Faculty *(jednostka organizacyjna)*
Department of Paediatrics and Allergy, Copernicus Memorial Hospital, Medical University of Lodz, person in charge: prof. dr hab. n. med. Joanna Jerzyńska, e-mail: joanna.jerzynska@umed.lodz.pl
Specialization

Kind *(kierunek)*

Type *(forma studiów (stacjonarne, niesteacjonarne)*
stationary

Term (semestr)
summer

Subjects ID (*kod przedmiotu – generuje się automatycznie)*

Course supervisor (*kierownik przedmiotu)*
Professor Kinga Polańska, PhD, MPH

Subjects name
New Frontiers in Population Health: Environmental Risks and Responses

Unit *(nazwa jednostki prowadzącej zajęcia)*
Department of Pediatrics and Allergy, Copernicus Memorial Hospital, Medical University of Lodz

Course profile *(profil)*
academic

Speciality

Level of course unit *(podstawowy/zaawansowany etc.)*
International Doctoral School

Type of course unit *(obowiazkowy/fakulatywny)*
Optionl

Course aims
This course aims to provide doctoral students with an in-depth understanding of the impact of emerging environmental challenges, such as climate change, exposure to Endocrine-Disrupting Chemicals (EDC) and urbanisation, on population health. The course fosters interdisciplinary thinking and the critical analysis and research skills necessary to assess, mitigate and adapt to these challenges through evidence-based public health strategies and policy interventions.

The objectives of the course are:

- To provide a basic understanding of key environmental hazards, associated health outcomes and vulnerable populations
- To understand the principals of risk assessment, risk management and risk communication

- To provide an example of regulatory measures as well as educational and interventional strategies in the field of environmental hazards

Types of educational activities

Subject	Language course	Self-study	Lecture	Exercises	Laboratory	Seminar	Practical	e-learning	Profession practice	Other (what?)	ECTS points
						20					

ECTS Credits:

Name of course unit's faculty
Department of Pediatrics and Allergy, Copernicus Memorial Hospital, Medical University of Lodz

Prerequisites
A prior understanding of human biology as well as the basic knowledge in epidemiology, toxicology and public health are not required, but would be helpful.

Learning activities and teaching methods

Seminars - multimedia presentations, discussion, group and individual work

Course unit content

1. Introduction to environmental health (8 hours)

- Risk factors, determinants, direct contributing factors, indirect contributing factors, links between risk factors
- Sources and routes of exposure to environmental factors
- Chemical and physical hazards
- Risk assessment (exposure assessment: questionnaires vs. biomarkers of exposure, hazard identification, dose-effect and dose-response assessment, risk characterization), risk management and risk communication
- Differences in assessment of environmental and occupational exposure and its impact on human health- effect of cumulative exposure
- Biomarkers – biomarkers of exposure, biomarkers of effect, biomarkers of susceptibility – methodological issues, advantages and limitations of using biomarkers
- Biological samples vs. environmental samples
- Confounders, moderators and mediators in environmental studies
- Vulnerable populations
- Data collection process - study protocol, information for the study participants, informed consent form to participate in the study, ethical issues
- The exposome concept: a challenge and a potential driver for environmental health research
- Global Burden of Diseases

2. Overview of global environmental health challenges (10 hours)

- Climate change and health - global warming – the scale of the problem; how do we define heat stress and how is it measured? heat: an urgent threat to health, safety and well-being; acclimatization and discomfort; short-term and long-term health impacts; vulnerable populations; impact of heat stress on labor productivity; urban heat islands; prevention and control practices
- Endocrine Disrupting Chemicals (EDCs) and health - definition, examples and sources of EDCs; health effects (reproductive disorders, obesity, diabetes, neurodevelopmental issues); global regulatory landscape; risk assessment and risk communication; mitigation and future directions
  Urbanization and the built environment - urban planning and health, green spaces, transportation, and walkability

3. Prevention strategies (2 hour)

- Translation of the study results to the regulations
- Gaps between science and regulations, policy
- Examples of regulatory solutions as well as educational and interventional strategies
- Adjustment of the regulations to actual knowledge
- Existing database on exposure and health effects and its' translation into policy and public health practice
- Methods of assessment of the effectiveness of policies and interventions designed to address and reduce the environmental threats to population health

Knowledge

Students will gain knowledge of environmental health sciences, including key environmental hazards, associated health outcomes, and vulnerable populations. They will also understand the principles of risk assessment, risk management, and risk communication, and become familiar with the regulatory measures, educational strategies, and intervention approaches used to mitigate these hazards.

Skills

1. Ability to apply knowledge to assess risks associated with exposure to environmental factors in general and vulnerable individuals
2. Ability to communicate risks associated with exposure to environmental factors
3. Ability to plan and perform interventions to reduce exposure to environmental contaminants and related health effects

Competencies

Students will gain competences in taking an environmental history as well as assessing, communicating and minimizing risks associated with exposure to environmental factors.

Required learning resources

N/A

Recommended learning resources

Dean Baker and Mark J Nieuwenhuijsen. Environmental epidemiology Study methods and application. Oxford University Press 2008. ISBN 978-0-19-852792-3

Scientific publications provided during the course.

Assessment methods
Assessment criteria: attendance at seminars
Grade based on a form and a content of presentation - Students (individually or in small groups), using power point, will present the selected topic.

Additional information
Course coordinators:
Professor Kinga Polańska, PhD (e-mail: kinga.polanska@umed.lodz.pl), Professor Joanna Jurewicz, PhD (e-mail: joanna.jurewicz@umed.lodz.pl)

Signature
I hereby state that the content of the curriculum included in the syllabus below is the result of my individual work completed as part of work contract/cooperation resulting from a civil law contract, and that author rights to this title are not the property of a third party.

Course language
English