

МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ
ХАРКІВСЬКИЙ НАЦІОНАЛЬНИЙ ЕКОНОМІЧНИЙ УНІВЕРСИТЕТ
ІМЕНІ СЕМЕНА КУЗНЕЦЯ

"ЗАТВЕРДЖУЮ"

Проректор з навчально-методичної роботи

Каріна НЕМАШКАЛО



ЕКОЛОГІЯ

робоча програма навчальної дисципліни

Галузь знань	усі
Спеціальність	усі
Освітній рівень	перший (бакалаврський)
Освітня програма	усі

Статус дисципліни

Мова викладання, навчання та оцінювання

вибіркова

англійська

Завідувач кафедри
готельного і ресторанного бізнесу

Оксана ДАВИДОВА

Харків
2022

APPROVED

at the meeting of the department of hotel and restaurant business.

Minutes № 1, August 31, 2022.

Developers:

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**Page of renewal and re-approval
of the discipline syllabus**

Academic year	Date of department meeting of work program creator	Meeting number	The signature of the department head

Discipline annotation

Today, the environment and its components are becoming a value for economic development, health, longevity and quality of human life. Further sustainable development is only possible if the realisation of nature conservation measures and effective mechanisms of the interaction between society and the environment. Economic methods to prevent and eliminate damage to the environment have a particular meaning.

The environment for humanity is not only science but also a way of thinking, behaviour and action. The environment has become one of the sides of humanism, including spirituality, understanding of the unity of man and nature, high culture, and intelligence.

The discipline aims to develop students' competencies on issues of modern ecology, understanding the mechanism of influence of human activity on the environment, analysis of the main sources of impact on the environment and the primary requirements for storage and lay the foundations for future specialists in environmental culture.

Discipline characteristic

Level	1
Semester	1,2
Number of ECTS credits	5
Form of final control	credit

Structural-logical scheme of studying the discipline:

Prerequisites	Postrequisites
Basic knowledge of secondary education	Microeconomics
	Macroeconomics
	The political economy
	Regional economy
	Sociology

Competence and results of studying discipline

Competence	Results of studying
Understanding the importance and necessity of eco-knowledge for practical activities in economics	Knowledge of the ecology basics. Ability to choose priority eco-economic areas of professional activity
Understanding the environment's condition for human economic activity	Knowledge of the properties of different ecosystem types. The ability to assess the advantages and disadvantages of professional activity for the environment
Understanding the role and impact of human activity on the biosphere's condition	The concept of the structure and functions of the biosphere. The ability to analyse the impact of the environment's condition and eco-problems on professional activity
Awareness of the need for rational nature management	Knowledge of environmental protection measures and assessment of their eco-economic effectiveness. The ability to determine priority environmental requirements for professional activity

Ability to assess environmental safety of the professional activity	Knowledge of the gist of environmental safety. The ability to analyse the causes of environmentally dangerous situations and develop measures to prevent them
Understanding the principles and goals of international cooperation in the ecology	Understanding the mechanisms of mutual influence on the planetary environment, the world economy and world politics

The discipline program

Content module 1. Ecosystem level of organisation of matter and the anthropogenic impact on the environment

Theme 1. Object, subject, and aims of ecology

1.1 Ecology as a science, its structure and role in society today. The concept of ecology, its subject, object and aim.

The first stage is the accumulation of ecological data. The second stage is the formation of ecology into an independent scientific direction. The third stage is the transformation of ecology into an interdisciplinary science.

1.2 Historical development of relations between man and nature.

The modern definition of ecology. The object of ecology. The subject of ecology.

1.3 The main problem of ecology.

The ecology tasks at the current stage of social development.

Theme 2. Ecosystem level of matter organisation

2.1. The natural environment and ecological factors.

The concept of “the environment”. Definition and types of environment. Environmental factors: concept and classification. General laws and their effect on living organisms. Limiting factors.

2.2. Populations.

The concept of “population”. Populations’ statistical and dynamic factors. Dynamics of population size.

2.3. Ecosystems.

The concept of ecosystems, ecosystem classification. Energy and principles of functioning ecosystems. Acceptable performance and stability of ecosystems. Ecosystem development. The concept of “environmental components”. The ecosystem’s components: energy, air, water, soil, information, biota. The description of the environmental components. Ecological pyramid. Food chain and its variants. Food Network.

2.4. The ecological laws.

The ecological laws. The meaning of Vernadsky’s and Komoner’s laws for eco-management.

Theme 3. The biosphere is a global ecosystem of the Earth. Global ecological problems

3.1. The biosphere.

The concepts of “biosphere” and “living matter”. Vernadsky’s doctrine of the biosphere and noosphere. The limits of the biosphere. The biosphere is one of the Earth's layers. The atmosphere, lithosphere, hydrosphere as part of the biosphere.

3.2. The biosphere properties.

Circulation of matter and energy in the biosphere. The ecosystem’s role in the biosphere organization. Biogenic chemical elements. Biogeochemical cycles. The matter’s small biological cycle and large geological one. Water, nitrogen, carbon dioxide, phosphorus and sulphur cycles. Dynamics and evolution of the biosphere.

3.3. Global ecological problems.

The demographic problem. The environment's contamination. The problem of climate change. United Nations Framework Convention on Climate Change. The ozone layer depletion. The environment's acidification. Acid rains. The waste problem. The problem of radioactive pollution.

Theme 4. The anthropogenic impact on the environment

4.1. The environment's contamination.

Sources, types and extent of pollutions. The pollutants behaviour in the environment. The most spread pollutants. The synergy phenomenon. The impact of anthropogenic pollution on the biosphere and individual ecosystems. Types of pollution and its impact on human and his activities. Pollutions of the atmosphere, hydrosphere and soils.

4.2. The impact of the industry's different branches on the environment.

Mining. Chemical, petrochemical and refining industry. Ferrous and non-ferrous metallurgy. Fuel and energy complex. Agriculture. Household environment. Transport facilities.

Content module 2. Environmental protection and management

Theme 5. Economic mechanisms of environmental protection. Management of eco-protection.

5.1. Natural resources.

The natural resources classification. The principles of eco-management. The environmental requirements for human activity.

5.2. Eco-management.

The concept of low- and non-waste technology. Waste classifications. Waste management problems in various areas of human activity. Basic principles of non-waste technology. Waste consumption.

5.3. Eco-management methods.

The economic mechanism of environmental protection. Ecological and economic factors of production processes evaluation. The effectiveness of protection measures. The approaches to determining the economic and social damage from environmental pollution. Economic stimulation for eco-protection activity. The issues of eco-management. Environmental funds. Eco-insurance.

Theme 6. Eco-monitoring. Environmental control in Ukraine

6.1. Environmental control and management.

The concept of "the summation effect". Criteria for environmental assessing. Standards of environment.

6.2. Environmental monitoring.

The concept of "eco-monitoring". The objectives of eco-monitoring. Monitoring classifications. Eco-monitoring databases. Complex monitoring of the biosphere. The assessment of industrial facility impact on the environment. Evaluation of enterprises' environmental impact. Industrial emissions control.

6.3. Environmental protection legislation .

The legal basis for protecting air, water bodies, and mineral resources. Environmental Law. Concept, subject and sources of environmental law. The legal regime of eco-management and eco-protection. Environmental offence. Types of liability for environmental offences.

Theme 7. Eco-marketing. Eco-audit

7.1. Eco-marketing.

The eco-marketing aims, methods and objects.

7.2. Eco-audit.

Tasks, procedures, effectiveness of eco-audit.

Theme 8. Eco-safety and environmental risks

8.1. Eco-safety.

The basic concepts of eco-safety. The eco-safety components. Types, sources and consequences of environmental hazards. The environmental crisis, ecological situation. The impact of anthropogenic factors on ecological situations. Environmental emergency. Regulation of ecological situations.

8.2. The environmental risk.

The concept of “environmental risk”. The danger and safety. “Acceptable” risk. Evaluation and principles of risk management.

Theme 9. World ecological policy

9.1. International cooperation in the ecology.

“Programme of Action” of the UN Conference on Environment and Development in Rio de Janeiro in 1992. Kyoto Protocol on reducing greenhouse gas emissions. Stockholm Convention of organic contaminants. The Vienna Convention for the Protection of the Ozone Layer and the Montreal Protocol reduction of ozone decomposing substances.

9.2. International environmental law.

Teaching and learning methods

Distribution of methods of teaching and learning on the themes of the discipline

Theme	Practical application of educational technologies
Theme 1. Object, subject, and aims of ecology	Discussions, presentations, illustrations
Theme 2. Ecosystem level of matter organisation	Discussions, presentations, illustrations
Theme 3. The biosphere is a global ecosystem of the Earth. Global ecological problems	Work in small groups, presentations, illustrations
Theme 4. The anthropogenic impact on the environment	Work in small groups, presentations, illustrations
Theme 5. Economic mechanisms of environmental protection. Eco-protection management	Work in small groups, presentations, illustrations
Theme 6. Eco-monitoring. Environmental control in Ukraine	Discussions, presentations, illustrations
Theme 7. Eco-marketing. Eco-audit	Discussions, presentations, illustrations
Theme 8. Eco-safety and environmental risks	Work in small groups, presentations, illustrations
Theme 9. World ecological policy	Discussions, presentations, illustrations

The procedure for evaluating learning outcomes

The system of the competencies assessment takes into account the types of classes, which include practices and independent work. Competencies assessment is carried out according to the accumulative 100-point system. Control measures include current control, which is carried out

during the semester on lectures and practical classes and is assessed by the sum of scored points. The maximum amount of points that a student can get during the semester is 100 points; the minimum amount that allows a student to get credit is 60 points.

Current control is carried out in the following forms:

- individual quiz;
- performance of competence-oriented tasks;
- carrying out control works.

Current assessment of student knowledge is carried out to check the level of readiness of the student to perform a particular task. The objects of current control are:

effectiveness, activity, regularity of the student's work during the semester, as well as attending classes;

- performance of competence-oriented tasks;
- performing tasks for independent work.

Assessment of student work is based on the following criteria:

degree of understanding and mastering of theoretical material from the discipline;
degree of mastering practical skills from the discipline and the ability to apply them in different conditions of activity;

ability to implement the acquired theoretical knowledge to solve practical problems, analysis of specific situations, both submitted for independent study and considered in the classroom;

acquaintance with the recommended literature on life safety and labour protection;

logic and analytical presentation of the material in written works and classroom speeches, the argumentation of their position, the ability to summarize information and draw conclusions based on it.

Student knowledge assessment takes into account the compliance of the task with all five criteria. The absence of one of the criteria reduces the score by a certain number of points.

The discipline contains fourteen competency-oriented tasks, for each of which the student can get 4 points maximum. The total number of points is 56. The crucial criteria for assessment are the quality, timeliness and validity of the task. In case of an insufficient level of task performance, the teacher has the right to reduce the grade for work.

Test controls are conducted twice per semester. Tests include multiple-choice questions to check the knowledge of the main categories of the discipline. The student can get 15 points maximum for each correctly completed test task. The maximum number of points that a student can get for completing tests is 30 points. To obtain a grade: "satisfactory" the student must score at least 8 points; "good" – at least 11 points; "excellent" – at least 14 points.

The common criteria for evaluation of student's self-study are depth and strength of knowledge, level of thinking, ability to systematise knowledge on separate topics, ability to conclude, mastery of categorical apparatus, skills and techniques of practical tasks, ability to find necessary information, to carry out its processing. The form of testing student's self-study is an individual quiz. According to the individual quizzes results, a student can obtain 14 points maximum.

Discipline rating-plan

Theme	Forms and types of learning		Assessment form	Max. point
Theme 1	<i>Classroom work</i>			
	Lecture	Object, subject, and aims of ecology	–	–
	Practice	Level of individual ecological safety	Competence-oriented tasks	4
	<i>Self-study</i>			
	Questions and tasks for self-study	Search, selection and review of literary sources on a given topic	–	–
Theme 2	<i>Classroom work</i>			
	Lecture	Ecosystem level of matter organisation	–	–
	Practice	Health and mechanisms of its support	Competence-oriented tasks	4
	<i>Self-study</i>			
	Questions and tasks for self-study	Search, selection and review of literary sources on a given topic	–	–
	<i>Classroom work</i>			
	Lecture	Ecosystem level of matter organisation	–	–
	Practice	The basic concepts of ecology	Competence-oriented tasks	4
	<i>Self-study</i>			
	Questions and tasks for self-study	Search, selection and review of literary sources on a given topic	–	–
Theme 3	Lecture	The biosphere is a global ecosystem of the Earth. Global ecological problems	–	–
	Practice	Evaluation of the ecological conformity coefficient of human living conditions	Competence-oriented tasks	4
	<i>Self-study</i>			
	Questions and tasks for self-study	Search, selection and review of literary sources on a given topic	–	–
	<i>Classroom work</i>			
	Lecture	The biosphere is a global ecosystem of the Earth. Global ecological problems	–	–
	Practice	Ecological problems of countries	Competence-oriented tasks	4
	<i>Self-study</i>			

	Questions and tasks for self-study	Search, selection and review of literary sources on a given topic	–	–
Theme 4	<i>Classroom work</i>			
	Lecture	An estimate of non-renewable Resources exhaustion term	–	–
	Practice	An anthropogenic influence on the environment: fast fashion and fast food	Competence-oriented tasks	4
	<i>Self-study</i>			
	Questions and tasks for self-study	Search, selection and review of literary sources on a given topic	–	–
Theme 5	<i>Classroom work</i>			
	Lecture	Economic mechanisms of environmental protection. Eco-protection management	–	–
	Practice	Resource-saving technologies	Competence-oriented tasks	4
			Test №1	15
	<i>Self-study</i>			
	Questions and tasks for self-study	Search, selection and review of literary sources on a given topic	–	–
Theme 6	<i>Classroom work</i>			
	Lecture	Eco-monitoring. Environmental control in Ukraine	–	–
	Practice	An anthropogenic influence on the environment: the internet resources	Competence-oriented tasks	4
	<i>Self-study</i>			
	Questions and tasks for self-study	Search, selection and review of literary sources on a given topic	–	–
	<i>Classroom work</i>			
	Lecture	Eco-monitoring. Environmental control in Ukraine	–	–
	Practice	An estimate of the required degree the wastewater purification	Competence-oriented tasks	4
<i>Self-study</i>				
Questions and tasks for self-study	Search, selection and review of literary sources on a given topic	–	–	
Themes 7	<i>Classroom work</i>			
	Lecture	Eco-marketing. Eco-audit	–	–
	Practice	Ecological safety and ecological risks	Competence-oriented tasks	4

	<i>Self-study</i>			
	Questions and tasks for self-study	Search, selection and review of literary sources on a given topic	–	–
	<i>Classroom work</i>			
	Lecture	Eco-marketing. Eco-audit	–	–
	Practice	Evaluation of e-numbers in food	Competence-oriented tasks	4
	<i>Self-study</i>			
	Questions and tasks for self-study	Search, selection and review of literary sources on a given topic	–	–
Theme 8	<i>Classroom work</i>			
	Lecture	Eco-safety and environmental risks	–	–
	Practice	Green energy	Competence-oriented tasks	4
	<i>Self-study</i>			
	Questions and tasks for self-study	Search, selection and review of literary sources on a given topic	–	–
	<i>Classroom work</i>			
	Lecture	Eco-safety and environmental risks	–	–
	Practice	Food safety	Competence-oriented tasks	4
	<i>Self-study</i>			
	Questions and tasks for self-study	Search, selection and review of literary sources on a given topic	–	–
Theme 9	<i>Classroom work</i>			
	Lecture	World ecological policy	–	–
	Practice	Food safety. Eco-label products. The waste problem	Competence-oriented tasks	4
			Test №2	15
	<i>Self-study</i>			
	Questions and tasks for self-study	Search, selection and review of literary sources on a given topic	Individual quiz	14

Recommended literature

Base literature

1. Сокур М. І. Екологічна безпека та економіка : монографія / М. І. Сокур, В. М. Шмандій. – Кременчук : ПП Щербатих О.В., 2020. – 240 с.
2. Ремез Н. С. Екологізація виробництва та зелені технології: Курс лекцій [Електронний ресурс]: навч. посіб. для студ. всіх спеціальностей всіх освітніх програм / Н. С. Ремез, А. О. Дичко, Т. В. Гребенюк, В. О. Броницький. – Київ : КПІ ім. Ігоря Сікорського, 2021. – 209 с

3. Івашура А. А. Сучасні тенденції розвитку зеленої економіки в умовах глобалізації та мінімалістичного руху : монографія [Електронний ресурс] / А. А. Івашура. – Харків : ХНЕУ ім. С. Кузнеця, 2022. – 113 с.

Additional literature

4. Єремєєв І. С. Екологічна природна та техногенна безпека : підручник / І. С. Єремєєв, А. О. Дичко. – Видавничий дім «Гельветика», 2022. – 434 с.

5. Василенко І. А. Екологія людини / І. А. Василенко, І. М. Трус, О. А. Півоваров, Л. А. Фролова. – Дніпро : Акцент ПП, 2017. – 183 с.

Internet resources

6. “Ecology (Selective), assoc. prof. Olga Protasenko” [Електрон. ресурс] : Сайт ПНС ХНЕУ ім. С. Кузнеця. – Режим доступу : <https://pns.hneu.edu.ua/course/view.php?id=4860>

7. Нормативно-правова база у сфері екології [Електронний ресурс]. – Режим доступу: <http://www.rada.kiev.ua>.

8. Офіційний портал Міністерства екології та природних ресурсів України. – Режим доступу : <https://menr.gov.ua>.

9. Сайт Всеукраїнської екологічної ліги. – Режим доступу : <http://www.ecoleague.net/index.php>.