# ECOLOGY AND ENVIRONMENTAL PROTECTION

**LANDSCAPE ENGINEERING, IInd Year of study, IVth Semester**

**Credit value (ECTS) 2**

**Course category**
Domain (Imposed)

**Course holder:**
**Lecturer Dr. 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.<br>**Horticultural ecosystem** - an agroecosystem with specific characteristics |
| **The Urban Ecosystems: characteristics, types, anthropogenic impact.** The urban biotope, the urban biocenosis. The role of the landscape engineer in the ecological modeling of the urban biotope |
| **Anthropogenic impact on the environment:** loss of biodiversity and extinctions; soil degradation and reduction of its fertility; environmental pollution, problems and control measures. |
| **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**.** |

| 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). |
| **Horticultural 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. Berca M., 2000 – *Ecologie generală şi aplicată*. Ed. Ceres Bucureşti.
2. Cogălniceanu, D., 2012 – *Ecologie şi protecţia mediului*. Politehnica Press.
3. Gabrian, C. F., & Horaicu, C. N., 2010 – *Protecția mediului în Uniunea Europeană*. Ed. Tipo Moldova, Iași.
4. Gavrilescu E., 2008 – *Surse de poluare și agenții poluanți ai mediului*, 2008, Ed. Sitech, Craiova.
5. Lupașcu A., 2004 – *Biogeografie cu elemente de ocrotirea și conservarea biodiversității*. Ed. Terra Nostra, București.
6. Maxim. A., 2008 – *Ecologie generală şi aplicată*. Ed. Risoprint, Cluj-Napoca.
7. Mohan Gh., Ardelean A., 2006 – *Parcuri şi rezervaţii naturale din Romania*. Ed. Victor & Victor, Bucureşti.
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 şi protecţia mediului.* Ed. "Ion Ionescu de la Brad", Iaşi.
12. Slabu Cristina, 2018 – *Ecologie şi protecţia mediului* – suport de studiu. Ed. "Ion Ionescu de la Brad", Iaşi.
13. Toma L. D., 2009 – *Ecologie şi protecţia mediului*. Ed. PIM , Iaşi.
14. Tucaliuc R. A., 2015 – *Lucrări practice de chimia mediului*. Ed. PIM, Iaşi
15. Vîntu V., 2000 – *Ecologie şi protecţia mediului*. Ed. "Ion Ionescu de la Brad" Iaşi.
16. *** Legislaţie de mediu, actualizată


## 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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