**COURSE OUTLINE**

**GENERAL**

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| **SCHOOL** | APPLIED ECONOMIC AND SOCIAL STUDIES |
| **DEPARTMENT** | AGRICULTURAL ECONOMICS & RURAL DEVELOPMENT |
| **LEVEL** | *Undergraduate* |
| **CODE** | 229 | **SEMESTER** | 9ο |
| **COURSE TITLE** | **NOVEL CROPS**  |
| **INDEPENDENT TEACHING ACTIVITIES** *in case the credits are awarded in separate parts of the course e.g. Lectures, Laboratory Exercises, etc. If the credits are awarded uniformly for the whole course, indicate the weekly teaching hours and the total number of credits.* | **WEEKLY****TEACHING****LOAD** | **ECTL** |
| Tuition Hours | 3 Lectures+ 2Laboratory exercises | 5 |
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| *Add rows if needed. The teaching organization and teaching methods used are described in detail in 4.* |  |  |
| **COURSE TYPE***Background, General Knowledge, Scientific Area, Skills Development* | Scientific area |
| **PREREQUISITES** |  |
| **TUITION AND EXAM LANGUAGE:** | Greek |
| **AVAILABILITY TO ERASMUS STUDENTS** | NO |
| **COURSE WEB PAGE (URL)** | https://openeclass.aua.gr/ |

1. **LERNING OUTCOMES**

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| **Learning Outcomes:** |
| *The learning outcomes of the course are described, the specific knowledge, skills and abilities of an appropriate level that students will acquire after the successful completion of the course.**Consult Appendix A.** *Description of the Level of Learning Outcomes for each course according to the Qualifications Framework of the European Higher Education Area*
* *Descriptive Indicators Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Annex B.*
* *Summary Guide for writing Learning Outcomes*
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| The aim of the course is to introduce students to basic knowledge of the principles of alternative crop management with emphasis on a) Aromatic and Medicinal plants and b) Industrial plants of particular importance for the agricultural economy of our country and c) Other innovative crops such as quinoa , chia, tef etc for human and animal nutrition as well as other industrial uses. The student acquires all the necessary knowledge so that as an agronomist a graduate of the AOA Department he can help the Greek producer in the development and management of alternative crops. In particular, after the successful completion of the course the student is going to:* Become acquainted on a theoretical and practical level with the current situation and prospects of producing alternative crops, the nutritional and medicinal value, the current situation, and the possibilities of reducing imports and increasing exports of these crops.
* Thoroughly acquainted with the soil-climatic factors that affect the growth and development of the alternative crops under consideration.
* Recognizes modern management practices as well as processing of alternative crops.
* Automatically utilizes the above knowledge to make optimal decisions about production and expected products.
* Is able to conduct a technical study for the cultivation of alternative crops and provide advice to growers for their cultivation.

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| **General Competences** |
| *Taking into account the general skills that the graduate must have acquired (as they are listed in the Diploma Supplement and are listed below) which of the following is the aim of the course ?.*Search, analysis and synthesis of data and information, using the necessary technologies A*daptation to new situations* *Decision making* *Autonomous work Teamwork Working in an international environment* *Work in an interdisciplinary environment* *Production of new research ideas**Project design and management**Respect for diversity and multiculturalism**Respect for the natural environment**Demonstration of social, professional and moral responsibility and sensitivity to gender issues**Exercise criticism and self-criticism**Promoting free, creative and inductive thinking* |
| Through this course the student seeks to acquire the following general skills:* Search, analysis and synthesis of data and information using the necessary technologies
* Adaptation to new situations
* Decision making
* Autonomous work
* Respect for the natural environment 
* Promotion of free, creative and inductive thinking
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**COURSE CONTENT**

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| 1 | General criteria for selecting alternative / innovative cropsCriteria for soil, climate, equipment and propagating material.Climate change & new crops.Production techniques.Ways to introduce an innovative crop. |
| 2 | **Α. Aromatic / Medicinal Plants (AMP)*** **Introduction** (historical background, situation at the global level, situation in Greece)
* **Classification, Terminology, Uses - New investment opportunities of the main ones AMP**
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| 3 | * The Role of Essential Oils in Industry and Agriculture - Groups of Plant Chemical Compounds
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| 4 | **Adaptability - Design and Installation - Propagating material - Cultivation techniques - Harvesting / Processing - Storage** AMP adapted to liquid environments (Basil, mint, lavender) |
| 5 | AMP adapted to dry thermal environments (oregano, clover, thyme, dittany, marjoram, sage, rosemary) AFF adapted to dry thermal environments (oregano, clump, thyme, dittany, marjoram, sage), tree. AMP special requirements (mountain tea, yolk) AMP (chamomile, honeysuckle, St. John's wort, fennel, hops) |
| 6 | Other innovative Medicinal plants (hemp, nigella, etc.). |
| 7 |  **Β. Industrial Plants (Confectionery / Olive Plants)*** Introduction. Perspectives
* Agronomic characteristics. Biology. Adaptability. Cultivation practices.
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| 8 | Stevia. Sunflower,.Rapeseed crop for Castor oil, Black mustard. |
| 9 | Sesame seeds. Peanut. Soybean. Camelina, fenumgreek |
| 10 | **C.** Other innovative crops (characteristics and selection criteria) |
| 11 | Innovative crops for human nutrition quinoa, chia, sweet potatoes etc for human nutrition |
| 12 | Innovative crops for animal feed (tef, amaranthus, etc.) |
| 13 | Innovative crops for industrial use (Hemp, flax, nettle for fiber, crops for natural rubber production, etc.) |

1. **TEACHING AND LEARNING METHODS -  EVALUATION**

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| **TEATCHING METHOD***Face to face, e-learning, etc.*  | Face to face teaching  |
| **IT SUPPORT** *Use of ICT in Teaching, in Laboratory Education, in Communication with students* | Use of Power point images Communication with students via e-mail and website. Learning process support through access to online databases etc.**Distance by Microsoft Teams or Webex** |
| ***TEACHING ORGANIZATION****The way and methods of teaching are described in detail.**Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliography study & analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive teaching, Study visits, Study work, artwork, creation, project.etc**The student study hours for each learning activity are indicated as well as the non-guided study hours so that the total workload at the semester level corresponds to the ECTS standards.* |

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| ***Activity*** | ***Work-load*** |
| Lectures | 39 |
| Laboratory exercises for groups of 4-5 students | 26 |
| Individual study | 60 |
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| ***Total*** | ***125 hours*** |

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| **STUDENTS EVALUATION***Description of the evaluation process**Assessment Language, Assessment Methods, Formative or Conclusive, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Report / Reporting, Oral Examination, Public Presentation, Public Presentation, Others**Explicitly defined evaluation criteria are stated and if and where they are accessible to students.* | 1. The language of evaluation is Greek.
2. The grade in theory is 100% derived from the written one examination
3. The grade in the laboratory is obtained by 50% from progress and by 50% during the oral examination.
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1. **RECOMMENDED-BIBLIOGRAPHY**

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| Posting in the e-class of the presentations. **YES**Education Books* **Agriculture – AMP** Pedio Publications (Bilalis -Papastylianou – Travlos).
* **Advance in Agronomy** Spring cereals - industrial - oil plants and spring weeds (Bilalis -Papatheochari-Papastylianou – Travlos) repository ΚΑΛΛΙΠΟΣ.

Journals & BooksNew Crops for Food and Industry Editors: **Wickens**, G. E., **Haq**, N., **Day**, P. (Eds.) Springer Book.* Industrial Crops and Products.
* *Journal Of Medicinal Plants Research*
* Agricultural and Food Economics
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