



COURSE OUTLINE

(1) GENERAL

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| SCHOOL | School of Technology | | |
| ACADEMIC UNIT | Department of Environmental Sciences | | |
| LEVEL OF STUDIES | Undergraduate | | |
| COURSE CODE | AY202 | SEMESTER | 2nd |
| COURSE TITLE | BOTANY | | |
| INDEPENDENT TEACHING ACTIVITIES | WEEKLY TEACHING HOURS | CREDITS | |
| Teaching Hours | 4 | 4 | |
| COURSE TYPE | General background | | |
| PREREQUISITE COURSES | None | | |
| LANGUAGE OF INSTRUCTION and EXAMINATIONS | Greek | | |
| IS THE COURSE OFFERED TO ERASMUS STUDENTS | None | | |
| COURSE WEBSITE (URL) | https://eclass.uth.gr/courses/ENV_U_183 | | |

(2) LEARNING OUTCOMES

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| Learning outcomes |
| <p>The Botany course aims to provide students with the basic knowledge regarding the organization of plant cell and plant organism. Students will become familiar with the main cellular structures, as well as the morphology and anatomy of the most basic vegetative plant organs (root, shoot, leaf, flower, fruit, seed), which are used in the taxonomic identification of plant species, of both Gymnosperms and Angiosperms. The course also presents a thorough analysis of the structure of all plant parts and organs which support all the basic physiological plant functions, such as photosynthesis, cellular respiration, water movement, transpiration, etc. Thus, students will comprehend the way in which plants react to different environmental conditions, highlighting the effect of the environment on the functional organization of plant structures, in the context of the plant development process, and their role in Ecosystems.</p> <p>Upon successful completion of the course, students will have acquired the necessary knowledge, skills and competence, and will be able to:</p> <ul style="list-style-type: none"> • Understand the basic principles and concepts of Botany, especially with an emphasis on the basic concepts of the organization of the plant organism. • Recognize and comprehend the main cell structures and the most important types of plant cells, having grasped the basic anatomy and morphology of plant vegetative organs. • Understand basic functions of plant physiology (photosynthesis, cellular respiration, respiration etc.). |
| General Competences |
| <ul style="list-style-type: none"> • Search for, analysis and synthesis of data and information with the use of the necessary technology • Adapting to new situations • Decision-making • Working independently • Working in an interdisciplinary environment • Production of new research ideas • Project planning and management • Respect for the natural environment • Criticism and self-criticism • Production of free, creative and inductive thinking |

(3) SYLLABUS

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| <ul style="list-style-type: none"> • Introduction to Botany. Diversity of plant organisms – Nomenclature – The role of plants in Ecosystem and the Environment • Types of plant cells and tissues – Histology of Angiosperms. |
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- Organization of the plant body: The structure and function of leaves. External morphology and internal organization of the sheet. Special leaf types.
- The structure and function of the root and shoot. Primary and secondary growth Stem transformations.
- The structure and function of the flower. External morphology and internal organization of the flower. Pollination and methods of pollination.
- Reproductive Biology of plants. Fertilization. Fruit - Seed. Its structure and function of seed. Seeds viability, dormancy and germination – Phytohormones.
- Photosynthesis – Photosynthetic pigments
- Cellular respiration - Water movement of plants - Respiration.
- Direction of growth – Environmental stimuli (phototropism, gravitropism, diurnal rhythms– seasonal changes (Photoperiodism, vernalization)
- Environmental stresses of plants – Adaptations of plants to the Mediterranean environment. Antipollution role of plants.

(4) TEACHING and LEARNING METHODS – EVALUATION

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| DELIVERY | Face-to-face | |
| USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY | <ul style="list-style-type: none"> • Use of PowerPoint slides • View material in video • Visiting and using material from websites • Communication with students via e-mail • Use of asynchronous distance learning (e-class) | |
| TEACHING METHODS | Activity | Semester workload |
| | Lectures | 52 |
| | Literature Study & Analysis | 28 |
| | Paper Writing & preparing her presentation | 20 |
| | Course total (25 hours workload per credit) | 100 |
| STUDENT PERFORMANCE EVALUATION | <p>Students' performance is evaluated in the Greek language. The final grade is determined by:</p> <ul style="list-style-type: none"> • An end-of-semester written exam that forms 80% of the final score and includes some of the following assessment methods: multiple-choice test, short-answer questions, problem solving. • The elaboration of individual work, in the 2nd half of the semester, which constitutes 20% of the final score. The individual work may be presented by the students in class. <p style="text-align: center;">Final Grade = 80% Exam Grade + 20% Assignment Grade</p> | |

(5) ATTACHED BIBLIOGRAPHY

- Aivalakis, G., Karabourniotis, G. & Fasseas, K. (2005) *General Botany (Morphology, Anatomy and Physiology of Higher Plants)*. Athens: Embryo Publications. (in Greek)
- Taiz, Lincoln, Zeiger, Eduardo, Moller, I. M., & Murphy, Angus (Ed. K. Thanos). (2017) *Plant Physiology and Development*. 6th American – 2nd Greek edition. Athens: UTOPIA Publications. (in Greek)
- Tsekos, I. (2005) *Botany (Structure, Functional Action and Plant Biology)*. Publications: Kyriakidis Brothers S.A. (in Greek)
- Vardavakis, M. & Zouzoulas, D. (2003) *Morphology and Anatomy of Plants*. Thessaloniki: ZITI Publications. (in Greek)