**COURSE LAYOUT**

1. **GENERAL**

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| **SCHOOL** | OF APPLIED ECONOMICS AND SOCIAL SCIENCES | | | | |
| **DEPARTMENT** | AGRICULTURAL ECONOMICS AND RURAL DEVELOPMENT | | | | |
| **STUDY LEVEL** | *Undergraduate* | | | | |
| **COURSE CODE** | 3465 | **SEMESTER** | | 1st | |
| **COURSE TITLE** | BOTANY (PLANT SYSTEMATICS AND ANATOMY) | | | | |
| **INDEPENDENT TEACHING ACTIVITIES** | | | **WEEKLY TEACHING HOURS** | | **ECTS** |
| LECTURES | | | 3 | | 5 |
| LABORATORY CLASSES | | | 2 | |  |
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| **COURSE TYPE** | GENERAL KNOWLEDGE | | | | |
| **PREREQUISITES** |  | | | | |
| **LANGUAGE** | Greek | | | | |
| **IS THE COURSE OFFERED forERASMUS STUDENTS?** | YES (in English) | | | | |
| **COURSE WEB PAGE** | https://mediasrv.aua.gr/eclass/courses/AFPGM135/ | | | | |

1. **LEARNING OUTCOMES**

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| **Learning Outcomes** | |
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| The course is an introduction to plant science. The students are able to explore the morphology, anatomy, growth, reproduction, taxonomy, and ecology of plants. The first unit aims to introduce to the students, the structure and function of the typical plant cells. The next unit explores the structure and function of the plant tissues, and the third one the morphology, structure and function of the plant organs. The fourth unit deals with the objectives, aims and methodology of Plant Systematics, focusing on evolution, diversification, morphological characteristics and classification of Spermatophytes (Gymnosperms and Angiosperms).  The course aims to explore, the different organization levels of the plants (cells-tissues-organs), focusing on the structure - function relationship. At the same time, is an introduction to diversity and classification of plant species. Both the theory and the laboratory classes, offer necessary knowledge for a number of agronomical courses, along with the understanding of the plant species. Additionally, new skills are built; the use of microscope and the stereoscope for observing and recognizing anatomical and morphological characters and features. Using examples and applications, the obtained knowledge is linked to the agronomical and agricultural sector. | |
| **General Competences** |
| * Autonomous work and assignments * Group work and assignments * Environmental awareness * Development of analytical and creative thinking skills | |

1. **COURSE CONTENT**

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| **Theory**  Unit Ι.   1. Introduction to plant anatomy and morphology.  * The modern microscope. * Plant species evolution affects morphology and anatomy.  1. The cells: The structural and functional units of the plant tissues and organs.   Unit ΙΙ.  The plant cells form the tissues   * Meristematic and permanent (non-meristematic) tissues.   Unit ΙΙΙ.  The plant tissues make up the organs:   * The leaves * The root * The stem * Flowers and reproduction * The seeds and the fruits   Unit IV.   * Introduction to Plant Systematics (objectives, aims, methodology) * Plant nomenclature * Evolution, diversity, morphological features and classification of woody plants (Gymnosperms). Major families in the Mediterranean flora. * Evolution, diversity and morphological features of flowering plants (Angiosperms). Flowers and fruits of Angiosperms. Pollination, fertilization, dispersal of seeds and fruits. * Classification of Angiosperms – major families in the Mediterranean flora (morphological features, important genera and species, main cultivated species). * Plant diversity in Greece.   **Laboratory**  Lab 1 – The modern optical microscope – the plant cell  Lab 2 – Ground and vascular tissues – vascular bundles  Lab 3 – Primary root anatomy  Lab 4 – The plant epidermis and the stomata  Lab 5 – Dicot leaf anatomy  Lab 6 – Morphological diversity of plants (stem, leaf, flower)  Lab 7 - Morphological diversity of plants (stem, leaf, flower) (inflorescence, fruit, seed)  Lab 8 – Plant collecting, documentation and identification  Labs 9-12 – Identification of plant specimens belonging to major plant families of the Mediterranean (Apiaceae, Asteraceae, Brassicaceae, Caryophyllaceae, Fabaceae, Lamiaceae, Liliaceae, Malvaceae, Poaceae, Rosaceae, Scrophulariaceae, Solanaceae, κλπ.) using identification keys |

1. **TEACHING and LEARNING METHODS - Evaluation**

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| **TEACHING METHOD** | Live, face to face teaching in the classroom\*  \*Due to the special circumstances (COVID-19), the method may differ. |
| **USE OF INFORMATICS and COMMUNICATION TECHNOLOGIES** | For the course are both used Power-point presentation and the class board. There is contact with the students via e-mail. The support of learning process and the necessary materials are facilitated by the electronic, web based e-class platform. Optical microscope and stereoscope use. |
| **TEACHING ORGANISATION** | |  |  | | --- | --- | | *Activity* | *Workload* | | Lectures (direct) | 39 | | Laboratory Classes | 24 | |  |  | | Individual work (experimental results) | 28 | | Autonomous study | 34 | | *Total contact hours and training(25 hours per ECTS)* | ***125***  ***(5 ECTS)*** | |
| **STUDENTS EVALUATION** | **Ι)** Theory: Written final examination 10 short answer questions\*  **II)** Laboratory class: Written final examination 5 short answer or matching questions\*  \*Due to the special circumstances (COVID-19), the method of evaluation may differ. |

1. **BIBILIOGRAPHY**

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| Book: Mauseth J. D. 2020. Botany. Broken Hill Publishers, (in Greek).  Simpson M.G. 2016. Plant Systematics. Utopia Publishing, (in Greek). |