Ecology and Environmental Protection (I Year of study, II nd SEMESTER)

Credit value (ECTS) 3

Discipline Code: A.IMAA.F.109

Course category
fundamental course (mandatory)

Course holder:
Lecturer PhD. Cristina SLABU

Discipline objectives (course and practical works)

The aim of the course is to have students acquire knowledge on the fundamental principles of ecology, the structure and functioning of natural and anthropogenic ecosystems, and the impact of human activities on the environment, with direct implications for the agricultural sector. Students will also study the relationships between biotic and abiotic components, biogeochemical cycles, ecological self-regulation processes, and sustainable organization methods of agroecosystems in the context of environmental change.

Practical works seek to familiarize students with methods of observing, analyzing, and interpreting ecological phenomena, as well as techniques for assessing environmental factors. Theoretical knowledge will be applied in field and laboratory activities, through the identification of specific environmental issues and the formulation of ecological solutions for the protection of natural resources and the sustainable management of agricultural ecosystems.

Contents (syllabus)

Course (chapters / subchapters)
Ecology - biological science with an interdisciplinary approach, with practical and social character: definition, object of study, history; 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 fertility; environmental pollution, problems and control measures.
Sustainable development: ecological principles for the management of natural resources and environment protection; optimal use of natural resources in ecosystems; conservation of genetic resources.
Environmental protection: environmental protection in Romania in context of the global environmental protection**.**
Practical applications/ laboratory work

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 ecosystem: types, structure, functions, and environmental impact. Practical work carried out at the Research and Student Practice Station "Vasile Adamachi", Iași.
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

Cogălniceanu D., 2012 – Ecologie şi protecția mediului. Editura Politehnica.

Jităreau G. (coordonator), 2020 – Tratat de Agrotehnică: 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", Iași.

Preda Cristina, Ruști D-M., Cogălniceanu D., 2020 – Lucrări practice de Ecologie generală. Editura Universitară, București.

Slabu Cristina, Mihaela Covaşă, 2021 – Ecologie şi protecția mediului. Suport de studiu pentru studenți (Ediția a II-a, revăzută şi completată), Editura "Ion Ionescu de la Brad", Iași;

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

*** Legea protecției mediului, cu modificările și completările ulterioare.

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

*** Ghidul fermierului privind condiționalitatea -actualizat.

Evaluation

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

Contact

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