



COURSE SYLLABUS
«Urban ecology»

Degree of higher education - Bachelor
Specialization 101 "Ecology"

Educational programme «Ecology »

Academic year _4_, semester 7_____

Form of study _full-time

Number of ECTS credits _5_____

Language of instruction _English_____

Lecturer of the course
Contact information of the
lecturer (e-mail)
Course page on eLearn

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<https://elearn.nubip.edu.ua/course/view.php?id=2431>

COURSE DESCRIPTION

Determines knowledge of the basics of spatial modeling of urban systems, principles and approaches to the classification of natural and anthropogenic landscapes, features of the existence of living organisms, their populations and groups in the urban environment; forms the acquisition of skills to operate with the concepts of the urbanized environment, the city as a specific environment of man and biota, urbogeo-sociosystem, landscape in relation to the explanation of ecological, socio-cultural and technological problems of cities.

Competencies of the educational programme:

Integrative competency (IC): Ability to solve complex specialized problems and solve practical problems in the field of ecology

General competencies (GC) _____

K01. Knowledge and understanding of the subject area and professional activity

K07. The ability to act socially responsibly and consciously

K08. Ability to conduct research at an appropriate level

Professional (special) competencies (PC): _____

K18. Ability to assess the impact of technogenesis processes on the state of the environment and identify environmental risks associated with production activities.

K19. Ability to use the basic principles and components of environmental management.

K22. Ability to participate in the development of the management and waste management system

K26. Ability to participate in the management of environmental actions and/or environmental projects.

Professional (special) competencies (PC): PRN01. Understand the main concepts, theoretical and practical problems, the history of development and the current state of scientific knowledge in ecology, environmental protection and nature management; formulate and test hypotheses, use appropriate evidence (results of theoretical analysis, experimental studies, and mathematical and computer modeling) to substantiate conclusions in order to solve significant scientific and scientific-applied problems of ecology.

PRN06. Have up-to-date conceptual knowledge and a high methodological level in the field of ecology and at the border of subject areas, as well as research skills sufficient to conduct scientific and applied research at the level of the latest world achievements.

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Program learning outcomes (PLO) of the educational programme: Ecology

COURSE STRUCTURE

Topic	Hours (lecture/ laboratory, practical , seminar)	Learning outcomes	Tasks	Assessment
Semester 1				
Module 1				
Topic 1 Urbanization. The urban environment	2/1	To know the concept of urbanization, factors of urbanization, the environment of the city. To be able to present the city as an urban-geo-sociosystem and to understand what it consists of	Submitting practical work	5
Topic 2 Geographic environment of the city	2/1	Distinguish between water bodies of cities and understand for what needs water bodies are used in the city	Submitting practical work	5
Topic 3 Soil structure	2/1	Know the characteristics, composition and use of groundwater. To analyze anthropogenic impact on groundwater. Apply basic measures for the protection of groundwater	Submitting practical work Completing independent work (including in eLearn)	5
Topic 4 Types of land and relief pollution	2/1	Know the sanitary and chemical composition of natural waters and the requirements for the quality of drinking water. Understand the principles of selection of water bodies for drinking water supply and the main stages of water preparation	Submitting practical work	5
Topic 5 The water environment of city	2/1	Know water drainage systems and the construction of city-wide sewage treatment facilities, as well as the	Submitting practical work Completing independent work (including	15

		conditions for receiving industrial wastewater into the city water drainage system	in eLearn)	
Topic 6 Ground water of urban territory. Pollution	2/1	Know what soil is and its main characteristics and features of the chemical composition of urban soils	Submitting practical work	10
Topic 7 Drinking water consumption of city	2/1	Know the classification of soil pollution in the city and apply it in practice. Determine the category of danger for the population based on the total soil pollution index	Submitting practical work	15
Topic 8 Types of water pollution and sources of pollution of urban territory	2/1	Distinguish between artificial and natural soils. To know the ecological role of urban soils	Submitting practical work Taking tests, writing essays.	10
Tests				30
Total for Module 1				100
Module 2				
Topic 9 The air environment of city	2/1	Know the composition, structure, properties and functions of the atmosphere, atmospheric pollutants and the classification of pollution sources. Apply normative indicators of atmospheric air quality. Know what smog is, its classification and the conditions for the formation of different types of smog. Know and apply air pollution protection measures	Submitting practical work	15
Topic10 Urban microclimate	2/1	Know the peculiarities of the formation of the microclimate of the city and its characteristics, the reasons for the differences between the microclimate of the city and the climate	Submitting practical work Completing independent work (including in eLearn)	10
Topic 11-12 Plant improvement of city Classification of urban plantations of Ukraine	2/1	Know the normative indicators of the green area of the city, types of green areas of the city, the role of green spaces	Submitting practical work	10

		in the protection of the city's environment		
Topic 13 Urban microclimate	2/1	Know the functions of vegetation cover in cities, phytomelioration systems and their classification. Understand the protective and purifying properties of plants used in urban and suburban plantings	Submitting practical work	10
Topic 14 Role flora and fauna in urban ecosystem and lives of urban population	2/1	Know the main groups of animals and plants that are part of the urban flora and fauna, their role in the urban ecosystem and the life of the urban population	Submitting practical work	10
Topic 15 Anthropogenic and urban landscapes	2/1	Distinguish the concept of anthropogenic landscape and ananthropogenic - man-made landscape. Know the classification of urbanized landscapes. To be able to identify macrobiotopes of the urban environment and identify their inhabitants	Submitting practical work Taking tests, writing essays.	15
Tests				30
Total for Module 1I				100
Total for 1 semester				70
Exam				30
Total for course				100

ASSESSMENT POLICY

<i>Policy regarding deadlines and resits:</i>	Assignments submitted after the deadline without valid reasons will be graded lower. Resitting of modules will be allowed with the permission from the lecturer and in the presence of valid reasons (e.g. medical reasons).
<i>Academic honesty policy:</i>	Cheating during tests and exams is strictly prohibited (including the use of mobile devices). Coursework and research papers must contain correct citations for all sources used.
<i>Attendance policy:</i>	Class attendance is mandatory. In case of objective reasons (such as illness or international internships), individual learning may be allowed (in online format by the approval of the dean of the faculty).

SCALE OF ASSESSMENT OF STUDENT KNOWLEDGE

Student rating, points	National grade based on exam results	
	exams	credits
90-100	excellent	passed
74-89	good	
60-73	satisfactory	
0-59	unsatisfactory	not passed

RECOMMENDED SOURCES OF INFORMATION

1. Рубежняк І.Г. Конспект лекцій з дисципліни «Екологія міських систем» для студентів спеціальності 101 «Екологія». – Київ, 2018. – 208с.
2. Рубежняк І.Г. Методичні рекомендації для проведення лабораторних робіт з дисципліни «Екологія міських систем» студентами ОКР «Бакалавр» спеціальності 101 «Екологія».- Київ, 2018. -47с.
3. Рубежняк І.Г. Методичні рекомендації для проведення самостійної роботи з дисципліни «Екологія міських систем» студентами ОКР «Бакалавр» спеціальності 101 «Екологія».- Київ, 2017. - 55с.
4. Urban Ecology. An Introduction/ By [Philip James](#), [Ian Douglas](#)- Copyright, 2015. - 500 p.
5. Urban Ecology. Emerging Patterns and Social-Ecological Systems/ A. S. Raghubanshi, Pardeep Singh, Pramit Verma, Rishikesh Singh- [Elsevier Science](#), 2020.-532 p.