Syllabus

Course Title

UN Sustainable Development Goals and Goal 13 in healthcare

General Information

A general description of the required education/training, outlining the main objectives and explaining the need for this education/training at the organizational/national/regional level.

The course provides a systematic, practice-oriented overview of the United Nations Sustainable Development Goals (SDGs), with a focus on Goal 13 "Climate Action" and its integration into healthcare policies and practices. It examines how climate change affects public health (heat stress, air quality, infectious disease risks, mental health, and injuries during extreme events), as well as the planning, communication, and monitoring tools required by healthcare systems.

Special attention is given to megatrends (urbanization, aging, migration, and technologization), future climate scenarios, and implementation practices at the level of healthcare institutions and communities ("green hospitals," energy management, heat action plans, early warning systems, and adaptation of clinical pathways). The format is fully asynchronous and includes microlectures with final quizzes, a glossary, a practical mini-assignment, and a final test.

Course Objectives

To develop participants' understanding of how the SDGs and Goal 13 are integrated into healthcare policies and practices, and to prepare them to design micro-interventions/solutions at the institutional or community level.

Audience

The primary target audience of the course, as well as any secondary audience that may influence decisions regarding the course structure or content.

The expected level of knowledge and skills of the primary audience (current or minimum required), along with other factors (such as cultural characteristics, level of technical proficiency, access to the internet) that should be considered when planning the course, as they may affect the selection of teaching methods, materials, and approaches to interaction with learners.

- Primary audience: PhD students in programs related to climate services, climate adaptation/mitigation, meteorology, environmental sciences, public health, and healthcare management who work at the intersection of “climate and health.”

- Secondary audience: junior lecturers and researchers from departments of meteorology/climatology, epidemiology, and public health; specialists from public health centers and the NHSU/MoH; policy analysts and local government employees in the health sector; coordinators of “green hospitals” and physician-managers; staff of national meteorological and hydrometeorological services; and representatives of NGOs/INGOs working in climate and health.

Entry requirements:

- basic statistical literacy and ability to work with spreadsheets;

- skills in the critical analysis of scientific sources;

- preferably: basic understanding of climate indices and scenarios (RCP/SSP), GIS or R/Python (not mandatory), and knowledge of the organization of the healthcare system in Ukraine;

- English proficiency for reading primary sources.

Prerequisites: basic knowledge of epidemiology/public health, medical statistics, and healthcare systems; basic digital literacy is desirable.

Competencies

Training needs at the individual or organizational/national/regional level, as well as a description of how these needs were identified and recognized as relevant.

The competencies that the training will aim to develop.

C2. Development and improvement of mitigation/adaptation strategies for sustainable development.

C5. Climate communication and stakeholder engagement.

Learning Outcomes and Performance Criteria

Learning outcomes and performance criteria formulated based on the knowledge and skills to be acquired during the course.

Learning Outcomes

• Explain interactions within the Earth system and the role of anthropogenic impacts from the perspective of health consequences.

• Critically analyze the evolution of the sustainable development concept and the political/socio-economic factors influencing its implementation in the healthcare sector.

• Identify global megatrends (urbanization, aging, migration, technologization, etc.) and their impact on health risks and system resilience.

• Assess the role of the SDGs (particularly Goal 13) in the transition toward sustainable healthcare systems at national/regional levels.

• Interpret future climate scenarios for planning health-related measures (heatwaves, floods, air quality), taking uncertainty into account.

• Propose innovative strategies/micro-interventions for healthcare institutions and communities (e.g., “green hospitals,” heat action plans) based on the principles of sustainability and risk communication.

Performance criteria:

• Knowledge: the participant understands the key principles of the Sustainable Development Goals and their significance for healthcare.

• Analytical skills: able to explain and analyze the relationship between climate change and public health.

• Practical competence: capable of applying acquired knowledge in their own research or professional practice in healthcare.

• Independence: able to critically evaluate sources and draw conclusions independently.

• Communication: able to present the results of problem analysis in written form (essay, case study).

Course Content

Provide a content plan that corresponds to the course aims and learning outcomes. This may be the course outline as presented to students, but not necessarily a full curriculum.

Include a general list of all topics considered necessary for coverage. If you think it helps clarify the situation, indicate what will NOT be covered.

Distribution of activities (fully asynchronous):

- Video lectures (3 × 15–20 min) — 2 academic hours
- Module tests (3 × 10 questions with explanations) — 1 academic hour
- Independent study (reading, glossary, review of additional materials) — 5 academic hours
- Practical assignments — 6 academic hours
- Final test — 1 academic hour

Module 1. Sustainable Development Goals and Goal 13: Climate and Health

- Key topics: architecture of the Sustainable Development Goals; Goal 13; the climate–ecosystems–health nexus; heatwaves, air quality, vulnerable groups; risk communication in healthcare.
- Video: 15–20 min.
- Practical assignment: Concept map
- Self-test M1: 10 questions (mandatory completion, with explanations).

Module 2. Megatrends and Scenarios: Planning in Healthcare

- Key topics: megatrends (urbanization, aging, migration, technology) and their impact on risks; future climate scenarios and uncertainty; health indicators and system preparedness.
- Video: 15–20 min.
- Practical assignment: Scenario planning
- Self-test M2: 10 questions (mandatory completion, with explanations).

Module 3. Implementation: Strategies and Micro-Interventions in Healthcare

- Key topics: “green” practices for healthcare institutions; heat action plans; energy management; stakeholders and communication channels; monitoring indicators.
- Video: 15–20 min.

Practical assignment: Case analysis

- Self-test M3: 10 questions (mandatory completion, with explanations).
- Final Assessment
- Practical assignment: Mini-project
- Final test: 20 questions (mandatory completion).

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List the teaching solutions (teaching methods) that will be used and explain why you have chosen them. For example: classroom-based learning, online learning, blended learning, workplace-based learning, online self-study resources, coaching or mentoring, etc.

Learning Format

For students pursuing higher education at the scientific and educational level, a blended learning format is предусмотрено, combining traditional and digital teaching methods. This approach supports flexible learning and the development of practical skills.

1. Practical Classes

- Conducted in classrooms under the supervision of an instructor.
- Provide students with individual consultations, examples of problem-solving, and practical recommendations.
- Ensure direct interaction between students and the instructor, contributing to effective learning outcomes.

2. Lectures (Online Format)

- Provide students with flexible access to learning materials regardless of time and location.
- Support the development of independent information search and analytical skills
- Ensure inclusiveness of the educational process, enabling students with special educational needs to access the required knowledge without limitations.

3. Independent Learning

- Implemented through the study of lecture materials, completion of assignments, and independent search for additional resources.
- Includes preparation of presentations, analytical reflection on acquired information, and its application in real-life case studies.
- Develops critical thinking and the ability to work with large volumes of data.

Through a personalized approach, students are able to adapt the learning process to their individual needs and level of preparation. The instructor acts as a mentor, helping students effectively apply acquired knowledge to practical tasks and research activities.

Learning Strategies

Consider which learning strategies you will use. Provide justification for why you intend to apply them, including reasons why they will help participants achieve the planned learning outcomes.

Combine different learning strategies to create a diverse learning environment that accommodates different learning styles of participants. This will increase learning effectiveness and help achieve the planned learning outcomes. This section does not require a detailed description of specific activities.

1. Flipped asynchronous format (microlearning): short microlectures with reading guides (guiding questions, key terms) → independent study of materials → module self-test with immediate feedback.

2. Case-based learning: clinical-systemic "climate–health" cases (heatwaves, PM2.5 and asthma exacerbations, floods/infectious disease risks, mental health after extreme events). Structure: dilemma → data analysis → decision → reflection.

3. Problem-based learning (PBL): from an open-ended question to a prototype solution (e.g., "How can a heat action plan be implemented in an outpatient clinic?"). Roles: data analyst, communications specialist, coordinator.

4. Inquiry-based / data-informed learning: formulation of learners' own questions, search and interpretation of open data (climate indices, health indicators), source criticism, and work with uncertainty.

5. Scenario planning: working with future climate scenarios (SSP/RCP), identifying action thresholds and triggers for healthcare systems; tools: "decision tree," pre-mortem analysis.

6. Formative assessment as learning: self-tests M1–M3 with multiple attempts, explanations, and links to materials; "exam wrapper" (short reflection after the test: what worked well / what should be reviewed).

7. Reflection and metacognition: 1-minute notes after microlectures ("What was new/unclear?"), self-assessment before/after each module (LO checklist).

8. Scaffolding through templates: checklists, stakeholder mapping forms, a sample "heat plan" policy, SMART indicator templates, and a one-page brief framework.

9. UDL and accessibility: multimodal content delivery (video + transcript + slides), subtitles, alt text for images, clear LMS navigation, and time-boxed assignments.

10. Communication and peer feedback (asynchronous): forum discussions, peer review of mini-project drafts using a rubric (optional), moderator prompts.

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11. Ethics and academic integrity: distinguishing facts from opinions, proper citation, transparency of assumptions, and explicit acknowledgment of uncertainties.

Learning activities

Describe the main learning activities that will be included, such as lectures, readings, cases, discussions, exercises, practical assignments, simulations, role-playing games, etc.

Also describe the roles of instructors and students during these activities.

All activities are carried out asynchronously in the LMS with clear deadlines and templates.

1. Microlectures and structured notes: viewing 3 microlectures (15–20 min each) with a guide (guiding questions) and maintaining structured notes using a template.
   - Instructor role: records microlectures; provides the guide and note template; publishes a list of recommended sources and a self-checklist.
   - Student role: watches the videos; completes the notes; formulates at least 1 clarifying question/note in the LMS.
2. Concept map "climate → health": building a cause-and-effect map (climate factor → risk → health outcome → indicator/action).
   - Instructor role: provides a glossary, sample format, instructions for building the map, and a list of sources.
   - Student role: builds the map and uploads the file.
3. Case analysis "Heat and healthcare": analysis of a case for a clinic/hospital (vulnerable groups, communication channels, preparedness indicators) with answers to guiding questions.
   - Instructor role: provides the case description, input data (e.g., heat stress index, visit frequency), questions, and a rubric.
   - Student role: analyzes the case; writes responses (250–300 words) with references; proposes 1–2 actions for the facility.
4. Scenario planning (M2): defining thresholds/triggers (e.g., heat stress index, PM2.5) and response measures for a facility/community; building a decision tree.
   - Instructor role: provides a worksheet template, example thresholds, and methodological guidance.

- Student role: completes the template; justifies chosen thresholds; develops a decision tree.

5. Module self-tests: three tests of 10 questions each (multiple choice, matching, ordering) with explanations and repeated attempts.
   - Instructor role: designs the question bank; sets threshold (≥60%) and number of attempts; adds explanations for each answer.
   - Student role: completes tests until the threshold is reached; reviews explanations; revisits materials if needed.
6. Mini-project (practical assignment): choose one option — "Rapid climate resilience audit of a healthcare facility" or "Heat risk communication plan for a community/clinic."
   - Instructor role: provides a 1–2 page brief template, presentation template (3–5 slides), assessment rubric; answers questions in the forum.
   - Student role: selects an option; completes the brief (problem, data, solution, SMART indicators); prepares a presentation; optionally participates in peer review.
7. Final test: comprehensive assessment of learning outcomes. 20 questions in different formats; one attempt; time-limited.
   - Instructor role: designs the test; sets timing and threshold; provides technical support.
   - Student role: completes the test within the allotted time; adheres to academic integrity.
8. Forum reflection and peer review (optional): 1 short reflection post (100–150 words) + 1 constructive comment on a peer's mini-project draft using a rubric.
   - Instructor role: moderates discussions; provides examples of high-quality feedback; ensures ethical standards and academic integrity.
   - Student role: posts reflection; provides one rubric-based comment.

Assessment of Learning

Describe the plan for assessing participants before, during, and/or after the course, including tests, exercises, activities, and projects to be evaluated.

Indicate whether self-assessment or peer assessment will be used. Explain how the assessment is aligned with the learning outcomes.

Current tests after each module – 40%

Mini-project (practical assignment) – 20%

Final test – 40%

Learning Storyboard (Instructional Storyboard)

Use it to create a visual scenario of your blended learning activity.

Learning Resources and Tools

List the available resources that you will use for different types of learning activities and recommend to students.

Describe the technologies that you will use to implement the learning solutions, including educational technologies and operational equipment (technical equipment, software, collaboration tools).

- Lecture texts (6,000–8,000 characters each) in .html / .pdf format.
- Lecture presentations in .pptx / .pdf format (searchable).
- Video lectures of 15–20 minutes (.mp4) with full captions/transcripts.
- Course glossary (minimum 12–15 terms, up to 20 for more advanced topics).
- Practical assignment (description, sources, .xlsx worksheet if needed, assessment criteria).
- Recommended literature:
  1. United Nations Department of Economic and Social Affairs. Goal 13: Climate action [Internet]. New York (NY): United Nations; 2025. https://sdgs.un.org/goals/goal13
  2. United Nations. Goal 13: Take urgent action to combat climate change and its impacts [Internet]. New York (NY): United Nations; 2025. https://www.un.org/sustainabledevelopment/climate-change/
  3. Intergovernmental Panel on Climate Change (IPCC). AR6 Synthesis Report: Climate Change 2023. Full Volume [Internet]. Geneva: IPCC;

2023. https://www.ipcc.ch/report/ar6/syr/downloads/report/IPCC_AR6_SYR_FullVolume.pdf
4. World Meteorological Organization (WMO). State of the Global Climate 2024 [Internet]. Geneva: WMO; 2025 Mar 19. https://wmo.int/sites/default/files/2025-03/WMO-1368-2024_en.pdf
5. United Nations Environment Programme (UNEP). Emissions Gap Report 2024 [Internet]. Nairobi: UNEP; 2024. https://www.unep.org/resources/emissions-gap-report-2024
6. World Health Organization (WHO). Climate change and health (fact sheet) [Internet]. Geneva: WHO; 2023 Oct 12. https://www.who.int/news-room/fact-sheets/detail/climate-change-and-health
7. World Health Organization (WHO). Operational framework for building climate-resilient and low-carbon health systems [Internet]. Geneva: WHO; 2023. https://iris.who.int/bitstream/handle/10665/373837/9789240081888-eng.pdf
8. World Health Organization (WHO). WHO guidance for climate-resilient and environmentally sustainable health care facilities [Internet]. Geneva: WHO; 2020. https://iris.who.int/bitstream/handle/10665/335909/9789240012226-eng.pdf
9. WHO Regional Office for Europe. Heat and health in the WHO European Region: updated evidence for effective prevention [Internet]. Copenhagen: WHO/Europe; 2021. https://iris.who.int/handle/10665/339462
10. WHO Regional Office for Europe. Heat-health action plans: guidance [Internet]. Copenhagen: WHO/Europe; 2008. https://iris.who.int/bitstream/handle/10665/107888/9789289071918-eng.pdf
11. WHO; WMO. Climate Services for Health: Improving public health decision-making in a new climate [Internet]. Geneva: WHO/WMO; 2016. https://community.wmo.int/sites/default/files/WHO-WMO_Climate_Services_for_Health.pdf
12. WHO & WMO. ClimaHealth — Global knowledge on climate and health [Internet]. Geneva: WHO/WMO; 2022–2025. https://climahealth.info/
13. European Environment Agency (EEA). European Climate and Health Observatory [Internet]. Copenhagen: EEA; 2025. https://climate-adapt.eea.europa.eu/en/observatory
14. European Climate and Health Observatory. Heat & health [Internet]. Copenhagen: EEA; 2025 Jul 14. https://climate-adapt.eea.europa.eu/en/observatory/evidence/health-effects/heat-and-health
15. Lancet Countdown. The 2024 Global Report of the Lancet Countdown on health and climate change [Internet]. London: Lancet Countdown; 2024. https://lancetcountdown.org/2024-report/

16. UNFCCC Secretariat. Updated Nationally Determined Contribution of Ukraine to the Paris Agreement [Internet]. Bonn: UNFCCC; 2021 Jul 31. https://unfccc.int/sites/default/files/NDC/2022-06/Ukraine%20NDC_July%2031.pdf
17. Кабінет Міністрів України. Розпорядження № 1363-р від 20.10.2021 «Про схвалення Стратегії екологічної безпеки та адаптації до зміни клімату на період до 2030 року» [Інтернет]. Київ: КМУ; 2021. https://zakon.rada.gov.ua/go/1363-2021-%D1%80
18. Кабінет Міністрів України. Розпорядження № 96-р від 07.02.2025 «Про затвердження операційного плану заходів з реалізації у 2025–2027 роках Стратегії екологічної безпеки та адаптації до зміни клімату на період до 2030 року» [Інтернет]. Київ: КМУ; 2025. https://zakon.rada.gov.ua/go/96-2025-%D1%80
19. World Health Organization (WHO). Environmental Health Country Profile: Ukraine (2023) [Internet]. Geneva: WHO; 2023 Jun 7. https://cdn.who.int/media/docs/default-source/country-profiles/environmental-health/environmental-health-ukr-2023.pdf
20. World Health Organization (WHO). Alliance for Transformative Action on Climate and Health (ATACH) [Internet]. Geneva: WHO; 2025. https://www.who.int/initiatives/alliance-for-transformative-action-on-climate-and-health