

## COURSE UNIT DESCRIPTION - GENERAL ECOLOGY

Course unit (module) title	Code
<b>GENERAL ECOLOGY</b>	

Lecturer(s)	Department(s) where the course unit (module) is delivered
<b>Coordinator: Lect. Giedrius TRAKIMAS</b>	Vilnius University, Center of Ecology and Environmental Sciences, M.K.Čiurlionio g. 21/27, LT-03101 Vilnius
<b>Other(s):</b>	

Cycle	Level of the course unit	Type of the course unit
Full-time studies (1 <sup>st</sup> stage)	1 out of 1	Selective

Mode of delivery	Period when the course unit (module) is delivered	Language(s) of instruction
Face to face	5 <sup>th</sup> semester, autumn	Lithuanian

Prerequisites and corequisites	
<b>Prerequisites:</b> Not applied	<b>Corequisites (if any):</b> Not applied

Number of credits allocated to the course unit	Student's total workload	Contact hours	Self-study and research hours
<b>3</b>	<b>78</b>	<b>48</b>	<b>30</b>

Purpose of the course unit: programme competences to be developed		
<p>Upon the successful completion of this course, students will acquire:</p> <p><i>Subject-specific competences:</i></p> <ul style="list-style-type: none"> <li>knowledge on general concepts and methods in Ecology, processes underlying the observed patterns of nature at the various levels of its organization.</li> <li>knowledge on how to manage natural resources by minimizing adverse effects on the environmental, to solve environmental problems;</li> </ul> <p><i>General competences:</i></p> <ul style="list-style-type: none"> <li>skills for self-development, learning skills in order to study general science resources.</li> <li>analytical thinking, and ability to reason scientifically their claims.</li> </ul>		
Learning outcomes of the course unit	Teaching and learning methods	Assessment methods
<ul style="list-style-type: none"> <li>Describes the main achievements of modern ecology and its methodology.</li> <li>Are able to independently formulate basic concepts of General Ecology.</li> <li>Are able to analyze and interpret the data obtained from the ecological experiments; able to plan ecological experiments.</li> </ul>	Lectures, debates, brainstorming, self-directed learning	Test (open and closed questions)
<ul style="list-style-type: none"> <li>Explains methodological difficulties encountered in ecological studies, and ways to solve them.</li> <li>Are able to discuss the ecological problems using scientific, evidence-based reasoning</li> </ul>	Lectures, debates, brainstorming, self-directed learning	Test (open and closed questions)
<ul style="list-style-type: none"> <li>Are able to collect, analyze and summarize the ecological scientific literature.</li> </ul>	Lectures, self-directed learning	Presentation

Content: breakdown of the topics	Contact hours							Self-study work: time and assignments	
	Lectures	Tutorials	Seminars	Exercises	Laboratory work	Internship/work placement	Contact hours	Self-study hours	Assignments
1. Definition and history of Ecology. Interaction of organisms. Hierarchy of Ecological systems. Plant and animal adaptations. Diurnal and seasonal cycles.	4		2				6	4	Tasks for linking, summarizing & application of obtained knowledge. Preparation of the report.
2. Definition and structure a population. Populations of the unitary / modular organisms. Defining boundaries and size of a population. Geographical Distribution. Distribution of individuals in space. A population's demographic structure. Survival curve. Dispersion. Migration, changes in geographical distribution. Population dynamics, metapopulations. Interactions between populations: the relationships between the organism - organism and the organism - environment - the perspective.	8		4				12	7	Tasks for linking, summarizing & application of obtained knowledge, analysis of the topic-related scientific papers. Preparation of the report.
3. Ecological Community and factors influencing its structure. The key and dominant species. Food chains, food webs. Functional groups, guilds. Models of interacting populations. Succession (primary and secondary). Facilitation, inhibition and tolerance models (during succession). Community dynamics, types of extinctions, protection and restoration.	6		3				9	6	Tasks for linking, summarizing & application of obtained knowledge, analysis of the topic-related scientific papers. Preparation of the report.
4. Ecological features of a landscape. Formation of habitat patches in the landscape. Limits of habitat patches, edge effect, ecotone. Effects of a patch size and shape on species diversity. Ecological corridors. Landscape dynamics. Frequency and intensity of disturbances and its impacts to communities. Change community mosaic.	2		1				3	1	Tasks for linking, summarizing & application of obtained knowledge, analysis of the topic-related scientific papers. Preparation of the report.
5. Ecosystem energetics. Gross and net production. Primary production change over time and the impact secondary output. Production and assimilation efficiencies. Basic (grazing and detritus) food chains. Decomposition and nutrient cycles. Biological control of the oxygen cycle. Contact zones of the biogeochemical cycles.	6		3				9	6	Tasks for linking, summarizing & application of obtained knowledge, analysis of the topic-related scientific papers. Preparation of the report.
6. Terrestrial and aquatic ecosystems. Oceans zoning and stratification, estuaries, coastal areas, wetlands. Biodiversity, Human Ecology. The loss of	6		3				9	6	Tasks for linking, summarizing & application of obtained knowledge, analysis of the topic-related scientific papers.

biodiversity. Potential impact of climate change on ecosystems and their distribution. Sustainable and intensive farming efficiency and ecological comparison. Sustainable forestry and fishery.									Preparation of the report.
<b>Total</b>	<b>32</b>		<b>16</b>				<b>48</b>	<b>30</b>	

Assessment strategy	Weight, %	Assessment period	Assessment criteria
Midterm exam (test)	30%	During the semester	The test consists of 30 different types (e.g. “insert”, “choice”, “yes-no”) questions.
Exam (test)	50%	During the session	The test consists of 50 different types (e.g. “insert”, “choice”, “yes-no”) questions.
Tasks in seminars	20%	During the semester	2 points - for active participation in the discussions, gave reasoned and correct opinion, wrote a simple review on a given topic, studied the scientific literature, correctly solved three of the four tasks; 1 point - participated in the debates, wrote a simple review on a given topic, correctly solved two of the four tasks. 0 points - appeared at least in seven seminars, but showed no activity.
Total	100		Sum of the scores

Author	Year of publication	Title	Issue of a periodical or volume of a publication	Publishing place and house or web link
<b>Compulsory reading</b>				
Smith T.M., Smith R.L.	2009	Elements of Ecology	7th edition	London, New York: Benjamin Cummings
Krebs C.J.	2001	Ecology		London: Benjamin Cummings
<b>Optional reading</b>				
Kormondy E.	1992	Definitions in Ecology (in Lithuanian)		Kaunas: VDU
Odum E.P., Barrett G.W.	2005	Fundamentals of Ecology	5th edition	New York: Brooks Cole
Lekevičius E.	2000	The Ecosystem is only live (in Lithuanian)		Vilnius: VU leidykla