MINISTRY OF HEALTH

Department of Hygiene and Ecology No. 2

The academic year 2021–2022

SYLLABUS OF THE EDUCATIONAL COMPONENT

«CLINICAL ENVIRONMENTAL MEDICINE»
(name of educational component)

Normative or elective educational component Elective

Educational component format Mixed
(full-time, mixed, remote)

Area of knowledge 22 "Health"
(code and name of the field of knowledge)

Specialty 222 "Master of Medicine"
(code and name of the specialty)

Educational and professional program 222 "Medicine"

The second (master's) level of higher education

The fourth year, full-time education

Syllabus of educational discipline is approved
At the meeting of Department of Hygiene and Ecology No. 2

Recorddated
"30"August 2021 No. 7

Acting Head of the Department
(signature) Ass.Prof. Sydorenko M.O.
(name and initials)

" 30" August 2021

Approved by Methodical Commission of KhNMU on PublicHealth Issues

Record dated
"27"August 2021 No. 1

Head
(signature) Prof. Ognev V.A.
(name and initials)

"27" August 2021

SYLABUS DEVELOPERS:
Doctor of Med. Sci., Prof. Zavgorodnii I.V.,
Cand. of Med. Sci., Ass. Prof. Sydorenko M.O.,
Cand. of Med. Sci., Assistant Lalymenko O.S.,
Cand. of Med. Sci., Ass. Prof. Korobchanskyi P.O.
Senior teacher Chehovska I. M.

DATA ON TEACHERS WHO TEACH THE EDUCATIONAL COMPONENT

The name of the teacher	Position, academic title, scientific degree	Professional interests	Link to the teacher's profile
Korobchanskyi P.O.	Cand. of Med. Sci., Ass. Prof. of Department of Hygiene and Ecology No. 2	Hygiene and ecology	Moodle:http://31.128.79.157:8083/course/index.php?categoryid=31 po.korobchanskyi@knmu.edu.ua
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Baidak S. M.	Assistant of Department of Hygiene and Ecology No. 2	Hygiene and ecology	Moodle:http://31.128.79.157:8083/course/index.php?categoryid=31 sm.baidak@knmu.edu.ua
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Shevchenko Yu. V.	Assistant of Department of Hygiene and Ecology No. 2	Hygiene and ecology	Moodle:http://31.128.79.157:8083/course/index.php?categoryid=31 yv.shevchenko@knmu.edu.ua

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Intramural consultations: schedule and venue according to the schedule of the department.

Online consultations: schedule and venue by prior arrangement with the teacher**.**

Location: classes are held in the department hygiene and ecology № 2 of KhNMU

INTRODUCTION

The syllabus of the discipline "Clinical Environmental Medicine" is compiled in accordance with the educational-professional program 222 "Medicine" and the Standard of Higher Education of Ukraine, the second (master's) level, field of knowledge 22 "Health", specialty 222 "Medicine"

Description of the discipline (abstract)

The study of the discipline "Clinical Medicine and the Environment" is aimed at acquainting masters of 3-4 courses with the basics of modern social and environmental systems, study of risk and safety factors, algorithm of action in emergencies, based on legislation of occupational safety management innovative forms of student learning.

Professional training of masters in the specialty 222 "Medicine" becomes better and more effective, close to international standards through in-depth study of a number of specialized disciplines, including "Clinical Environmental Medicine", which allows to master methods of assessing the state of the environment and its impact on health. human forms and methods of effective management of safe activities in the social and environmental spheres, in accordance with applicable laws and regulations, to master the skills of professional capacity, methods of self-control in professional activities and methods of psychophysical training that is relevant for master's training, especially in modern conditions of Ukraine's European integration.

The subject of study of the discipline is: the state of the environment and its impact on human health forms and methods of effective management of safe activities in the social and environmental spheres, in accordance with applicable laws and regulations.

Interdisciplinary links: The discipline "Clinical Medicine and the Environment" has links with the following disciplines: the organization of health care in the context of non-communicable disease statistics; clinical disciplines in the context of assessing the effect of methods of diagnosis and prevention of diseases and their consequences, optimization of the patient's route, the activities of the department (MPE), etc .; with epidemiology in the context of measurements of population processes and information collection plans; social medicine in the context of measurements of population and individual health, features of registration of health-related events; medical informatics and computer technology.

Prerequisites. The study of the discipline involves prior mastering of disciplines in medical biology, normal and pathological anatomy, normal and pathological physiology, biochemistry, microbiology, propaedeutics of pediatrics, medical genetics, and involves the prior mastering of credits in theory and practice of clinical disciplines in the context of method assessment and prevention of environmental diseases.

Postrequisites. The main provisions of the discipline should be applied in the study of public health disciplines in the context of non-communicable disease statistics; social medicine in the context of population and individual health measurements.

Link to the page of the discipline in MOODLE –
http://31.128.79.157:8083/course/view.php?id=248

1. PURPOSE AND TASKS OF THE COURSE

1.1. The aim of the course is to provide students with modern knowledge on the epidemiology of chronic noncommunicable diseases, increase the prevalence of risk factors, increase the aggressiveness of environmental factors, the development of resistance of microorganisms, rapid spread of diseases due to high mobility, availability and quality of health care.

1.2. The main objectives of the discipline are to obtain knowledge of the theoretical foundations of chronic non-communicable diseases, increase the prevalence of risk factors, the spread of aggressive environmental factors; organization of prevention and control of non-communicable diseases; planning, organization and tactics of statistical research; ability to calculate and use various statistical indicators; preparation of data for statistical analysis; determination of methods of graphic representation of results of statistical analysis.

1.3. Competences and learning outcomes, the formation of which is facilitated by the discipline (relationship with the normative content of training of higher education, formulated in terms of learning outcomes in the EPP and Standard).

1.3.1. The study of the discipline provides students with the acquisition of **competencies:**

Integral competencies: the ability to solve complex problems and problems in the field of public health or in the learning process, which involves research, application of scientific theories and analytical methods and is characterized by complexity and uncertainty of conditions. Ability to apply the acquired theoretical knowledge and practical skills and ability to apply in practice measures for prevention and control of non-communicable diseases. Ability to analyze and synthesize the availability of statistical information (synthesis of information from different sources and subjects based on the basic techniques of meta-analysis) in the context of evidence-based medicine.

General competencies:

- Ability to abstract thinking, analysis and synthesis, the ability to learn and be modernly trained;
- Ability to apply knowledge in practical situations;
- Knowledge and understanding of the subject area and understanding of professional activity;
- Skills in the use of information and communication technologies;
- Ability to act socially responsibly and consciously;
- The desire to preserve the environment.

Special (professional, subject) competencies:

- Ability to determine the required list of laboratory and instrumental studies and evaluate their results;
- Ability to plan and conduct sanitary, preventive and anti-epidemic measures, including infectious diseases;
- Ability to assess the impact of the environment, socio-economic and biological determinants on the health of the individual, family, population.

1.3.2. The study of the discipline provides students with the acquisition of the following program learning outcomes:

PLO 1 - to have general and special fundamental and professionally-oriented knowledge, skills, abilities, competencies necessary to perform typical professional tasks related to activities in the medical field in the relevant position

PLO 5 - evaluate the results of surveys, physical examinations, laboratory and instrumental research data

PLO 11 - to carry out sanitary and hygienic and preventive measures

PLO 16 - to assess the impact of the environment on the health of the population

PLO 18 - to assess the state of human health and provide its support taking into account the impact of the environment and other health factors

PLO 19 - to assess the sanitary and hygienic condition of the environment in order to determine the sanitary and hygienic and preventive measures

PLO 20 - apply the acquired knowledge about the existing health care system to optimize their own professional activities and participate in solving practical problems of the industry

1.3.3. The study of the discipline provides students with the following **social skills (Softskills):**

- communicativeness (implemented through: method of working in pairs and groups, brainstorming, method of self-presentation),
- teamwork (implemented through: project method, openwork tiles),
- conflict management (implemented through: dramatization method, game methods),
- time management (implemented through: project method, group work, training),
- leadership skills (implemented through: group work, project method, self-presentation method),
- sports development and effective recreation (implemented through: various types and forms of physical activity for active recreation and a healthy lifestyle),
- empathy (realized through: respect for the opinion and ethical considerations, appearance and behavior of other people),
- stress resistance (realized through: group work with representatives of other professional groups of different levels and ages in unforeseen circumstances and situations).

2. INFORMATIONAL VOLUME OF THE DISCIPLINE

<table>
<tr><td rowspan="2">Name of indicators</td><td rowspan="2">Field of knowledge, specialty, educational degree, EPP</td><td>Characteristics of the discipline</td></tr>
<tr><td>Full-time education</td></tr>
<tr><td>Number of credits - 3</td><td>Branch of knowledge
22 "Health care"
(code and name)</td><td>Selective</td></tr>
<tr><td rowspan="5">The total number of hours is 90</td><td rowspan="5">Specialty:
222 "Medicine"
(code and name)</td><td>Year of study:</td></tr>
<tr><td>4-rd</td></tr>
<tr><td>Semester</td></tr>
<tr><td>7-8-th</td></tr>
<tr><td>Lectures</td></tr>
<tr><td rowspan="8">Hours for learning:
classwork – 20,
independent work of student – 70</td><td rowspan="6">Education level:
Master of Medicine</td><td>-</td></tr>
<tr><td>Practical, seminar</td></tr>
<tr><td>20 hours</td></tr>
<tr><td>Laboratory</td></tr>
<tr><td>-</td></tr>
<tr><td>Independent work</td></tr>
<tr><td rowspan="3">EPP: "Medicine"</td><td>70 hours</td></tr>
<tr><td>Individual tasks:
-</td></tr>
<tr><td>Type of control: credit</td></tr>
</table>

2.1 Description of the discipline

2.2.1 Lectures

№	Theme names	Number of hours	Types of lectures
	Not provided by the curriculum		
	Total hours		

2.2.2 Seminars

№	Theme names	Number of hours	Types of lectures
	Not provided by the curriculum		
	Total hours		

2.2.3 Practical classes

№	Theme names	Number of hours	Teaching methods	Forms of control
1.	Clinical environmental medicine is the subject and object of its teaching. Significance for healthcare practice.	2	Verbal (discussion); visual (illustration, presentation material, video material); practical	oral examination (individual and frontal); written survey; test control; abstracts; self-control;

			(independent work, work in pairs, work in groups)	report; declamation
2.	Ecological factors, classification, patterns of their impact on the human body.	2	Verbal (discussion); visual (illustration, presentation material, video material); practical (independent work, work in pairs, work in groups)	oral examination (individual and frontal); written survey; test control; abstracts; self-control; report; declamation
3.	Clinical Epidemiology in Health Care. Pathogenetic mechanisms of influence of physical, chemical, biological factors of environment on a human body, population.	2	Verbal (discussion); visual (illustration, presentation material, video material); practical (independent work, work in pairs, work in groups)	oral examination (individual and frontal); written survey; test control; abstracts; self-control; report; declamation
4.	Heredity and the environment.	2	Verbal (discussion); visual (illustration, presentation material, video material); practical (independent work, work in pairs, work in groups)	oral examination (individual and frontal); written survey; test control; abstracts; self-control; report; declamation
5.	Reproductive health: environmental factors that affect the state of the reproductive system.	2	Verbal (discussion); visual (illustration, presentation material, video material); practical	oral examination (individual and frontal); written survey; test control; abstracts; self-control;

			(independent work, work in pairs, work in groups)	report; declamation
6.	Medico-ecological characteristics of atmospheric air.	2	Verbal (discussion); visual (illustration, presentation material, video material); practical (independent work, work in pairs, work in groups)	oral examination (individual and frontal); written survey; test control; abstracts; self-control; report; declamation
7.	Medico-ecological characteristics of water, water bodies and soil.	2	Verbal (discussion); visual (illustration, presentation material, video material); practical (independent work, work in pairs, work in groups)	oral examination (individual and frontal); written survey; test control; abstracts; self-control; report; declamation
8.	Medico-ecological problem of nutrition.	2	Verbal (discussion); visual (illustration, presentation material, video material); practical (independent work, work in pairs, work in groups)	oral examination (individual and frontal); written survey; test control; abstracts; self-control; report; declamation
9.	Medico-ecological characteristics of the indoor environment.	1	Verbal (discussion); visual (illustration, presentation material, video material); practical	oral examination (individual and frontal); written survey; test control; abstracts; self-control;

			(independent work, work in pairs, work in groups)	report; declamation
10.	Environmental monitoring: tasks, levels and components of environmental monitoring.	1	Verbal (discussion); visual (illustration, presentation material, video material); practical (independent work, work in pairs, work in groups)	oral examination (individual and frontal); written survey; test control; abstracts; self-control; report; declamation
11.	Biomonitoring as an integral part of environmental monitoring.	1	Verbal (discussion); visual (illustration, presentation material, video material); practical (independent work, work in pairs, work in groups)	oral examination (individual and frontal); written survey; test control; abstracts; self-control; report; declamation
12.	Basics of assessing the quality of the environment and the risk of its pollution to public health.	1	Verbal (discussion); visual (illustration, presentation material, video material); practical (independent work, work in pairs, work in groups)	oral examination (individual and frontal); written survey; test control; abstracts; self-control; report; declamation
	Total hours	20		

2.2.4. Laboratory classes

№	Theme names	Number of hours	Types of lectures
	Not provided by the curriculum		
	Total hours		

2.2.5. Independent work

№	Theme names	Number of hours	Teaching methods	Forms of control
1.	Clinical environmental medicine is the subject and object of its teaching. Significance for healthcare practice.	8	visual (illustration, presentation material, video material); independent work, work in pairs, work in groups	written survey; test control; creative tasks; abstracts; annotations; report; declamation
2.	Ecological factors, classification, patterns of their impact on the human body.	7	visual (illustration, presentation material, video material); independent work, work in pairs, work in groups	written survey; test control; creative tasks; abstracts; annotations; report; declamation
3.	Clinical Epidemiology in Health Care. Pathogenetic mechanisms of influence of physical, chemical, biological factors of environment on a human body, population.	7	visual (illustration, presentation material, video material); independent work, work in pairs, work in groups	written survey; test control; creative tasks; abstracts; annotations; report; declamation
4.	Heredity and the environment.	7	visual (illustration, presentation material, video material); independent work, work in pairs, work in groups	written survey; test control; creative tasks; abstracts; annotations; report; declamation
5.	Reproductive health: environmental factors that affect the state of the reproductive system.	7	visual (illustration, presentation material, video material); independent work, work in pairs, work in groups	written survey; test control; creative tasks; abstracts; annotations; report; declamation

6.	Medico-ecological characteristics of atmospheric air.	5	visual (illustration, presentation material, video material); independent work, work in pairs, work in groups	written survey; test control; creative tasks; abstracts; annotations; report; declamation
7.	Medico-ecological characteristics of water, water bodies and soil.	5	visual (illustration, presentation material, video material); independent work, work in pairs, work in groups	written survey; test control; creative tasks; abstracts; annotations; report; declamation
8.	Medico-ecological problem of nutrition.	5	visual (illustration, presentation material, video material); independent work, work in pairs, work in groups	written survey; test control; creative tasks; abstracts; annotations; report; declamation
9.	Medico-ecological characteristics of the indoor environment.	5	visual (illustration, presentation material, video material); independent work, work in pairs, work in groups	written survey; test control; creative tasks; abstracts; annotations; report; declamation
10.	Environmental monitoring: tasks, levels and components of environmental monitoring.	5	visual (illustration, presentation material, video material); independent work, work in pairs, work in groups	written survey; test control; creative tasks; abstracts; annotations; report; declamation
11.	Biomonitoring as an integral part of environmental monitoring.	5	visual (illustration,	written survey; test

			presentation material, video material); independent work, work in pairs, work in groups	control; creative tasks; abstracts; annotations; report; declamation
12.	Basics of assessing the quality of the environment and the risk of its pollution to public health.	4	visual (illustration, presentation material, video material); independent work, work in pairs, work in groups	written survey; test control; creative tasks; abstracts; annotations; report; declamation
	Total hours	70		

Teaching methods: Verbal (discussion); visual (illustration, presentation material, video material); practical (independent work, work in pairs, work in groups)

Control methods:

1. Oral control of mastering theoretical material (survey, discussion).
2. Written control (answers to questions, problem solving, test control).
3. Control of practical skills (solving situational problems, solving problem situations, providing practical recommendations).

When studying the discipline, the current and final semester control is used. Also, there is a mandatory control of the assimilation of educational material of the discipline, assigned to independent work.

Current control (mastering of separate topics): is carried out in the form of oral questioning, testing, conversations of students on predetermined questions, in the form of performances of applicants for higher education with reports when discussing educational issues in practical classes.

In order to assess the independent work of students, an alternative option is offered (optional): traditional types of tasks: writing a test, abstract or creative types: preparation of a multimedia presentation, elaboration of educational literature (compilation of annotations, reviews, citations, abstracts).

Final control in the discipline is a mandatory form of control of academic achievement of higher education students. It is performed orally. The terms of the final semester control are set by the schedule of the educational process, and the amount of educational material that is submitted for the final semester control is determined by the program of the discipline.

3. EVALUATION CRITERIA

3.1. Evaluation of the success of education of students is carried out on the basis of the current "Instructions for evaluating the educational activities of students of KhNMU" order of KhNMU from 21.08.2021 № 181

Students' knowledge is assessed in all types of classes according to the following criteria:

1) **"excellent"** – corresponds to a high (creative) level of competence:

- The student shows special creative abilities, is able to acquire knowledge independently, without the help of the teacher finds and processes the necessary information, is able to use the acquired knowledge and skills for decision-making in unusual situations, convincingly argues answers, independently reveals own talents and inclinations;

2) **"good"** – the Student receives two levels of assessment depending on the number of points scored and corresponds to a sufficient (constructive-variable) level of competence:

- The student is fluent in the studied amount of material, applies it in practice, freely solves exercises and problems in standard situations, independently corrects mistakes, the number of which is insignificant;

- The student is able to compare, summarize, systematize information under the guidance of the teacher; as a whole to apply it independently in practice; control their own activities; to correct mistakes, among which there are significant ones, to choose arguments to confirm opinions;

3) **"satisfactory"** – the Student receives two levels of assessment depending on the number of points scored and corresponds to the average (reproductive) level of competence:

- The student reproduces a significant part of the theoretical material, shows knowledge and understanding of the basic provisions; with the help of the teacher can analyze the educational material, correct mistakes, among which there are a significant number of significant;

- The student has the study material at a level higher than the initial, a significant part of it is reproduced at the reproductive level;

4) **"unsatisfactory"** – corresponds to a low (receptive-productive) level of competence:

- The student has not mastered the material of the discipline, does not know the scientific facts, definitions, almost does not navigate in the original sources and recommended literature, there is no scientific thinking, practical skills are not formed.

The total number of rating points for the study of the discipline for the semester is calculated as the sum of the points obtained from the results of the current control and the points obtained from the results of the final semester control. The maximum amount of points for the semester is 200 points, the minimum – 120 points. Assessment of students is carried out in accordance with the "Instructions for assessing the educational activities of students in the European credit transfer system for the organization of the educational process at KhNMU."

The *current educational activity of students* (hereinafter – **CEA**) is controlled by the teacher of the academic group, after students master each topic of the discipline and grades are set using a 4-point (national) system. At the end of the semester, the teacher automatically receives the average grade (to the nearest hundredth) for **CEA** using an electronic journal of the ASU system.

For the discipline, the study of which is completed in the current semester and the form of its control is a differential test, the average score on **CEA** by the teacher of the department is translated into a 200-point scale.

Assessment of current learning activities (CEA)

Recalculation of the average grade for current activities in a multi-point scale is carried out in accordance with the "Instructions for assessing the educational activities of applicants for higher education at the Kharkiv National Medical University" (Table 2).

When assessing the mastery of each subject of the discipline, the student is graded according to the traditional 4-point system: "excellent", "good", "satisfactory" and "unsatisfactory".

The final score for the current learning activity (PND) is defined as the arithmetic mean of traditional grades for each lesson, rounded to 2 decimal places and listed in a multi-point scale according to Table 2.

Table2

Recalculation of the average score for current activities into a multi - point scale (for disciplines ending in credit)

4-pointscale	200-pointscale		4-pointscale	200-pointscale		4-pointscale	200-pointscale
5	200		4.22-4,23	169		3.45-3,46	138
4.97-4,99	199		4.19-4,21	168		3.42-3,44	137
4.95-4,96	198		4.17-4,18	167		3.4-3,41	136

4.92-4,94	197	4.14-4,16	166	3.37-3,39	135
4.9-4,91	196	4.12-4,13	165	3.35-3,36	134
4.87-4,89	195	4.09-4,11	164	3.32-3,34	133
4.85-4,86	194	4.07-4,08	163	3.3-3,31	132
4.82-4,84	193	4.04-4,06	162	3.27-3,29	131
4.8-4,81	192	4.02-4,03	161	3.25-3,26	130
4.77-4,79	191	3.99-4,01	160	3.22-3,24	129
4.75-4,76	190	3.97-3,98	159	3.2-3,21	128
4.72-4,74	189	3.94-3,96	158	3.17-3,19	127
4.7-4,71	188	3.92-3,93	157	3.15-3,16	126
4.67-4,69	187	3.89-3,91	156	3.12-3,14	125
4.65-4,66	186	3.87-3,88	155	3.1-3,11	124
4.62-4,64	185	3.84-3,86	154	3.07-3,09	123
4.6-4,61	184	3.82-3,83	153	3.05-3,06	122
4.57-4,59	183	3.79-3,81	152	3.02-3,04	121
4.54-4,56	182	3.77-3,78	151	3-3,01	120
4.52-4,53	181	3.74-3,76	150	**Under 3**	**Insufficient**
4.5-4,51	180	3.72-3,73	149		
4.47-4,49	179	3.7-3,71	148		
4.45-4,46	178	3.67-3,69	147		
4.42-4,44	177	3.65-3,66	146		
4.4-4,41	176	3.62-3,64	145		
4.37-4,39	175	3.6-3,61	144		
4.35-4,36	174	3.57-3,59	143		
4.32-4,34	173	3.55-3,56	142		
4.3-4,31	172	3.52-3,54	141		
4,27-4,29	171	3.5-3,51	140		
4.24-4,26	170	3.47-3,49	139		

Discipline assessment technology (Table from the "Instructions for assessing the educational activities of students").

The test (according to the "Instructions for assessing the educational activities of students…") is conducted by the teacher of the academic group in the last lesson of the discipline and involves taking into account the CEA (table) and checking the mastering of all topics in the discipline. The score is determined in points from 120 to 200 and marked "passed", "not passed".

Elimination of academic debt is carried out by self-study of theoretical material, followed by oral interviews, testing and discussion of the topic of missed classes with the teacher. In the case of a sufficient level of knowledge on the subject, academic debt is considered eliminated. Free practice is carried out within 30 days from the moment of missed class (without permission from the dean's office), if the term from the moment of missed class exceeds 30 days of practice is carried out only in case of permission to liquidate academic debt from the dean's office, taking into account discipline classes of which are carried out on a paid basis.

3.2. Test questions:

1. Clinical environmental medicine as the subject and object of its teaching. Significance for healthcare practice.
2. Ecological medicine as a science, its differentiation, purpose, tasks, methods, connection with other sciences.
3. History of the development of clinical environmental medicine.
4. The body and the environment, their relationship. Environmental factors, patterns of their impact on the human body.
5. Clinical epidemiology - as a medical science in the practice of public health.
6. Clinical epidemiology is a methodology for obtaining in epidemiological studies scientifically sound evidence of the patterns of clinical manifestations of the disease,

methods of diagnosis, treatment and prevention, to make the optimal clinical decision for a particular patient.

7. Etiology, pathogenesis, clinic, diagnosis, treatment and medical prevention of diseases associated with the influence of dangerous, harmful environmental factors.
8. Optimization of the process of diagnosis, treatment and prevention of environmental diseases in the population and the individual.
9. Environmental factors. Pathogenetic mechanisms of influence of physical, chemical, biological factors of environment on a human body, population.
10. Medico-hygienic significance of the impact of dangerous and harmful factors of air, soil and water of reservoirs on the health of the population.
11. Mechanisms of influence of physical factors: ultraviolet radiation, geomagnetic factors, atmospheric pressure; biological factors of fungi, bacteria, insects, animals and chemical factors on public health.
12. Medical significance of major environmental pollutants.
13. The main mechanisms of action of xenobiotics, toxicokinetics and the main mechanisms of detoxification, biotransformation of toxic compounds in the human body.
14. Heredity and the environment.
15. DNA damage and mutations due to environmental factors. Types of mutations.
16. Influence of life expectancy on the frequency of mutations. Dependence of the risk of pathology due to the influence of environmental factors on genetic predisposition.
17. Genotoxic agents in the environment. Human genetic passport.
18. Reproductive health: environmental factors that affect the state of the reproductive system.
19. Features of the influence of environmental factors on the body of women. The main ways of incorporation of xenobiotics into the body of children.
20. Physical, biological and social environment as a component in the formation of sustainable development of the child under the conditions of external environmental influences of environmental factors. Women's health and the environment.
21. Reproductive pathology is determined by the action of harmful environmental factors.
22. Special issues of clinical environmental medicine.
23. Medico-ecological characteristics of atmospheric air.
24. Morbidity and mortality of the population depending on the ecological state of the atmosphere.
25. Compounds that violate the ozone layer of the earth, sources of air pollution (oxides of carbon, nitrogen, sulfur, waste incineration products).
26. Respiratory diseases determined by the harmful effects of environmental factors pathogenesis, diagnosis, treatment and prevention.
27. The basic concept of pulmotoxicity, hemotoxicity.
28. Medico-ecological characteristics of water, water bodies and soil.
29. Factors and sources of ecological disadvantage of water and water bodies. The main ways of water impact on the human body.
30. Mechanism of neuro- and nephrotoxicity.
31. Inorganic and organic contaminants. Volatile organic compounds.
32. Ways to reduce the content of xenobiotics in drinking water supply.
33. The main sources of soil pollution.
34. Diseases determined by the use of water from reservoirs and water supply systems under the influence of dangerous environmental factors.
35. Medico-ecological problem of nutrition.
36. Harmful substances of natural origin.
37. Toxic compounds formed in food and the human body.
38. Xenobiotics that enter the human body as a result of receiving, processing or storing food.
39. Toxins formed in food. Mycotoxins.

40. Toxic compounds entering food from the environment (heavy metals, pesticides, polychlorinated biphenyls, polycyclic hydrocarbons).
41. The role of nitrates and nitrites in human pathology.
42. Diseases determined by contaminated food, their pathogenesis, clinic, treatment and prevention methods.
43. Medico-ecological characteristics of the indoor environment.
44. Chemical composition of residential air, ways of entering the human body of major air pollutants (tobacco smoke, natural gas and its combustion products, formaldehyde, pentachlorophenol, asbestos, heavy metals).
45. Non-ionizing radiation. Electromagnetic fields.
46. Biological action of EM irradiation, medical aspects of EMO action, main sources. Regulatory framework for hygienic regulation of EMO.
47. Diseases determined by the harmful effects of EMO.
48. Measures to prevent the harmful effects of EMO.
49. Environmental monitoring: tasks, levels and components of environmental monitoring.
50. Biological and medical significance of recreational resources.
51. Regulatory framework for environmental protection. National environmental monitoring system.
52. Liability for violation of environmental law.
53. International activities of WHO and EU organizations in the field of environmental clinical medicine.
54. Biomonitoring as an integral part of environmental monitoring.
55. Human biological monitoring as a tool of evidence-based intoxication medicine to increase the reliability of public health. Regulatory framework for population biomonitoring research.
56. Minamata Convention, Parma Declaration in the aspect of monitoring the content of heavy metals in biological environments in humans.
57. Biological markers as elements of the system for assessing the risk of exposure of the environment to toxic human compounds.
58. WHO recommendations on the algorithm for conducting biomonitoring studies in the population.
59. Ecologically dependent changes in the state of health in Ukraine.
60. Basics of assessing the quality of the environment and the risk of its pollution to public health.
61. Risk assessment methodology for non-carcinogenic compounds of general toxic action.
62. Exposure risk assessment for compounds with carcinogenic effects.
63. Determination of individual and population risk of environmental factors.

3.3. Control questions:

1. Clinical environmental medicine as the subject and object of its teaching. Significance for healthcare practice.
2. Ecological medicine as a science, its differentiation, purpose, tasks, methods, connection with other sciences.
3. History of the development of clinical environmental medicine.
4. The body and the environment, their relationship. Environmental factors, patterns of their impact on the human body.
5. Clinical epidemiology - as a medical science in the practice of public health.
6. Clinical epidemiology is a methodology for obtaining in epidemiological studies scientifically sound evidence of the patterns of clinical manifestations of the disease,

methods of diagnosis, treatment and prevention, to make the optimal clinical decision for a particular patient.

7. Etiology, pathogenesis, clinic, diagnosis, treatment and medical prevention of diseases associated with the influence of dangerous, harmful environmental factors.
8. Optimization of the process of diagnosis, treatment and prevention of environmental diseases in the population and the individual.
9. Environmental factors. Pathogenetic mechanisms of influence of physical, chemical, biological factors of environment on a human body, population.
10. Medico-hygienic significance of the impact of dangerous and harmful factors of air, soil and water of reservoirs on the health of the population.
11. Mechanisms of influence of physical factors: ultraviolet radiation, geomagnetic factors, atmospheric pressure; biological factors of fungi, bacteria, insects, animals and chemical factors on public health.
12. Medical significance of major environmental pollutants.
13. The main mechanisms of action of xenobiotics, toxicokinetics and the main mechanisms of detoxification, biotransformation of toxic compounds in the human body.
14. Heredity and the environment.
15. DNA damage and mutations due to environmental factors. Types of mutations.
16. Influence of life expectancy on the frequency of mutations. Dependence of the risk of pathology due to the influence of environmental factors on genetic predisposition.
17. Genotoxic agents in the environment. Human genetic passport.
18. Reproductive health: environmental factors that affect the state of the reproductive system.
19. Features of the influence of environmental factors on the body of women. The main ways of incorporation of xenobiotics into the body of children.
20. Physical, biological and social environment as a component in the formation of sustainable development of the child under the conditions of external environmental influences of environmental factors. Women's health and the environment.
21. Reproductive pathology is determined by the action of harmful environmental factors.
22. Special issues of clinical environmental medicine.
23. Medico-ecological characteristics of atmospheric air.
24. Morbidity and mortality of the population depending on the ecological state of the atmosphere.
25. Compounds that violate the ozone layer of the earth, sources of air pollution (oxides of carbon, nitrogen, sulfur, waste incineration products).
26. Respiratory diseases determined by the harmful effects of environmental factors pathogenesis, diagnosis, treatment and prevention.
27. The basic concept of pulmotoxicity, hemotoxicity.
28. Medico-ecological characteristics of water, water bodies and soil.
29. Factors and sources of ecological disadvantage of water and water bodies. The main ways of water impact on the human body.
30. Mechanism of neuro- and nephrotoxicity.
31. Inorganic and organic contaminants. Volatile organic compounds.
32. Ways to reduce the content of xenobiotics in drinking water supply.
33. The main sources of soil pollution.
34. Diseases determined by the use of water from reservoirs and water supply systems under the influence of dangerous environmental factors.

35. Medico-ecological problem of nutrition.
36. Harmful substances of natural origin.
37. Toxic compounds formed in food and the human body.
38. Xenobiotics that enter the human body as a result of receiving, processing or storing food.
39. Toxins formed in food. Mycotoxins.
40. Toxic compounds entering food from the environment (heavy metals, pesticides, polychlorinated biphenyls, polycyclic hydrocarbons).
41. The role of nitrates and nitrites in human pathology.
42. Diseases determined by contaminated food, their pathogenesis, clinic, treatment and prevention methods.
43. Medico-ecological characteristics of the indoor environment.
44. Chemical composition of residential air, ways of entering the human body of major air pollutants (tobacco smoke, natural gas and its combustion products, formaldehyde, pentachlorophenol, asbestos, heavy metals).
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57. Biological markers as elements of the system for assessing the risk of exposure of the environment to toxic human compounds.
58. WHO recommendations on the algorithm for conducting biomonitoring studies in the population.
59. Ecologically dependent changes in the state of health in Ukraine.
60. Basics of assessing the quality of the environment and the risk of its pollution to public health.
61. Risk assessment methodology for non-carcinogenic compounds of general toxic action.
62. Exposure risk assessment for compounds with carcinogenic effects.
63. Determination of individual and population risk of environmental factors.

3.4. Individual tasks are not provided by the curriculum

3.5. Other incentives are not provided in the curriculum

3.6. Rules for appealing the assessment

Rules for appealing the assessment. The grade in the discipline can be appealed on the basis of the requirements of the "Regulations on the organization of the educational process in KhNMU" № 370 from 27.08.2019, supplemented in accordance with the order № 114 from 20.05.2020.

4. DISCIPLINE POLICY

Students can discuss different tasks, but their performance is strictly individual. Writing, use of various software tools, tips are not allowed. Students are not allowed to attend practical classes and attend without a medical form.

Students' participation in research and conferences on this topic is encouraged.

All students of KhNMU are protected by the Regulations on Prevention, Prevention and Settlement of Cases Related to Sexual Harassment and Discrimination at Kharkiv National Medical University, designed to define an effective mechanism for resolving conflict situations related to discrimination and sexual harassment. This Regulation is developed on the basis of the following normative legal acts of Ukraine: the Constitution of Ukraine; Law of Ukraine "On Education"; Law of Ukraine "On Higher Education"; Law of Ukraine "On Principles of Preventing and Combating Discrimination in Ukraine"; Law of Ukraine "On Ensuring Equal Rights and Opportunities for Women and Men"; Convention for the Protection of Human Rights and Fundamental Freedoms; Convention for the Suppression of Discrimination in Education; Convention on the Elimination of All Forms of Discrimination against Women; General Recommendation № 25 to paragraph 1 of Article 4 of the Convention on the Elimination of All Forms of Discrimination against Women; Cultural Rights; UN Committee on Economic, Social and Cultural Rights); Recommendations on Education in the Spirit of International Understanding, Cooperation and Peace and Education in the Spirit of Respect for Human Rights and Fundamental Freedoms (UNESCO); The concept of the State Social Program to ensure equal rights and opportunities for women and men for the period up to 2021. Kharkiv National Medical University provides education and work that is free from discrimination, sexual harassment, intimidation or exploitation. The University recognizes the importance of confidentiality. All persons responsible for the implementation of this policy (staff of deans' offices, faculties, institutes and the Center for Gender Education, members of the student government and ethics committee, vice-rector for research and teaching) are confidential about those who report or accuse of discrimination. or sexual harassment (except where the law requires disclosure and / or when disclosure by the University is necessary to protect the safety of others).

KhNMU creates a space of equal opportunities, free from discrimination of any national, racial or ethnic origin, sex, age, disability, religion, sexual orientation, gender, or marital status. All rights, privileges, programs and activities granted to students or staff of the University apply to all without exception, provided they are properly qualified. The anti-discrimination policy and the policy of counteracting sexual harassment of KhNMU are confirmed by the Code of Corporate Ethics and the Charter of KhNMU.

Students are expected to attend all lectures and workshops. If they missed classes, it is necessary to work it out (according to the schedule on the page of the department of the site of KhNMU).

Written and homework must be completed in a timely manner, and if students have questions, they can contact the teacher in person or by e-mail, which the teacher will provide in the first practical session.

Behavior in the audience:

During the lecture, students are recommended to keep a synopsis of the lesson and keep a sufficient level of silence. Asking questions to the lecturer is perfectly normal.

Practical training

Active participation during the discussion in the audience, students should be ready to understand the material in detail, ask questions, express their point of view, discuss.

During the discussion it is important:

- respect for colleagues,

- tolerance for others and their experience,
- susceptibility and impartiality,
- the ability to disagree with the opinion, but to respect the identity of the opponent (s),
- careful argumentation of his opinion and the courage to change his position under the influence of evidence,
- self-expression, when a person avoids unnecessary generalizations, describes his feelings and formulates his wishes based on their own thoughts and emotions,
- Mandatory acquaintance with primary sources.

A creative approach in its various manifestations is welcome. Students are expected to be interested in participating in city, national and international conferences, competitions and other events in the subject profile.

It is important for students to follow the rules of good behavior at the university. These rules are common to all, they also apply to all faculty and staff, and are not fundamentally different from the generally accepted norms.

During classes it is allowed:

- leave the audience for a short time if necessary and with the permission of the teacher;
- to drink water;
- take photos of presentation slides;
- take an active part in the class.

Forbidden:

- eat (except for persons whose special medical condition requires another - in this case, medical confirmation is required);
- smoking, drinking alcohol and even low-alcohol beverages or drugs;
- use obscene language or use words that offend the honor and dignity of colleagues and faculty;
- gambling;
- damage the material and technical base of the university (damage inventory, equipment; furniture, walls, floors, litter the premises and territories);
- shouting, shouting or listening to loud music in classrooms and even in corridors during classes.

Use of electronic gadgets. Use electronic gadgets for games, correspondence on social networks (except for breaks), loud conversations, etc. You are not allowed to use a mobile phone, tablet or other electronic gadgets during classes for purposes other than the educational process.

The first lesson of the course will explain the basic principles of labor protection by conducting appropriate training. It is expected that everyone should know where the evacuation exit is closest to the audience, where the fire extinguisher is, how to use it, and so on.

5. ACADEMIC INTEGRITY

The Department of Hygiene and Ecology № 2 maintains zero tolerance for plagiarism. Students are expected to constantly raise their awareness of academic writing. The first classes will provide information on what to consider plagiarism and how to properly conduct research and scientific research.

6. RECOMMENDED LITERATURE

Basic

1. Ladou, Joseph, and RobertHarrison (2014). Current OccupationalandEnvironmentalMedicine (5th ed.). McGraw-Hill Professional. ISBN 0-07-144313-4 .
2. Tuomisto, Yuko (2010). Arsenic inzoonoses. One hundredquestionsabouttheenvironmentandhealth. http://en.opasnet.org/w/Arsenic_to_zoonoses
3. Котко Д. М. Екологічна медицина як перспективний напрямок розвитку сучасної спортивної медицини / Д. М. Котко, О. О. Шматова, О. І. Циганенко, Н. Л. Гончарук // Науковий часопис Національного педагогічного університету імені М. П. Драгоманова.

Серія 15 : Науково-педагогічні проблеми фізичної культури (фізична культура і спорт). - 2016. - Вип. 6. - С. 68-73.
4. Даниленко Г.М., Подрігало Л.В., Волкова І.В., Кратенко І.С. Гігієнічна скринінг-оцінка впровадження здоров'яформуючих інновацій у загальноосвітніх навчальних закладах. Навчально-методичний посібник. - Харків, 2006. – 76 с.
5. Гігієна дітей і підлітків /За ред. В.І.Берзиня. – Київ: Видавничий дім «Асканія», 2008.

Additional

1 Даценко І.І., Денисюк О.Б., Долошицький С.Л. та ін.. Загальна гігієна. Посібник для практичних занять / за ред.. І.І. Даценко – 2-ге вид. – Львів: Світ, 2001. - С. 40-48.
2 Пивоваров Ю.П., Гоева О.Э., Величко А.А. Руководство к практическимзанятиям по гигиене. – М., Медицина, 1983. – С. 199-210.
3 Даценко І. І., Габович Р. Д. Профілактична медицина. Загальна гігієна з основами екології. - К.: Здоров'я, 1999. - С.313-353.
4 Гігієна харчування з основами нутриціології./ В. І. Циприян та ін.. Навчальний посібник – К.: Зоров'я, 1999. – С. 164-188; 522-534.

7. INFORMATION RESOURCES

Link to this page of the discipline in MOODLE - http://31.128.79.157:8083/course/view.php?id=248

1. Ministry of Ecology and Natural Resources of Ukraine http://www.menr.gov.ua/
2. National Security and Defense Council of Ukraine http://www.rnbo.gov.ua/
3. Permanent Mission of Ukraine to the United Nations http://ukraineun.org/
4. World Health Organization http://www.who.int/en/
5. Centersfordiseasescontrolandpreventionwww.cdc.gov
6. Public Health Center of the Ministry of Health of Ukraine https://phc.org.ua/

8. OTHER

In order to simplify the procedure of liquidation of academic debt of students at the Department of Hygiene and Ecology № 2 created virtual googleclassroom with a permanent link:

• Permanent link to GoogleMeet: https://meet.google.com/lookup/abzei5dw7v

• to receive tests from English-speaking foreign students, a permanent link to GoogleMeet: https://meet.google.com/lookup/fahq7gvvch