

TARAS SHEVCHENKO NATIONAL UNIVERSITY OF KYIV
Geography faculty
Department of Physical Geography and Geoecology

«APPROVED»
Deputy Dean on academic study

«27» 08 2025



WORK PROGRAM OF THE ACADEMIC DISCIPLINE
GEOECOLOGICAL FOUNDATIONS OF SUSTAINABLE
DEVELOPMENT AND NATURE MANAGEMENT

scope of knowledge	C «Social Sciences, Journalism, Information and International Relations»
specialty	C6 «Geography and Regional Studies»
educational degree	second (Master)
educational program	«Transboundary environmental cooperation»
discipline type	mandatory

Form of education	full-time
Academic year	2025/2026
Semester	2
Number of ECTS credits	4
Language of tuition, study and evaluation	English
Form of final testing	examination

Lecturer: **Ivanok Dmytro**, *Candidate of Geographical Sciences, assistant at the department of Physical Geography and Geoecology*

Prolonged: to 20__/20__ (_____) «__» 20__
(Signature, Surname, Date)

to 20__/20__ (_____) «__» 20__
(Signature, Surname, Date)

KYIV – 2025

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APPROVED

«26» August 2025

Chief of the Chair of Physic Geography and
Geoecology

 As. Prof. Lyudmila BILOUS

Protocol No 1 dated «26» August 2025

Approved by geographic faculty academic-methodological commission

Protocol No 7 dated «27» August 2025

Chief of the academic-methodological commission  As. Prof. Natalia KOROHODA

«27» August 2025

INTRODUCTION

1. The goal of the academic discipline – to provide theoretical knowledge of the sustainable development concept, geoecological foundations of sustainable development and areas where it can be implemented.

2. Advance claims to mastering or selection of the academic discipline:

1. To possess the expertise in using of international environmental conventions and treaties.
2. To know key principles of profile geographic academic disciplines.
3. To know environmental laws of Ukraine.
4. To possess basic skills in geospatial analysis.
5. To know the basic ecological and environmental terms in English.

3. Annotation of the academic discipline: the discipline focuses on a theoretical framework for geoecological foundations of sustainable development and nature management. The discipline focuses on the areas and specific cases of sustainable use of natural resources.

The first content module analyses the basis of sustainable development concept, the concepts of ecological sustainability, ecosystem services and “circular economy”.

The second content module analyses principles, conditions and fundamental problems of sustainable use of natural resources, specific areas and cases of sustainable use of climate, land, soil, water and mineral resources.

The third content part provides practical examples of the application of sustainable development goals, and also analyzes the challenges and threats to the implementation of the concept of sustainable development in the context of the development of artificial intelligence.

The academic discipline “Geoecological foundations of sustainable development and nature managements” is one of the components of the comprehensive training for acquiring the master degree in the specialty C6 “Geography and Regional Studies” of the educational program “Transboundary environmental cooperation”.

4. The objective of the discipline is to ensure that students acquire the knowledge, skills, and abilities necessary to develop the following *competencies*:

General Competencies (GC):

- **GC02:** Ability to identify, formulate, and solve problems.
- **GC03:** Ability to make informed and reasoned decisions.
- **GC05:** Ability to communicate in a foreign language [English and/or other European Union languages].
- **GC07:** Ability to work in an international context.
- **GC09:** Ability to communicate with representatives of other professional groups at various levels (experts from other fields of knowledge or sectors of economic activity).

Special (Professional) Competencies (SC):

- **SC01:** Ability to apply geographical and related theories and concepts regarding human-environment interaction, spatial (territorial) organization of society, sustainable regional and urban development, balanced environmental management, landscape diversity, and spatial

planning; ability to account for socio-economic and natural patterns of regional formation and development when researching and interpreting spatial processes and phenomena.

- **SC03:** Ability for integrated spatial thinking, research of spatial (territorial) relations, and interaction at global, regional, and local levels.
- **SC04:** Ability to evaluate factors influencing economic, social, cultural, and political dynamics at various levels of the spatial organization of society.
- **SC06:** Ability to identify, analyze, and explain spatial interconnections, trends in the development of spatial processes and phenomena, and spatial transformations.

5. The results of academic discipline study:

The results of study (1. To know; 2. To be able to; 3. Communication; 4. Autonomy and responsibility)		Forms (and/or methods and technologies) of tuition and study	Evaluation methods and threshold evaluation criterion	Percentage in final grade on discipline
Code	The result of study			
1.1	Principles of sustainable development.	<i>lection</i>	<i>Practical assignments, examination</i>	5%
1.2	Sustainable development goals 2030.	<i>lection, practical assignment</i>		5%
1.3	Sustainable development Strategy of Ukraine until 2030.	<i>lection, practical assignment</i>		5%
1.4	Principles of ecological sustainability.	<i>lection</i>		5%
1.5	Principles, conditions and fundamental problems of sustainable use of natural resources.	<i>lection</i>		5%
1.6	Ideas and approaches of ecosystem services concept.	<i>lection, practical assignment</i>		5%
1.7	Principles of sustainable use of soil and land resources. Measures to curb desertification. Approaches to organic agriculture.	<i>lection, practical assignment</i>		5%
1.8	Principles of sustainable use of water resources, measures to achieve clean and fresh water.	<i>lection, practical assignment</i>		5%
1.9	Principles of sustainable use of mineral resources, the problem of exhaustibility of mineral resources.	<i>lection, practical assignment</i>		5%

The results of study (1. To know; 2. To be able to; 3. Communication; 4. Autonomy and responsibility)		Forms (and/or methods and technologies) of tuition and study	Evaluation methods and threshold evaluation criterion	Percentage in final grade on discipline
Code	The result of study			
1.10	Specifics of the practical implementation of sustainable development goals (SDGs).	<i>lection, practical assignment</i>		5%
2.1	Be able to communicate in a foreign language.	<i>lection, practical assignment</i>	<i>Practical assignments, examination</i>	до 40%
2.2	Be able to identify the causes of environmental problems.	<i>lection, practical assignment</i>		
2.3	Be able to seek approaches to the sustainable use of natural resources.	<i>lection, practical assignment</i>		
2.4	Be able to identify natural and anthropogenic causes of climate change.	<i>lection, practical assignment</i>		
2.5	Be able to assess the implementation of the Sustainable Development Goals in Ukraine.	<i>lection, practical assignment</i>		
3	Communacation: ability to work in groups and to communicate interpersonally in the process of discussing the directions of sustainable use of natural resources.	<i>practical assignment</i>	<i>Practical assignments, discussion, examination</i>	до 5 %
4	Autonomy and responsibility: ability to make informed decisions and take responsibility for the results of their professional activities when independently solving problems in analysing individual cases of sustainable use of natural resources	<i>practical assignment</i>	<i>discussion, examination</i>	до 5%

6. Relation of results of discipline study with program results of study

Results of discipline study (code)	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	1.10	2.1	2.2	2.3	2.4	2.5	3	4
Program results of study (title)																	
PRS01. Apply acquired theoretical knowledge and practical skills of geographical and related theories and concepts for transboundary environmental cooperation. In particular, theories and concepts of: human and environment interaction; spatial organization of nature and society; anthropization and landscape science adaptation for sustainable development, balanced nature management, biodiversity conservation and environmental protection, spatial planning.											+	+	+	+	+		+
PRS02. Evaluate the results of one's own work, demonstrate progress in professional, scientific, and educational competencies, the ability to work in a team, including on issues of sustainable nature management and transboundary environmental cooperation. Manage intellectual property rights.											+	+	+	+	+	+	+
PRS03. Freely communicate on professional and scientific issues in a foreign language [English and/or other languages of the European Union].	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
PRS05. Be able to analyze and synthesize data and information, possess skills in searching for data and information (including from open sources), master the subject of geospatial data	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		

infrastructure (geodata, metadata, standards, geoinformation technologies, services, international initiatives).																	
PRS07. Know the principles of: ecopolicy, regulatory and legal basis of environmental protection and nature management (national, transboundary, international context); development of the system of state planning documents, SEA and EIA; standards and criteria of environmental quality, landscape planning and landscape-architectural activity; environmental monitoring; marketing of ecosystem services.	+	+	+	+	+	+	+	+	+	+							

7. Scheme of grade formation

Forms of evaluation: the level of achievement of all planned results of study is determined by the results of oral answers and writing control tests.

The share of study results in the final grade, provided that it is mastered at the appropriate level is as follows:

results of study – **1.1 – 1.10 (knowledge)** – up to 5% for each;

results of study – **2 (skills)** – up to 40%;

results of study – **3 (communication)** – up to 5%;

results of study – **4 (autonomy and responsibility)** – up to 5%

7.1. Forms of students' evaluation.

The discipline consists of *three content modules*. Classes are held in the form of lectures and practical (seminar) classes. During the semester, each topic is accompanied by a written practical assignment, which is defended verbally at the corresponding seminar class or a practical session-discussion, which is also held in the corresponding seminar class. Completion of *four written assignments* is a mandatory requirement for admission to the exam.

	Content module №1		Content module №2		Content module №3	
	Min – 12 points	Max – 30 points	Min – 3 points	Max – 10 points	Min – 8 points	Max – 20 points
Practical assignments	3 x 4 = 12	3 x 10 = 30	1 x 4 = 4	1 x 10 = 10	1 x 4 = 4	1 x 10 = 10
Practical sessions					1 x 4 = 4	1 x 10 = 10
Разом:	12	30	4	10	8	20

Admission to the examination: critical minimum is 36 points. Students who have scored less than 36 points must write an essay or practical written assignment on the topic they have missed or insufficiently learnt.

The examination is conducted in writing form. Maximum examination grade is 40 points.

7.2. Organizing of evaluation: practical assignments and seminars is accessed after it is completed in accordance with the schedule of seminars.

Grades-point's correspondence scale

Excellent	90-100
Good	75-89
Satisfactory	60-74
Fail	0-59

8. Structure of the academic discipline. Subject plan of lectures and seminars

No of theme	Theme name	Number of hours		
		lectures	seminars	self-ruling studies
Content module 1. Sustainable development concept.				
1	Topic 1. Concept of sustainable development.	2	2	10
2	Topic 2. Ecosystem services concept.	2		20
3	Topic 3. Concepts of the closed-loop economy ("Circular Economy") and "Just Transformation" as a new paradigm of balanced anthropogenic-natural interaction.	2	2	10
Total for the content module 1		6	6	40
Content module 2. Sustainable use of natural resources.				
4	Topic 4. Sustainable use of soil resources. Organic agriculture.	2	2	10
5	Topic 5. Sustainable use of water resources. The problem of clean water.	2	2	10
6	Topic 6. Sustainable use of mineral resources.	2	2	15
Total for the content module 2		6	6	35
Content module 3. Practical implementation of the sustainable development concept in environmental projects.				

7	Topic 7. Sustainable Development Goals in practical implementation.	2	2	10
8	Topic 8. Artificial Intelligence as a new reality of sustainable development.		2	15
Total for the content module 3		2	4	25
Examination				
TOTAL		14	14	90

Total amount **120 hours**, including:
lectures – **14 hours**;
seminars – **14 hours**;
consultations – **2 hours**;
self-ruling studies – **90 hours**.

РЕКОМЕНДОВАНА ЛІТЕРАТУРА / RECOMMENDED SOURCES:

Основна література / Basic sources:

1. *Ivanok D.* Opportunities of transboundary environmental cooperation in the context of the European integration and post-war green recovery of Ukraine. Вісник Київського національного університету імені Тараса Шевченка. Географія. Випуск 1/2 (92/93), 2025. – С. 35–40. – DOI: [10.17721/1728-2721.2025.92-93.5](https://doi.org/10.17721/1728-2721.2025.92-93.5)
2. Перелік міжнародних угод у сфері охорони навколишнього природного середовища, стороною яких є Україна, та стан їх виконання. – URL: <https://data.gov.ua/dataset/14e88505-7761-4565-ab3b-d60eeced0b34>
3. *Report of the United Nations Conference on Environment and Development.* Rio de Janeiro, 1992.
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5. *Atkinson G., Dietz S., Neumayer E.* Handbook of Sustainable Development. Cheltenham, 2007. 506 p.
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9. *Khan Y., Liu F., Hassan T.* Natural resources and sustainable development: Evaluating the role of remittances and energy resources efficiency // Resources Policy, 2023. 103214.
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13. Іванок Д.В. Перспективи «зеленого» водню в контексті реалізації Україною європейського Зеленого курсу // Освітні та наукові виміри природничих наук [Електронний ресурс]: збірник матеріалів V Всеукраїнської заочної наукової конференції, м. Суми, 8 листопада 2024 р. / Сумський державний педагогічний університет імені А. С. Макаренка; [ред-кол.: А. О. Корнус (голова), Л. П. Міронець, О. М. Бабенко та ін.]. Суми: СумДПУ імені А. С. Макаренка, 2024. С. 51-57.
14. Abasi F., Raja N.I., Mashwani Z.R., Amjah M.S., Ehsan M., Mustafa N., Mehmood A., Ali K. A paradigm shift in sustainable use of natural resources and their ecosystem services // Water, Land, and Forests Susceptibility and Sustainability, 2021. P. 3-31.
15. *An introductory guide to valuing ecosystem services*. – Department of Environment, Food and Rural Affairs. London, 2007. – 68 p.
16. Decarbonisation, energy efficiency and circularity for a climate-neutral and sustainable EU. CORDIS Results Pack on energy-intensive industries. A thematic collection of innovative EU-funded research results. Luxembourg: Publications Office of the European Union, 2024. 26 p.
17. Ronchi S. Ecosystem Services for Spatial Planning: Innovative Approaches and Challenges for Practical Applications. Springer, 2018. 166 p.
18. Burkhard B., Maes J (Eds). Mapping Ecosystem Services. – Sofia: Pensorf Publishers, 2017. – 374 p.
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