

COURSE DESCRIPTION

Course code	Volume in ECTS credits	Institution	Faculty	Department
MIŠ8006	7	VDU ŽŪA	Forest sciences and ecology	Environment and ecology

Course title in Lithuanian

Augalų ekologija ir fitocenologija

Course title in English

Plant ecology and phytoceonology

Study methods	Volume in ECTS credits
Lectures	2
Consultations	1
Seminars	1
Individual work	3

Short course annotation in Lithuanian (up to 500 characters)

Dalyko tikslas suteikti doktoratams žinių apie aplinkos veiksnių poveikio augalams tyrimo metodus, pagrindinius aplinkos veiksnius veikiančius augalus, biogeocheminius svarbiausių elementų ciklus, augalų bendrijų kaitą, žemės ūkio augalų poveikio negyvajai gamtai įvairius aspektus, kitų žemynų specifiskas augalų ekologijos problemas; gebėjimų įvertinti sudėtingą natūraliosios ir žmogiškosios aplinkos poveikį augaliniams įvairiuose doktorantūros darbų tarpsniuose - pasirenkant tyrimo vietas, objektus, metodus bei nagrinėjant savo mokslinio darbo rezultatus.

Short course annotation in English (up to 500 characters)

The aim of the subject is to provide the doctoral students with knowledge of methods of studying the impact of environmental factors on plants, the main environmental factors affecting plants, the biogeochemical cycles of the most important elements, the change of plant communities, various aspects of the impact of agricultural plants on abiotic environment, and other ecological problems of plants on other continents; the ability to assess the complex impact of the natural and human environment on vegetation at various stages of preparation of doctoral thesis - selecting study sites, objects, methods and analyzing the results of scientific work.

Relevance of the course

The subject of plant ecology and phytocenology provides the theoretical basis for comprehensive and deep research in the fields of crop production, horticulture, forestry and other applied sciences.

Course aims

The aim of the subject is to provide the doctoral students with knowledge of methods of studying the impact of environmental factors on plants, the main environmental factors affecting plants, the biogeochemical cycles of the most important elements, the change of plant communities, various aspects of the impact of agricultural plants on abiotic environment, and other ecological problems of plants on other continents; the ability to assess the complex impact of the natural and human environment on vegetation at various stages of preparation of doctoral thesis - selecting study sites, objects, methods and analyzing the results of scientific work.

Content (topics) and methods

Concept of plant ecology: Factors causing plant stress (stress): concept of plant ecology, environment as tension factor, light, temperature, oxygen deficiency, water shortage, salts, heavy metals, aluminum, xenobiotics, stress induced by the living environment (*lecture, individual assignment*).

Plant ecology - autecology: plant heat, water in plants, plant nutrition, carbon metabolism.
Communities Ecology (Phytocenology): Ecosystem concept, phenomena occurring in forests and other ecosystems, biogeochemical cycles, research of some ecosystems (*lecture, individual assignment*).
Plant changes in time, space, interaction with the environment: historical process and change of plant communities (syndymanics), spatial distribution of plants (synchorology), vegetation ecology - synecology (*lecture, individual assignment*).
Earth plant ecology: global change, earth material transformation, water, carbon, nitrogen, sulfur cycles, human impact on carbon cycle and global climate, the importance of land use change for carbon cycle, disturbances, pollution, impact of human activity on biodiversity (*lecture, individual assignment*).

Structure of cumulative score and value of its constituent parts

Individual assignment 50%; Exams - 50 %

Compulsory reference materials

No.	Authors of publication, title, publishing house, year of publication.
1.	Begon M., Harper J.L., Townsend C.R. Ecology. Individuals, Populations and Communities, Blackwell Scientific publications, 2006, 945 p.
2.	Crawley M.J. Plant Ecology. Blackwell Science, Oxford, 2nd ed., 1997, 717 p.
3.	Kupčinskienė E. Aplinkos fitoindikacija. – Kaunas, 2011, - 752 p.
4.	Skuodienė L. Medžių stresas ir jo fiziologinė indikacija
5.	Šlapakauskas V. Augalų ekofiziologija. Kaunas - Lututė, 2005. - 402 p.
6.	Maarel Eddy. Vegetation ecology, 2004, 408
7.	Taiz L., Zeiger E. Plant Physiology. – California: The Benjamin Cumings publ. Company, -
8.	2010.

Supplementary reference materials

No.	Authors of publication, title, publishing house, year of publication.
1.	Stravinskienė V. Bendroji ekologija. K., 2003. – 232 p.
2.	Mokslinės duomenų bazės – ScienceDirect; Agricola
3.	Tarptautiniai moksliniai žurnalai – Environmental Pollution, Journal of vegetation science,
4.	Applied vegetation science, Forest ecology and management, Ecological modeling
5.	Lietuvos moksliniai žurnalai – Ekologija, Botanica Lithuanica, Miškininkystė

Course programme designed by

No.	Name, surname	Institution	Degree	E-mail address
1.	Vitas Marozas	VDU ŽŪA	Professor, dr.	vitas.marozas@vdu.lt
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