production and marketing sector
- Decision making in all links of the vegetable supply chain
- Independent work
- Working in a multi-disciplinary working environment
- Inspiration of new research ideas
- Respect to the environment
- Promotion of creative and critical thinking on different approaches related to production and supply of vegetables following environment-friendly practices.

## 3. COURSE CONTENT

### I. THEORY:

1. Introduction to vegetable production. Current status and perspectives of vegetable production in Greece and at global level. Nutritional value of vegetables
2. Interactions of root and air environment with vegetable production
3. Open-field vegetable production systems. Integrated and organic vegetable production
4. Vegetable production in greenhouses and screenhouses. Soilless vegetable production
5. Propagation material and establishment of vegetable crops
6. Irrigation and fertilization of vegetable crops
7. Other cultural practices (weed, pest and insect control, application of growth regulators, climate control, pruning and support in greenhouses).
8. Harvesting and postharvest handling of vegetable products (packing, transport and postharvest storage). Marketing and import – export of vegetables.
9. Special production techniques of tomato, pepper and eggplant
10. Special production techniques of Cucumber, melon, watermelon and zucchini
11. Special production techniques of lettuce and other leafy vegetables
12. Special production techniques of root and tuber vegetables

### II. LABORATORY EXERCISES:

1. Identification of vegetable plant species
2. Germinability of vegetable seeds
3. Techniques and means of seed sowing in nurseries
4. Transplanting vegetable seedlings
5. Growing media for nurseries and soilless production
6. Grafting of vegetables
7. Systems of soilless vegetable production
8. Nutrient solution preparation and management in soilless cultivated vegetables
9. Pruning and support of tomato, pepper and eggplant grown in greenhouses
10. Pruning and support of Cucurbitaceae grown in greenhouses.

#### 4. TEACHING METHODS--ASSESSMENT

<p><b>MODES OF DELIVERY</b> <i>Face-to-face, in-class lecturing, distance teaching and distance learning etc.</i></p>	<p>Lectures in the amphitheater and laboratory exercises in the labs, the open field and the greenhouse facilities of the Laboratory of Vegetable Crops.</p>													
<p><b>USE OF INFORMATION AND COMMUNICATION TECHNOLOGY</b> <i>Use of ICT in teaching, Laboratory Education, Communication with students</i></p>	<p>Power Point presentations using appropriate computer and projector equipment. Communication with students through e-mail, Zoom, Microsoft teams, and Skype. Uploading of information and teaching material in the web page of the Laboratory of Vegetable Crops (<a href="https://www.aua.gr/ekk/en/">https://www.aua.gr/ekk/en/</a>). Use of a specialty designed platform in laboratory exercises (<a href="https://nutrisense.online/">https://nutrisense.online/</a>).</p>													
<p><b>COURSE DESIGN</b> <i>Description of teaching techniques, practices and methods: Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, Internship, Art Workshop, Interactive teaching, Educational visits, projects, Essay writing, Artistic creativity, etc.</i></p> <p><i>The study hours for each learning activity as well as the hours of self-directed study are given following the principles of the ECTS.</i></p>	<table border="1"> <thead> <tr> <th data-bbox="715 703 1050 763">Activity/ Method</th> <th data-bbox="1050 703 1386 763">Semester workload</th> </tr> </thead> <tbody> <tr> <td data-bbox="715 763 1050 824">Lectures (direct)</td> <td data-bbox="1050 763 1386 824">39</td> </tr> <tr> <td data-bbox="715 824 1050 884">Laboratory exercises</td> <td data-bbox="1050 824 1386 884">26</td> </tr> <tr> <td data-bbox="715 884 1050 1003">Group and/or individual work</td> <td data-bbox="1050 884 1386 1003">12</td> </tr> <tr> <td data-bbox="715 1003 1050 1064">Autonomous study</td> <td data-bbox="1050 1003 1386 1064">48</td> </tr> <tr> <td data-bbox="715 1064 1050 1176"><b>Total contact hours and training</b></td> <td data-bbox="1050 1064 1386 1176"><b>125 h ( 5 ECTC)</b></td> </tr> </tbody> </table>	Activity/ Method	Semester workload	Lectures (direct)	39	Laboratory exercises	26	Group and/or individual work	12	Autonomous study	48	<b>Total contact hours and training</b>	<b>125 h ( 5 ECTC)</b>	
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<p style="text-align: center;"><b>STUDENT PERFORMANCE EVALUATION/ASSESSMENT METHODS</b></p> <p><i>Detailed description of the evaluation procedures:</i></p> <p><i>Language of evaluation, assessment methods, formative or summative (conclusive), multiple choice tests, short- answer questions, open-ended questions, problem solving, written work, essay/report, oral exam, presentation, laboratory work, other.....etc.</i></p> <p><i>Specifically defined evaluation criteria are stated, as well as if and where they are accessible by the students.</i></p>	<p>Evaluation of students in the theoretical part of the course will be based on a written examination after completion of the semester.</p> <p>The evaluation of student's performance in the laboratory exercises will be based on testing their ability to identify different vegetable plant species based on their external appearance and on a final written examination at the end of the semester.</p>
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## 5. SUGGESTED BIBLIOGRAPHY:

<p><b>I. In Greek:</b></p> <ol style="list-style-type: none"> <li>1. Σάββας, Δ., 2016. Γενική Λαχανοκομία. Εκδόσεις Πεδίο.</li> <li>2. Ολύμπιος, Χ., 2015. Η Τεχνική της Καλλιέργειας των Υπαίθριων Κηπευτικών. Εκδόσεις Αθ. Σταμούλη, Αθήνα.</li> <li>3. Χα, Ι.Α., Πετρόπουλος, Σ., 2014. Γενική Λαχανοκομία και Υπαίθρια Καλλιέργεια Κηπευτικών. Πανεπιστημιακές Εκδόσεις Θεσσαλίας, Βόλος.</li> </ol> <p><b>II. In English:</b></p> <p>Hochmuth, G. (Ed.), 2019. Achieving sustainable cultivation of vegetables. Burleigh Dodds Science Publishing, Cambridge, UK.</p> <p><b>Related scientific journals:</b></p> <ol style="list-style-type: none"> <li>1. Scientia Horticulturae</li> <li>2. Journal of Horticultural Science and Biotechnology</li> <li>3. European Journal of Horticultural Science</li> <li>4. Journal of the American Society for Horticultural Science</li> </ol>
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## 6. TEACHERS:

<p><b>Theory:</b></p> <ol style="list-style-type: none"> <li>1) Dimitrios Savvas, Professor,</li> <li>2) Ntatsi Georgia, Assistant Professor,</li> <li>3) Andreas Ropokis, Teaching and Research Associate</li> <li>4) Ioannis Karapanos, Associate Professor</li> </ol> <p><b>Laboratory:</b></p> <ol style="list-style-type: none"> <li>1) Andreas Ropokis, Teaching and Research Associate</li> <li>2) Ntatsi Georgia, Assistant Professor</li> <li>3) Dimitrios Savvas, Professor</li> </ol>
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