

Ecology and Environmental Protection (for the speciality Agricultural Sciences)
IIInd Year of study, IVth SEMESTER

Credit value (ECTS) 2

Course category

Domain (Imposed)

Course holder:

Assist. Prof. Dr. Cristina SLABU

Discipline objectives (course and practical works)

The aims of this course and practical applications is:

- To equipping future specialists with knowledge about general ecology that enable them to correctly approach the environmental legalities, the structure and functioning of ecosystems, in order to correctly apply them in the environmental protection;
- To form students a strong environmental conscience, enabling them to think and act in ecological spirit, in the sense of advocating for wisely using the natural renewable and non-renewable resources, to exploit ecosystems without exceeding the tolerance threshold of the environment, to know how to avoid environmental pollution and the diminishing spontaneous;
- To form students' skills in applying theoretical knowledge, and skills to act autonomously in order to observe, analyze, interpret and provide concrete solutions to environmental problems.

Contents (syllabus)

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 reducing its fertility; environmental pollution, problems and control measures.
Sustainable development: ecological principles for 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 the 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 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.

Bibliography

1. Berca M., 2000 – *Ecologie generală și aplicată*. Ed. Ceres București.
2. Gabrian, C. F., & Horaicu, C. N., 2010 – *Protecția mediului în Uniunea Europeană*. Ed. Tipo Moldova, Iași.
3. Gavrilescu E., 2008 – *Surse de poluare și agenții poluanți ai mediului*, 2008, Ed. Sitech, Craiova.
4. Lupașcu A., 2004 – *Biogeografie cu elemente de ocrotirea și conservarea biodiversității*. Ed. Terra Nostra, București.
5. Maxim. A., 2008 – *Ecologie generală și aplicată*. Ed. Risoprint, Cluj-Napoca.
6. Mohan Gh., Ardelean A., 2006 – *Parcuri și rezervații naturale din Romania*. Ed. Victor & Victor, București.
7. Mohan Gh., Ardeleanu A., 1993 – *Ecologie și protecția mediului*. Ed. Scaiul, București.
8. Pârvu C., 2001 – *Ecologie generală*. Ed. Tehnică, București.
9. Schulze Ed, Beck E, Müller-Hohenstein K., 2005 – *Plant Ecology*. Ed. Springer Berlin/Heidelberg.
10. Stugren B., 1994 – *Ecologie teoretică*. Ed. Sarmis, Cluj-Napoca.
11. Șchiopu D., Vântu V. (coord.), 2002 – *Ecologie și protecția mediului*. Ed. "Ion Ionescu de la Brad", Iași.
12. Toma L. D., 2009 – *Ecologie și protecția mediului*. Ed. PIM , Iași.
13. Tucaliuc R. A., 2015 – *Lucrări practice de chimia mediului*. Ed. PIM, Iași
14. Vîntu V., 2000 – *Ecologie și protecția mediului*. Ed. "Ion Ionescu de la Brad" Iași.

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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