FACULTY OF MEDICINE

CURRICULUM 0912.1 MEDICINE

DEPARTMENT OF PREVENTIVE MEDICINE

HYGIENE DISCIPLINE

APPROVED
at the meeting of the Commission for Quality Assurance and Evaluation of the Curriculum in Medicine Minutes no . 5 of 04.04.24
Chairman, PhD, associate professor
Pădure Andrei _____

APPROVED
at the Council meeting of the Faculty of Medicine II
Minutes no . 8 of 23.04.24
Dean of the Faculty PhD, associate professor
Beţiu Mircea _____

APPROVED
at the meeting of the Hygiene Discipline
Minutes no. 8 from 29.02.2024
Head of Hygiene Discipline, PhD, univ. prof.
Bahnarel Ion _____

SYLLABUS

HEALTH AND CLIMATE CHANGE

Integrated studies

Tipe of course: **Optional discipline**

Curriculum developed by:

Croitoru, Cătălina, PhD med., associate professor

Chisinau, 2024

I. INTRODUCTION

- **General presentation of the discipline: place and role of the discipline in the formation of the specific competences of the professional/specialty training program**

The year 2020 was a special year for the entire globe not only because of the COVID-19 pandemic but also because it is the new hottest year on record.

A recent United Nations report showed that while we are dangerously behind schedule in slowing climate change, recent pledges to cut greenhouse gas emissions could help avert the worst consequences.

Enriching knowledge in the field of climate change occupies an important place in the training of young specialists, who will start their work in a changing climate, thus being called climate generation. As climate changes have a particular impact on the healthy population and a strong effect on the sick, knowledge is needed that will influence the prophylaxis of the consequences. The purpose of the discipline is to provide students with general knowledge about the newly emerging phenomenon and its consequences on health, necessary to influence the adaptation process, and the prevention of the consequences of climate change.

- **Mission of the curriculum (aim) in professional training**

In professional training, a primary place is occupied by the creation of thinking and the formation of the prophylactic concept in solving the health problems of individuals and communities. The study program in the field of climate change will contribute to the acquisition of study methods of factors and conditions that can influence the state of human health, ways of maintaining health, preventing diseases, prolonging life, solving problems in all fields. of practical activity with the application of normative documents.

- **Language (s) of the discipline:** Romanian; French English.
- **Beneficiaries:** students of the 5th year, faculty of Medicine.

II. MANAGEMENT OF THE DISCIPLINE

Code of discipline		**U.09.A.082.1**	
Name of the discipline		**Health and climate change**	
Person(s) in charge of the discipline		**assoc. prof. Cătălina Croitoru**	
Year	**V**	Semester/Semesters	**9**
Total number of hours, including:			**30**
Lectures	**10**	Practical/laboratory hours	**5**
Seminars	**5**	Self-training	**10**
Form of assessment	**Exam**	Number of credits	**1**

III. TRAINING AIMS WITHIN THE DISCIPLINE

At the end of the discipline study the student will be able to:

- ***at the level of knowledge and understanding:***
  - to know the theoretical bases of climate change education;
  - to have knowledge about the consequences of climate change;
  - to know the importance of measures to reduce the consequences;
  - to know the importance of climate change adaptation measures;
  - have the knowledge to distinguish between the greenhouse effect and climate change.
- ***at the application level:***
  - to be able to analyse the impact of increasing global temperature and increasing the concentration of greenhouse gases in the atmosphere;
  - be able to explain more impacts of climate change where they live;
  - participate in a scientific project, awareness campaigns;
  - be able to explain the difference between adaptation and mitigation and give many examples of each;
  - to develop collaboration and interpersonal skills.
- ***at the integration level::***
  - be able to build an argument in favour of selecting climate change adaptation measures;
  - to compare and critically explain through several arguments the body's response to the action of environmental factors influenced by climate change, global warming, the effects of extreme temperatures;
  - to develop critical thinking skills for selecting adaptation measures to the effects of climate change phenomena;
  - analyse and interpret the facts presented in different case studies;
  - be able to make decisions about the positive and negative aspects of climate change impacts;
  - to make correct decisions in reducing the impact of environmental factors on the body.

IV. PROVISIONAL TERMS AND CONDITIONS

To acquire the discipline, the following are required:

- thorough knowledge in the field of biology and geography obtained in pre-university studies;
- knowledge in the field of physiology, microbiology, physiopathology, therapy, surgery, endocrinology, infectious diseases, etc. obtained in university studies;
- computer skills and abilities (processing documents (Word, Excel, Power Point), using the Internet);
- teamwork skills;
- communication skills, respect for colleagues, sense of responsibility.

V. THEMES AND ESTIMATE ALLOCATION OF HOURS

Lectures, practical hours/ laboratory hours/seminars and self-training

No. d/o	THEME	Number of hours		
		Lectures	Practical hours	Self-training
1.	Climate-medical literacy	1		2
2.	Climate change: a new issue for students	1		

No. d/o	THEME	Number of hours		
		Lectures	Practical hours	Self-training
3.	General about climate change, global warming	1	2	1
4.	The negative and positive aspects of climate change on health		2	
5.	The impact of climate change on population health	2		1
6.	Extreme temperatures - danger to the health of the population	1		
7.	Chronic diseases - consequences of climate change	1	2	1
8.	Infectious diseases – consequences of climate change	1	2	1
9.	The consequences of the heat wave on the human body	1		
10.	Communication in the mass media with the aim of increasing awareness of the phenomenon of climate change.			3
11.	Notions of mitigation and adaptation to climate change from a health system perspective	1	2	
		10	**10**	**10**
Total		**30**		

VI. PRACTICAL TOOLS PURCHASED AT THE END OF THE COURSE

Mandatory essential practical tools are:

- to develop an agenda for communication between the doctor and the patient about behavior during the heat wave;
- to graphically represent some consequences of climate change in the hometown with implications on the health of the population;
- to organize and participate in a campaign to raise awareness of the phenomenon of climate change in the work of doctors of various specialties;
- to develop an action plan to prevent adverse health consequences for a specific event (eg: heat wave, cold wave, flood, storm, drought), etc.;
- to develop a material to promote knowledge about the phenomenon of climate change – positive and negative effects - prevention and adaptation measures. (A compulsory compartment for specialized disciplines, for fundamental disciplines - as the case may be).

VII. OBJECTIVES AND CONTENT UNITS

Objective	Content units
Chapter 1. Generalities, notions, approaches to climate change, global warming, heat wave.	
• to define climate change, global warming, heat-wave, heat wave, greenhouse effect; • to know the effects of climate change;	1. Today's education and tomorrow's climate change. 2. Key concepts and dimensions of climate change education. 3. Timeliness of the problem at the local and global level. 4. The need to know the changes caused by climate change/global warming. 5. Forecasts of the impact of climate change/global warming. 6. Dynamics of morbidity and mortality. 7. Causes of climate change/global warming.

Objective	Content units
• apply the knowledge to identify the dangers of climate change for health; • integrate knowledge about the negative and positive aspects of climate change.	8. Definitions within the notions of climate change/global warming. 9. The greenhouse effect. 10. Consequences of droughts and floods, conditioned by changes in precipitation patterns combined with increased evaporation. 11. Vulnerability to the manifestations of climate change/global warming. 12. Global news. 13. Realities at the national level.
Chapter 2. The health impact of climate change, global warming, heat waves and cold.	
• to define health, heat stress, communicable and non-communicable diseases; • to know the consequences of climate change; • apply knowledge to understand the effects conditioned by climate change; • to integrate knowledge for acquiring possible infectious and non-infectious diseases.	1. General notions about natural disasters. 2. Extreme temperatures. Heat. Cold waves. 3. Torrential, acid rains. Floods. 4. Drought. 5. Air pollution. 6. Photochemical smog. 7. Exposure-response relationships. 8. Thermal stress. 9. Excess ultraviolet radiation. 10. Effects on the skin, eyes, immune system. 11. Behavior and mental health. 12. Pathology influenced by climate changes. 13. Dynamics of morbidity and mortality. 14. Cardiovascular, respiratory, allergic, endocrine, digestive diseases etc. 15. Distribution of infectious diseases. 16. Possible effects on the model of human infections. 17. Outbreaks of insects and diseases. 18. Lyme disease. 19. Tropical diseases and the danger to our country. 20. Bacterial growth rates. 21. Bacteria containing rhodopsin. 22. The effects of heat on the human body. 23. Implications for physicians in response to the consequences of the heat wave.
Chapter 3. Mitigation and adaptation to climate change.	
• to define watering; • to know the measures to reduce the consequences; • to apply adaptation measures in a theoretical aspect; • to integrate knowledge about climate change for the appropriation of policies.	1. Graphical representations with the aim of sharing knowledge of climate change/global warming on health. 2. Capture climate change in a photo. 3. Doctor-patient communication through the lens of climate change. 4. Promoting awareness and action regarding health influenced by climate change. 5. Climate change mitigation and adaptation – overlaps and interrelationships for health. 6. Reducing the risk of disasters – minimizing the consequences on health. 7. Examples of policy documents that include health-related climate change/global warming aspects.

VIII. PROFESSIONAL (SPECIFIC) AND TRANSVERSAL (TC) COMPETENCES AND STUDY FINALITIES

✓ Professional (specific) competences (SC):

PC1. Responsible execution of professional tasks with the application of the values and norms of professional ethics, as well as the provisions of the legislation in force.

PC 2. Carrying out scientific research in the field of health and other branches of science.

PC 3. Promoting and ensuring the prestige of the medical profession and raising the professional level.

✓ Transversal competences (TC):

TC1. Autonomy and responsibility in the activity.

TC2. Personal and professional development.

✓ Study finalities (SF):

SF1. To reproduce the fundamental terms specific to the field studied.

SF2. To know the contemporary issues in the field of climate change associated with health.

SF3. Be able to identify the difference between climate change and global warming.

SF4. To identify risk factors in the health status of the population associated with climate change, global warming.

SF5. To present examples of the effects of climate change visible at the current stage.

SF6. To identify actions that can be taken to adapt the body to the phenomena related to climate change.

SF7. To promote the healthy lifestyle and way of life to prevent the consequences of the phenomena related to climate change.

SF8. To identify the elements and ways to reduce the consequences of climate change/global warming.

IX. STUDENT'S SELF-TRAINING

No.	Expected product	Implementation strategies	Assessment criteria	Implementa-tion terms
1.	Working with textbooks	Reading the textbooks in accordance with the subject of the practical work and selecting the answers to the questions of the topic and the statements of the tests	The ability to understand and extract the essential, quality and flexibility of logical thinking The quality of the systematization of the studied material, the interpretative skills	During the course of the module
2.	The work of research and scientific analysis	Selecting the topic, establishing the research plan, establishing the terms of creating a graphic material with a health education aspect	Workload The degree of penetration into the essence of the theme The level of scientific argumentation The ability to display a large volume in a small scheme Elements of creativity Clarity of exposure The quality of the graphic	During the course of the module

			presentation	
3.	Working with online materials	Studying materials on thematic sites	Results of self-assessments	During the course of the module

X. METHODOLOGICAL SUGGESTIONS FOR TEACHING-LEARNING-ASSESSMENT

- ***Teaching and learning methods used***

Exposition, interactive lecture, heuristic conversation, problem solving, classification, analysis, individual study, work with textbook and scientific text, debate, situational problem solving, interactive listening.

- ***Applied (specific to the discipline) teaching strategies / technologies***

✓ *The observation.* Identifying the characteristic elements of some structures or phenomena, describing these elements or phenomena.

✓ *Classification.* Identifying the structures/processes that must be classified. Determining the criteria on the basis of which the classification must be made. Allocation of structures/processes to groups according to established criteria.

✓ *Analyse.* Imaginary decomposition of the whole into component parts. Highlighting essential elements. The study of each element as a component part of the whole.

✓ *Analysis of the scheme/figure.* Selecting the required information. Recognition based on selected knowledge and information the structures indicated in the diagram, drawing. Analysis of the functions/role of recognized structures.

✓ *The comparison.* Analyzing the first object/process in a group and determining its essential features. Analysis of the second object/process and establishment of its essential features. Comparing objects/processes and highlighting common features. Comparing objects/processes and determining differences. Establishing the distinction criteria. Formulation of conclusions.

✓ *Synthesis.* The scientific method of researching phenomena, based on the transition from the particular to the general, from the simple to the compound, in order to reach generalization; the joining of two or more elements that can form a whole.

✓ *Elaboration of the scheme.* Selection of elements, which must appear in the scheme. Rendering selected elements by different symbols/colors and indicating the relationships between them. Formulation of an appropriate title and legend of symbols used.

✓ *Modeling.* Identifying and selecting the necessary elements for modeling the phenomenon. Imagining (graphically, schematically) the studied phenomenon. Realization of the respective phenomenon using the elaborated model. Formulation of conclusions, deduced from arguments or findings.

✓ *The experiment.* Formulation of a hypothesis, starting from known facts, regarding the process/phenomenon studied. Verification of the hypothesis by carrying out the processes/phenomena studied in laboratory conditions. Formulation of conclusions, deduced from arguments or findings.

- ***Didactic strategies/technologies applied*** *(discipline-specific):*
  "Brainstorming", "Round Table"; "Case Study"; "The group interview"; "Conference".

- ***Methods of assessment*** *(including the method of final mark calculation)*
  Current: frontal and/or individual control through the analysis of case studies, individual work.
  Final: exam (test, at the chair).

The method of rounding grades at the evaluation stages

Intermediate grades grid (yearly average, grades from exam stages)	National Grading System	ECTS equivalent
1,00-3,00	**2**	**F**
3,01-4,99	**4**	**FX**
5,00	**5**	**E**
5,01-5,50	**5,5**	
5,51-6,0	**6**	
6,01-6,50	**6,5**	**D**
6,51-7,00	**7**	
7,01-7,50	**7,5**	**C**
7,51-8,00	**8**	
8,01-8,50	**8,5**	**B**
8,51-8,00	**9**	
9,01-9,50	**9,5**	**A**
9,51-10,0	**10**	

The final grade will consist of the result of the synthesis of the material presented, verbal/written communication/test with the mentioned certified/not certified.
Failure to appear at the colloquium without valid reasons is recorded as "absent" and equates to a grade of 0 (zero). The student has the right to 2 repeated submissions of the failed exam.

XI. RECOMMENDED LITERATURE:

A. Compulsory:

1. Lectures
2. Training manual: Climate & health. Enabling students and young professionals to understand and act upon climate change using a health narrative. 2016. 73 p.

B. Additional:

1. Braithwaite I. Case Studies: UK medical school teaching on sustainability, climate & health. Sustainable healthcare education. Oxford. 2016. 33 p.

2. UNITAR. Resource Guide for advanced learning on Integrating climate change in education at primary and secondary level. 2013. 36 p.
3. Croitoru C. Capitolul 2.3. Încălzirea globala și efectele ei asupra populației. În: Bahnarel I., Ostrofeţ Gh., Ciobanu E., Tafuni O., Croitoru C., Tihon A., Serbulenco A., Cernelev O., Bivol N., Rusu R. Igiena generală. 2022 (manual în tipografie), p.32-36
4. Croitoru C. Aspecte medicale ale schimbărilor climatice: realități și perspective. Chișinău: Tipografia „PRINT-CARO" 2023, 278 p.