GENERAL ECOLOGY (ENVIRONMENTAL ENGINEERING, Ist Year of study, IInd SEMESTER)

Credit value (ECTS) 3

Course category
Domain (Imposed)

Course holder:
Lecturer PhD. Cristina SLABU

Discipline objectives (course and practical applications)

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: the concept of ecosystem; biotope (concept, definition, types); biocenosis (concept, definition, species diversity in biocenosis, the concept of stability, ecological dominance, inter- and intra-species relationships); ecosystem structure; ecological niche; ecosystem functions; ecosystem dynamics; Ecological succession natural and anthropic ecosystems.
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.

Practicum
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.

Estimating structural indicators of biota in environmental studies: relative abundance, density, frequency, consistency, Shannon-Wiener function, distribution.
Elements of ecological statistics: $\chi 2$ test, the standard error, the error limits of an estimate, confidence interval.
Ecological adaptations of plants to different environmental conditions. (work carried out in Botanical Garden - Iasi).
Anthropogenic ecosystems: types, structure, function, environmental impact – field observations.
Ecosystems and risk factors: practical application in the Ciric area.
Analysis and interpretation of experimental data; methods of graphic representation of results: applications in Excel, PowerPoint; methods of writing scientific work in ecology and submit a report.

References

Cogălniceanu, D., 2012 – *Ecologie şi protecţia mediului*. Politehnica Press.

Oancea Servilia, 2007 - *Ghid de prelucrare rapidă a datelor experimen*tale, Ed. Performantica, Iaşi.

Pârvu, C., 2001 – *Ecologie generală*. Editura Tehnică, Bucureşti

Pădureanu, S., 2011 – *Poluarea mediului şi ocrotirea naturii*. Ed. Tehnopress.

Slabu Cristina, 2018 – *Ecologie şi protecţia mediului* –suport de studiu. Ed. "Ion Ionescu de la Brad", Iaşi.

Stugren, B., 1994 – *Ecologie teoretică*, Ed. Sarmis, Cluj.

Şchiopu Dan, Vântu Vasile (coord.), 2002 – *Ecologia şi protecţia mediului*. Ed.. „Ion Ionescu de la Brad", Iaşi.

Toma Liana Doina, 2009 – *Ecologie şi protecţia mediului*. Ed. PIM; Iaşi.

Zamfirescu, S.R., Zamfirescu, O., 2008 – *Elemente de statistică aplicate în Ecologie*. Ed. Univ. „Al. I. Cuza" Iaşi.

*** Legislaţia 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

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