

## Syllabus of the educational component

### Human ecology

Discipline name:	<b>Human ecology</b>
Level of higher education:	<b>the first (bachelor's)</b>
Course page in Moodle:	<b><a href="https://dl.khadi.kharkov.ua/course/view.php?id=2254">https://dl.khadi.kharkov.ua/course/view.php?id=2254</a></b>
The scope of the educational component:	<b>3 credits (90 hours)</b>
Final control form:	<b>credit</b>
Consultations:	<b>on schedule</b>
Name of the department:	<b>Department of Chemistry and Chemical Technology</b>
Language of teaching:	<b>Ukrainian</b>
Head of the course:	<b>Khobotova Elina Borysivna, Dr. Chem. Sc., professor</b>
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#### **Brief content of the educational component:**

**The goal of studying the academic discipline** is the formation of students' set of knowledge and skills regarding typical approaches, methods, which are necessary for the performance of professional tasks in the field of human ecology.

**The subject of studying the discipline** is the acquisition of basic knowledge of scientific and methodological foundations and standards in the field of human ecology, a methodologically adapted system of concepts about the laws of human interaction with the anthropogenically altered biosphere and their use to improve human health.

**The main tasks of the discipline** are formation of knowledge, skills and ideas about the formation of anthropogenic sources of environmental pollution that affect human health; patterns of migration of toxic substances along food chains; medical aspects of the interaction of society and nature, which are necessary for the performance of professional tasks in the specialty.

### Thematic plan

№	Name of topics (LC, PR, IW)	Number of hours	
		full-time	correspondence
1	2	3	4
1	LC: Basic concepts and laws of human ecology.	2	0,5
	PR: Calculation of human ecological safety criteria and ecological and technical safety criteria.	2	–
	IW: Measures to prevent dust diseases.	7	8
2	LC: The problem of noise in cities and people.	2	0,5
	PR: Calculation of equivalent noise levels from point sources and vehicles.	2	0,5
	Evaluation of the effectiveness of noise protection measures depending on the conditions.		
	IW: Impact of infrasound and ultrasound on human health. Noise map of the city.	7	12

1	2	3	4
3	LC: Soil and human health.	2	0,5
	PR: Regulation of permissible concentrations of toxic substances in the soil. Complex hygienic indicators of the sanitary state of the soil.	2	–
	IW: Factors of soil formation. Composition, properties and classification of soils. Chemical composition of soils.	8	10
4	LC: Use of fertilizers and their impact on human health.	2	0,5
	PR: Calculation of the permitted concentration of fertilizers in food products. Impact of nitrosamines on human health.	2	0,5
	IW: Sanitary protection of the environment from contamination with fertilizers.	7	10
5	LC: Ecological aspects of the use of pesticides and their impact on the human organism.	2	0,5
	PR: Calculation of the permitted concentration of pesticides in food products. Biological and remote effects of pesticides and fertilizers on the human organism.	2	0,5
	IW: Contaminated with pesticides on the territory of Ukraine and Kharkiv region.	7	10
6	LC Energy problems of human nutrition.	2	0,5
	PR: Quantification of the content of xenobiotics in food chains. Measures to reduce the content of xenobiotics in food chain.	2	0,5
	IW: The problem of hunger and malnutrition. Negative and positive aspects of vegetarianism as a food system.	7	10
7	LC: Groups of compounds in food products.	2	0,5
	PR: Three groups of compounds in food products and their characteristics.	2	–
	IW: Biologically active and food additives.	8	12
8	LC: Basics of medical geography and cartography.	2	0,5
	PR: The importance of environmental factors in the formation of nosocomplexes and nosoareas. Medical-geographical maps, their types, purposes and features of application.	2	–
	IW: Complex medical and geographical maps.	7	12
Total	LC	16	4
	PR	16	2
	IW	58	84

### Teaching methods:

- 1) verbal: lectures, explanations, stories, etc.;
- 2) visual: method of illustrations, method of demonstrations
- 3) practical: traditional practical classes, laboratory work.

### Evaluation system and requirements:

Current performance

**1** The current success of applicants for the performance of educational types of work in training sessions and for the performance of tasks of independent work is assessed using a four-point rating scale, followed by transfer to a 100-point scale. When assessing the current performance, all types of work provided for by the curriculum are taken into account.

**1.1** Lectures are evaluated in determining the quality of the performance of specific tasks and tests.

**1.2** Laboratory classes are evaluated by the quality of the reports on the implementation of laboratory work.

2 The assessment of the current performance of applicants for higher education is carried out on each laboratory work on a four-point scale ("5", "4", "3", "2"), the grades are recorded in the academic record book.

- "excellent": the applicant perfectly mastered the theoretical material, demonstrates deep knowledge of the relevant topic or academic discipline;

- "good": the applicant has mastered the theoretical material well, has the main aspects from the primary sources and recommended literature, and argues it; has practical skills, expresses his views on certain problems, but allows certain inaccuracies and errors in the logic of the presentation of theoretical content or in the analysis of practical material;

- "satisfactory": the applicant has basically mastered the theoretical knowledge of the educational topic or discipline, is guided by primary sources and recommended literature, but answers unconvincingly, confuses concepts, uncertainly answers additional questions, does not have stable knowledge; answering questions of a practical nature, reveals inaccuracies in knowledge, does not know how to evaluate facts and phenomena, to connect them with a future profession;

- "unsatisfactory": the applicant has not mastered the educational material of the topic (discipline), does not know scientific facts, definitions, almost does not orient himself in primary sources and recommended literature, there is no scientific thinking, practical skills are not formed.

3 The final score for the current activity is recognized as the arithmetic mean of the scores for each lesson, current tests according to the formula:

$$C^{current} = \frac{C_1 + C_2 + \dots + C_n}{n},$$

where:  $C^{current}$  – final assessment of academic performance based on the results of current control;

$C_1, C_2, C_n$  - assessment of academic performance of the  $n$ -th activity of the current control;

$n$  - number of monitoring measures.

Grades are converted to points on a conversion scale (Table 1).

**Table 1** - Recalculation of the average score for current activities on a multi-point scale

4 point scale	100 point scale	4 point scale	100 point scale	4 point scale	100 point scale	4 point scale	100 point scale
5	100	4,45	89	3,90	78	3,35	67
4,95	99	4,4	88	3,85	77	3,3	66
4,9	98	4,35	87	3,80	76	3,25	65
4,85	97	4,3	86	3,75	75	3,2	64
4,8	96	4,25	85	3,7	74	3,15	63
4,75	95	4,20	84	3,65	73	3,1	62
4,7	94	4,15	83	3,60	72	3,05	61
4,65	93	4,10	82	3,55	71	3	60
4,6	92	4,05	81	3,5	70	from 1,78 to 2,99	from 35 to 59
re-taking							
4,55	91	4,00	80	3,45	69	from 0 to 1,77	from 0 to 34
4,5	90	3,95	79	3,4	68	repeated training	

## Final grade

**1** The applicant for higher education receives a credit at the last lesson in the discipline based on the results of the current assessment. The average rating for current activities is converted into points on a 100-point scale, according to the recalculation table (Table 1).

Applicants for higher education who have an average current grade in the discipline below “3” (60 points) can increase their current score at the last lesson by passing tests in the discipline.

Assessment of applicants' knowledge by testing is carried out on a scale:

- “Excellent”: at least 90% of correct answers;
- “Very good”: from 82% to 89% correct answers;
- “Good”: from 74% to 81% of correct answers;
- “Satisfactory”: from 67% to 73% of correct answers;
- “Satisfactory enough”: from 60% to 66% of correct answers;
- “Unsatisfactory”: less than 60% correct answers.

The condition for receiving a credit is:

- working off all missed classes;
- the average current grade of the discipline is not lower than “3” (60 points).

**2** For the performance of individual independent work and for participation in scientific events, applicants are awarded additional points.

**2.1** The number of additional points awarded for different types of individual tasks depends on their volume and significance:

- prizes in the discipline at the international / All-Ukrainian competition of scientific student works – 20 points;
- prize-winning places in the discipline at the All-Ukrainian Olympiads – 20 points;
- participation in the international/All-Ukrainian competition of scientific student works – 15 points
- participation in international/All-Ukrainian scientific conferences of students and young scientists – 12 points;
- participation in the All-Ukrainian Olympiads in discipline – 10 points;
- participation in olympiads and scientific conferences of KhNAHU in the discipline – 5 points;
- performance of individual research (training and research) tasks of increased complexity – 5 points.

**2.2** The number of additional points cannot exceed 20 points.

**3** The learning outcome is assessed (select one):

- on a two-point scale (passed/failed);
- on a 100-point scale (for a differentiated test) according to Table 3.

The final score, together with additional points, cannot exceed 100 points.

**Table 2** - Scale for transferring points to the national assessment system

On a 100-point scale	On a national scale
from 60 points to 100 points	passed
less than 60 points	failed

**Table 3** - The scale for assessing the knowledge of applicants based on the results of the final control of the academic discipline

Score in points	National scale score		ECTS score	
	exam	credit	Grade	Criteria
<b>90-100</b>	<b>Excellent</b>	<b>Passed</b>	<b>A</b>	The theoretical meaning of the course has been mastered completely, without gaps, the necessary practical skills for working with the mastered material have been formed, all the training tasks provided for by the training program have been completed, the quality of their implementation has been assessed by a number of points close to the maximum
<b>80-89</b>	<b>Good</b>	<b>Passed</b>	<b>B</b>	The theoretical meaning of the course is mastered completely, without gaps, practical skills of working with the mastered material are basically formed, all training tasks provided for by the training program are completed, the quality of most of them is estimated by a number of points close to the maximum
<b>75-79</b>	<b>Satisfactory</b>		<b>C</b>	The theoretical content of the course has been mastered completely, without gaps, some practical skills in working with the mastered material are not sufficiently formed, all the training tasks provided for by the training program have been completed, the quality of none of them has been assessed with a minimum number of points, some types of tasks have been completed with errors
<b>67-74</b>			<b>D</b>	The theoretical content of the course has been partially mastered, but the gaps are not significant, practical skills are needed to work with the mastered material, basically formed, most of the training tasks provided for by the training program have been completed, some of the completed tasks may contain errors
<b>60-66</b>			<b>E</b>	The theoretical content of the course has been partially mastered, some practical work skills have not been formed, many training tasks provided for by the training program have not been completed, or the quality of some of them has been assessed with a number of points close to the minimum
<b>35-59</b>	<b>Unsatisfactory</b>	<b>Failed</b>	<b>FX</b>	The theoretical content of the course has been partially mastered, the necessary practical work skills have not been formed, most of the provided training programs for training tasks have not been completed, or the quality of their implementation has been assessed with a number of points close to the minimum; with additional independent work on the course material, it is possible to improve the quality of the implementation of training tasks (with the possibility of re-composing)
<b>0-34</b>	<b>Unacceptably</b>		<b>F</b>	The theoretical content of the course has not been mastered, the necessary practical work skills have not been developed, all completed training tasks contain gross errors, additional independent work on the course material will not lead to any significant improvement in the quality of the training tasks (with a mandatory re-course)

**Course policy:**

- the course provides for teamwork, the environment in the classroom is friendly, creative, open to constructive criticism;
- the development of the discipline involves the mandatory attendance of lectures and practical classes, as well as independent work;
- independent work involves the study of individual topics of the academic discipline, which are submitted in accordance with the program for independent processing, or were considered briefly;
- all tasks stipulated by the program must be completed on time;
- if the applicant for higher education is absent from classes for a good reason, he presents completed assignments during self-study and consultation with the teacher;
- when studying the course, applicants for higher education must comply with the rules of academic virtue set forth in the following documents: "Rules of academic virtue for participants in the educational process of KhNAHU" ([https://www.khadi.kharkov.ua/fileadmin/P\\_Standart/pologeniya/stvnz\\_67\\_01\\_dobroch\\_1.pdf](https://www.khadi.kharkov.ua/fileadmin/P_Standart/pologeniya/stvnz_67_01_dobroch_1.pdf)), "Academic integrity. Checking the text of academic, scientific and qualifying works for plagiarism" ([https://www.khadi.kharkov.ua/fileadmin/P\\_Standart/pologeniya/stvnz\\_85\\_1\\_01.pdf](https://www.khadi.kharkov.ua/fileadmin/P_Standart/pologeniya/stvnz_85_1_01.pdf)), "Moral code of participants in the educational process of KHNADU" ([https://www.khadi.kharkov.ua/fileadmin/P\\_Standart/pologeniya/stvnz\\_67\\_01\\_MEK\\_1.pdf](https://www.khadi.kharkov.ua/fileadmin/P_Standart/pologeniya/stvnz_67_01_MEK_1.pdf)).
- in case of detection of the fact of plagiarism, the applicant receives 0 points for the task and must re-perform the task provided for in the syllabus;
- cheating during tests and exams is prohibited (including using mobile devices). Mobile devices are only allowed to be used for online testing.

**Recommended literature**

1. Khobotova E.B. Human ecology: a textbook // Kharkiv: KhNAHU, 2019. – 344 p. [in Ukrainian]
2. Khobotova E.B. Human ecology (section "Ecological and hygienic aspects of human nutrition"): Lecture notes. // Kharkiv: KhNAHU, 2009. – 84 p. [in Ukrainian]
3. Human ecology: a textbook / L. I. Solomenko. // Kyiv: "Center for Educational Literature", 2016. – 120 p. [in Ukrainian]
4. Human ecology: a textbook / I.I. Zalessky, M.A. Klimenko. // Rivne, 2020 – 340 p. [in Ukrainian]
5. Human ecology / I.A. Vasilenko, I.M. Rabbit, O.A. Pivovarov, L.A. Frolova // Dnepr: Accent PP, 2017. – 183 p. [in Ukrainian]
6. Nekos A.N., Bagrova L.A., Klimenko M.A. Human ecology. A textbook. – 2nd ed. // Kharkiv: KhNU named after V.N. Karazin, 2013. – 284 p. [in Ukrainian]

**Additional sources**

1. Course-resource of the discipline "Human Ecology"  
<https://dl.khadi.kharkov.ua/course/view.php?id=2254>

The developer of the syllabus of the academic discipline



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Head of the Department



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