**Ecology and environmental protection in agriculture (First Year of study, IIth Semester)**

**Credit value (ECTS) 4**

**Course category**

fundamental course (mandatory)

Discipline code: A.EMIAIA.F.109

**Course holder:**

**Lecturer PhD Cristina SLABU**

**Objectives (lecture and practical course work)**

**The aim of the course is:** To equip future specialists with a body of knowledge in General Ecology and Agroecology, which will allow them to correctly approach ecological laws, with a view to their proper application for the protection and conservation of the environment, with a special emphasis on environmental protection in agriculture.

**Practical work seeks to:** Develop the skills to practically apply theoretical knowledge and the habit of acting autonomously to observe, analyze, interpret, and provide viable solutions for environmental protection in agriculture.

**Contents (syllabus)**

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| **Course (chapters / subchapters)** |
| **Ecology - biological science with interdisciplinary approach, with practical and social character**: definition, object of study, historic; research methods used in ecology. |
| **Systemic organization of living matter:** general systems theory; systems classification;  characteristics of biological systems; hierarchy of biological systems. |
| **Organisms and their environments:** abiotic and biotic factors; laws of Ecology. |
| **Ecosystem**: general systems theory; characteristics of biological systems; the concept of  ecosystem; biotope; biocoenosis; ecosystem structure; ecosystem functions; ecosystem dynamics; types of natural ecosystems. |
| **Agricultural ecosystem**: definition; structure and functions; origin and evolution; classification;  productivity of agricultural ecosystems; agricultural ecosystems and human nutrition. |
| **Anthropogenic impact on the environment:** loss of biodiversity and extinctions; soil degradation and reduction of its fertility; environmental pollution, problems and control  measures. |
| **Ecological implications of different agricultural systems:**  Environmental pollution as a result of conventional and ecological agricultural activities: |
| **Sustainable development**: ecological principles for management of natural resources and environmental protection; optimal use of natural resources in ecosystems; conservation of  genetic resources. |
| **Environmental protection:** environmental protection in Romania in the context of the global  environmental protection**.** Environmental protection in agriculture |

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| **Practical course** |
| **Management problems**: information of students about course aims, the targeted skills, the  criteria and methods of evaluation, work safety rules; laboratory equipment and utensils. |
| **Structural and functional analysis of an ecosystem. Quantitative analysis of abiotic factors**:  temperature, humidity, atmospheric pressure, soil characteristics. |
| **Ecological adaptations of plants to different environmental conditions**  (work carried out in Botanical Garden - Iasi). |
| **Agricultural Ecosystems:** types, structure, function, environmental impact  **(**field observations at "V. Adamachi" Research and Experimental Farm**).** |
| **Aspects of the water quality under human impact:** analysis of some physical and chemical  indicators of water quality. |
| **Aspects of the soil quality under human impact:** analysis of some physical and chemical  indicators of soil quality. |
| **Final colloquium of knowledge evaluation.** |

**References**

1. Jităreanu G. (coordonator), 2020 – Tratat de Agrotehnică: Subcapitolul 12.4.1. Indicatori privind eroziunea solului în UE-28 şi cerinţele de mediu (p. 879-881); Subcapitolul 14.2.2. Agricultura biologică/ecologică/organică (p.1222-1223); Subcapitolul 14.2.8. Agricultura durabilă (p. 1227-1237). Editura "Ion Ionescu de la Brad", Iaşi.

2. Maxim A., 2008 – Ecologie generală și aplicată. Editura "Rizoprint", Cluj Napoca.

3. Slabu Cristina, Covaşă Mihaela, 2021 – Ecologie și protecția mediului - suport de studiu pentru studenți. Ediţia a 2-a. Editura "Ion Ionescu de la Brad", Iaşi.

\*\*\*Consiliul Europei – Pactul verde european. https://www.consilium.europa.eu/ro/policies/green-deal/.

\*\*\*Ministerul Agriculturii- AFIR - Ghidul fermierului privind condiționalitatea (Ediția a VII-a)

\*\*\* Legea nr. 123 din 10 iulie 2020 pentru modificarea și completarea Ordonanței de urgență a Guvernului nr. 195/2005 privind protecția mediului. Monitorul Oficial al României;

\*\*\*Ministerul Agriculturii și Dezvoltării Rurale: Agricultura ecologică. https://www.madr.ro/agricultura-ecologica.html

**Evaluation**

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| **Evaluation forms** | **Evaluation Methods** | **Percentage of**  **the final grade** |
| Exam | Oral evaluation | 60% |
| Assessment of activity during the semester. | Oral evaluation during the semester, verification tests, laboratory colloquium. | 40% |

**Contact**

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