Annex 3
to Order No. 244 dated 23.03.2023

Syllabus of discipline
"Biodiversity and its conservation"

Degree of higher education - Bachelor

Specialty 101 "Ecology"
Educational program "Ecology"
Year of study 3 semester 6
Form of study full-time education
Amount of credit ECTS 4
Language of instruction: english

Course lecturer	**Vagliuk Liudmyla**
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Course page in eLearn	**https://elearn.nubip.edu.ua/course/view.php?id=1057**

Description of the discipline

The purpose of the course "*Biodiversity and conservation*" is to acquaint students with the principles of using biological knowledge and mastering the methodology of quantitative and qualitative assessment of biodiversity, mastering the techniques of modern ecosystem analysis, which are basic in studying population and interpopulation relationships.

The **task** of the course is to study the main principles of modern ecology and biology, the evolution of living organisms in the biosphere, environmental problems of today and ways to solve them. An integral part of the course is the study of some important systematic groups of organisms in connection with the role that the latter play in natural and artificial ecosystems.

As a result of studying the discipline the student **must know:**

- principles of modern instrumental methods of research of biological objects and environment;
- principles of evolution and speciation;
- principles and methods of diversity assessment;
- basic ideas about the theoretical foundations of ecology and environmental protection;
- natural functions of biodiversity;
- the value of biodiversity for humans (intrinsic value of biodiversity);
- principles of rational use of biological resources;
- principles of ecological stability, economic and social component of the latter;
- basics of safety in field and laboratory research;

- **be able to**: - apply environmental research methods in solving typical professional problems;
- apply methods of search and exchange of information in global and local computer networks;
- to characterize the vegetation at the level of phytocenoses;
- fill in the forms of geobotanical description;
- provide characteristics of the plant community;
- provide characteristics of plants in tiers;
- take into account the nature of anthropogenic impacts;
- collect population and demographic data;

– to do primary processing of the collected material;
– use tools and devices in the process of scientific research and practical work;
– carry out a step-by-step analysis of geobotanical data.

Acquisition of competencies:

General competences (GC)

GC8. Ability to conduct research at the appropriate level.

GC13. Ab The ability to preserve and enhance the moral cultural, scientific values and achievements of society based on understanding of the history and patterns of development of the subject of the subject area, its place in the general system of knowledge about nature and society and in the development of society, technology and technology, use different types and forms of physical activity for active recreation and healthy lifestyle.

Professional competences of the speciality (PC)

PC5. Ability to assess the impact of technological processes on the state of the environment and identify environmental risks associated with production activities.

PC8. Ability to justify the need for and develop measures aimed at preserving landscape and biological diversity and the formation of an ecological network.

Programme learning outcomes (PLOs):

PLO6 Identify the factors that determine the formation of landscape and biological diversity.

PLO7. Solve problems in the field of environmental protection environmental protection using generally accepted and/or standard approaches and international and national experience.

Course structure

Topic	**Years** (lectures / laboratory)	**Learning outcomes**	**Task**	**Estimation**
Module 1. Basic of biodiversity				
Delivery of all practical works and performance of independent works takes place including in the elearn				
Lecture 1. Biodiversity. Introduction and definition	2/2	*Practical work №1. Biodiversity as an objective factor in assessing the state of the environment and the stability of ecosystems*		
		You need to know the importance of biodiversity as a factor in assessing emergencies and ecosystem stability.	To deepen knowledge about biological diversity, to explore the importance of biodiversity as a factor in assessing emergencies and ecosystem stability.	Submit for evaluation in one file in the format Microsoft Word 10
Lecture 2. Biodiversity levels of organization	2/2	*Practical work 2. Biodiversity of Ukraine and principles of its protection*		
		You need to know and be able to use ecological and nature protection maps of Ukraine and regions.	Get acquainted with the current state of biological diversity in Ukraine	Submit in the form of tables and figures 10
Lecture 3. Natural and artificial biocenoses. Biocoenoses - examples	3/3	*Practical work 3. The main causes of biodiversity loss*		
		You need to know the main natural resources of Ukraine, fragmentation and its consequences, habitat, introduction of biodiversity and ecosystems	Develop the ability to analyze and critically assess global and regional issues related to the causes of biodiversity loss; improve the ability to discuss and argue their point of view on this .	Prepare a report in the form of presentations on topics. 10
	4/4	*Practical work 4. Footprint and evaluation*		

Lecture 4. Threats to biodiversity		Learn to determine the ecological footprint of man on the planet; to improve the ability to critically assess the situation on the planet Earth and to make predictions for the future on this issue.	Analyze "Ecological footprint and biological capacity of some countries", to make conclusions	Make calculations and send for evaluation in one file in the format Microsoft Word 10
Lecture 5. Conservation biodiversity	4/4	*Practical work 5. Rare and endangered species of flora and fauna of Ukraine*		
		Get acquainted with rare and endangered species of flora and fauna of Ukraine, as well as the structure of the Red and Green Books.	Analyze reference material on the conservation status of species of flora and fauna.	Submit in the form of tables and figures 10
		Individual work №1. Existing and optimal structure of nature management in Ukraine.		
		To form the concept of resistance of natural ecosystems, geosystems to anthropogenic pollution of the regions of Ukraine.	To analyze the structure of nature management of the region and Ukraine as a whole, to determine its optimal option.	Submit as a table and send as an attached file in the format Microsoft Word 20
Modular work 1	15/15	Evaluation of the result of mastering knowledge and skills according to the topics included in the module №1		Execution of the test **30**
Result for the module 1				**100**
Module 2. Characteristics and assessment of threats to biodiversity				
Delivery of all practical works and performance of independent works takes place including in the elearn				
Lecture 1. Connectivity: ecological corridors are key to protecting biodiversity	2/2	*Practical work 6. The main provisions of environmental legislation in the field of biotic and landscape diversity*		
		You need to know the main provisions of the Convention and the agreement ratified by the Verkhovna Rada of Ukraine	Consider the main issues of basic international conventions, agreements and other legal mechanisms for the conservation of biotic and landscape diversity.	Submit as a table and send as an attached file in the format Microsoft Word 10
Lecture 2. Protect River Corridors and Floodplains	2/2	*Practical work №7.Study of the structure of the state cadastre of flora of Ukraine*		
		Get acquainted with the structure of the state cadastre of vegetation of Ukraine.	Systematize knowledge of basic terms and concepts: cadastre of flora, floristic cadastre, forest vegetation, steppe vegetation, meadows, halophytes, arid vegetation,	Submit as a table and send as an attached file in the format Microsoft Word 1
Lecture 3. Conservation of biodiversity in agricultural landscapes	3/3	*Practical work 8. State and prospects of development of protected areas of Ukraine*		
		Describe the current state and structure of the protected area network in the region	Get acquainted with the provisions of international and national biodiversity conservation programs.	Submit as a table and send as an attached file in the format Microsoft Word 10
Lecture 4. General approaches to	4/4	*Practical work 9. Criteria for the formation of the ecological network of Ukraine*		

assessing and reducing threats to biodiversity		To form a holistic view of the formation of the ecological network on the basis of objects of the nature reserve fund of Ukraine	Master the basic criteria for forming an ecological network. Consider the main aspects of creating a national eco-network in Ukraine.	Submit as a table and send as an attached file in the format Microsoft Word 10
Lecture 5. Ecosystem functions of biodiversity and ecological concept of nature management	4/4	*Practical work 10. Determining the amount of damage caused by the illegal destruction of wild animals*		
		Learn to determine the amount of damage caused by the illegal extraction or destruction of wildlife, damage or destruction of their habitats and habitats and reproduction	Calculate the damage caused by violation of the law on nature reserves as a result of illegal extraction or destruction of wildlife, damage or destruction of their homes and buildings, habitats and reproduction according to your option.	Submit as a table and send as an attached file in the format Microsoft Word 10
		Individual work №2. Analysis of the ratio of natural and anthropogenic lands of their region, administrative district and their comparison with the optimal indicators		
		To form skills of definition of landscape and ecological priorities of development of region.	Analyze the territorial structure of local geosystems for its optimality	Submit as a table and send as an attached file in the format Microsoft Word 20
Modular work 2	15/15	Evaluation of the result of mastering knowledge and skills according to the topics included in the module №2		Execution of the test (30 test questions) **30**
RESULT FOR THE MODULE 2				**100**
Total of educational work		Calculated as the sum of all modules in terms of 70% of the total score for the course		**70**
Exam		The exam includes 30% of the total grade for the course	10 test questions of varying difficulty, 2 questions ECE	**30**
TOTAL FOR THE COURSE				**100**

EVALUATION POLICY

Policy on deadlines and rearrangements:	Works that are submitted in violation of the deadlines without good reason are evaluated at a lower grade. Rearrangement of modules takes place with the permission of the lecturer if there are good reasons (for example, hospital).
Policy on academic integrity:	Write-offs (duplication of work with another student) during tests and exams are prohibited (including the use of mobile devices). Course papers, abstracts must have correct textual references to the literature used.
Policy on visiting:	Attendance is mandatory. For objective reasons (for example, illness, international internship) training can take place individually (in online form in consultation with the dean of the faculty)

ASSESSMENT OF STUDENTS

Applicant rating higher education, points	**National assessment for the results of examinations**	
	exams	**test**
90-100	perfectly	credited
74-89	good	
60-73	satisfactorily	
0-59	unsatisfactorily	not credited

Recommended books

Basic

1. Chayka V.M., Vahaliuk L.V. Ecological principles of conservation of agrobiodiversity of insect dendrobionts of the Northern Forest-Steppe of Ukraine: Monograph / V.M. Chaika, L.V. Vahaliuk / edited by Doctor of Agricultural Sciences, Professor V.M. Chaika - Kyiv, CP "Komprint", 2018. 174 p.
3. Vahaliuk L.V. Use of ecological network as a measure of biocenotic amelioration of agrolandscapes of Ukraine //International scientific and practical conference “Challenges, threats and developments in biology, agriculture, ecology, geography, geology and chemistry”: conference proceedings, July 2-3, 2021. Lublin: “Baltija Publishing” doi https //doi.org/10.30525/978-9934-26-111-4-11
4. Vagaliuk L. Assessment of the state of entomofauna biodiversity on the sanitary protection zone of the poultry farm Kyivska // Scientific journal "Biological Systems: Theory and Innovation." -Том 12, № 2 (2021) http://journals.nubip.edu.ua/index.php/Biologiya/article/view/15482
doi https //doi.org 10.31548/biologiya2021.02.00410.
6. Decision III/11: Conservation and sustainable use of agricultural biological diversity/Handbook of the Convention on Biological Diversity. 2nd edition (Updated to include the outcome of the sixth meeting of the Conference of the Contracting Parties. Secretariat of the Convention on Biological Diversity. 2018, pp 392-400.
7. V. Prydatko - Remote Sensing (RS) and Geographic Information Systems (GIS) as New Tools for Improvement of Woodland Inventory, Management and Woodland Protected Areas Development in Ukraine / CD -Conference on Woodland Key Habitats. Bialowiza, 2002, Poland.
7. Biodiversity: ecological aspects. A course of lectures for applicants for the third level of higher education in the speciality 101 Ecology / L.V. Vagaliuk - Kyiv: NULES of Ukraine, 2021. 160 p.
8. Vagaliuk L.V. Methodical recommendations for the implementation of laboratory and practical work in the discipline "Biodiversity and its conservation" for students in the speciality 101 "Ecology." - NULES of Ukraine, 2022. - 83 p.

9. Vagaliuk L.V., Lisovyy M.M. Biodiversity and its conservation: a textbook / L.V. Vagaliuk, M.M. Lisovyy - Kyiv, 2023. - 310 p.

Information resources

1. The Law of Ukraine, http://uk.wikipedia.org/wiki/ Wikipedia, the free encyclopedia, http://www.sea.gov.ua/GIS/BSR/UA/documents/legislation/Prog_bio.htm Draft National Program for the Conservation of Biodiversity of Ukraine for 2007-2025
2. Sixth National Report on the Implementation of the UN Convention on Biological Diversity by Ukraine, https://mepr.gov.ua/files/images/news_2019/31102019/CBD_all_UKR-fin.pdf7.
3. Petrenko O. The system of landscape structuring of the country and landscape regulation of types of nature use / National Ecological Network of Ukraine: Priorities of formation // Collection of articles and speeches at the national conference 22.01.21.-K.: 2021.-P.28-33.