

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

Credit value (ECTS) 4

Course category

Domain (Imposed)

Course holder:

Lecturer PhD Cristina SLABU

Objectives (lecture and practical course work)

The aims of this course are

- To provide knowledge of general ecology in order to understand basic principles, structure and function of ecosystems
- To raise the students' awareness for responsible and sustainable use of natural resources and for environmental protection
- To teach the students how to avoid environmental pollution
- To provide theoretical knowledge and practical skills for recognition, analysis, and interpretation ecological problems. Students should gain all the necessary skills to independently provide solutions for 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 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

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

- Cogălniceanu, D., 2012 – Ecologie și protecția mediului. Politehnica Press.
- Oancea Servilia, 2007 – Ghid de prelucrare rapidă a datelor experimentale, Ed. Performantica, Iași.
- Pârvu, C., 2001 – *Ecologie generală*. Editura Tehnică, București
- Slabu Cristina, 2018 – Ecologie și protecția mediului –suport de studiu. Edit. “Ion Ionescu de la Brad”, Iași.
- Stugren, B., 1994, Ecologie teoretică, Ed. Sarmis, Cluj.
- Șchiopu Dan, Vântu Vasile (coord.), 2002 - Ecologia și protecția mediului. Edit. “Ion Ionescu de la Brad”, Iași.
- Toma Liana Doina, 2009 – Ecologie și protecția mediului. Ed.PIM; Iași.
- Toncea, I., Simion, E., Ioniță Nițu, E., Alexandrescu, D., Toncea, V. A., 2016 – *Manual de agricultură ecologică* (suport de curs). <http://agriculturadurabila.ro/wp-content/uploads/2016/06/manual.pdf>
- Zamfirescu, S.R., Zamfirescu, O., 2008 – Elemente de statistică aplicate în Ecologie. Ed. Univ. „Al.I. Cuza Iași.
- *** Legislația de mediu– actualizată

Evaluation

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

Lecuter PhD. Cristina SLABU
Faculty of Agriculture - USAMV Iași
Aleea Mihail Sadoveanu nr. 3, Iași, 700490, Romania
phone: 0040 232 407349, fax: 0040 232 219175
E-mail: cslabu@uaiasi.ro