



Syllabus Master's Degree Course in Medicine and Surgery a.y. 2026 - 2027

CLIMATE CHANGE, SUSTAINABILITY AND GLOBAL HEALTH

Second year, first semester (4 academic credits [CFU])

Teachers

Subject	Academic credits (CFU)	Lecturer
Health and climate changes	2	FERRANTE Margherita
Water, food and sustainable diets	2	GALVANO Fabio

Learning outcomes

Subject	Learning outcomes
Health and climate changes	Knowledge and understanding By the end of the module, students are expected to: • Acquire knowledge on the impact of environmental and climatic factors on human health. • Understand the interactions between environmental, climatic, biological, and social determinants of health, including their influence on disease mechanisms, health inequalities, and the vulnerability of specific population groups. • Understand the principles of sustainable development and the One Health approach in the prevention of climate-related health risks and the promotion of human health. Applying knowledge and understanding By the end of the module, students are expected to: • Be able to identify and assess environmental and climatic determinants and risk factors for health and disease, considering the interaction between individuals, populations, and their physical and social environments. • Apply environmental health knowledge to identify vulnerable population groups and support the development of preventive interventions, including actions targeting lifestyles, environmental exposures, and urban contexts. • Be able to use environmental health data and scientific evidence to support preventive measures and evaluate their effectiveness, including risk communication and collaboration among healthcare professionals, prevention services, and local authorities.

Water, food and sustainable diets	Knowledge and understanding By the end of the module, students are expected to: • Acquire knowledge of the effects of nutrition and malnutrition on human health, including the role of dietary factors in the development of non-communicable diseases and their underlying mechanisms. • Understand the nutritional characteristics of major food groups and the effects of their habitual consumption on health. • Understand the principles of evidence-based dietary recommendations and sustainable diets,
	Applying knowledge and understanding By the end of the module, students are expected to: • Be able to identify dietary determinants and nutritional risk factors associated with health and disease, including factors contributing to the development of chronic diseases. • Apply nutritional knowledge and evidence-based dietary recommendations to identify dietary patterns that promote health and prevent non-communicable diseases. • Be able to recognize the nutritional and sustainability aspects of dietary choices, considering their implications for human health and global health.

Prerequisites

Subject	Prerequisites
Health and climate changes	Attainment of the educational objectives set by prerequisite courses.
Water, food and sustainable diets	

Course contents

Subject	Course contents
Health and climate changes	• General introduction to the “environment and health”. • Sustainable development. • Biodiversity and human health. • Climate changes/heat waves. • Environmental emergencies and relevant risks. • Inequalities and equity in the distribution of risk and effects on health. • Indoor and outdoor pollution. • Environmental anamnesis, a tool for identifying and evaluating population exposure and responding with preventive measures. • Identification of population groups with the highest vulnerability (children, pregnant women, elderly people, socio-economically deprived classes) in relation to climate change exposures. • Evaluation of effectiveness of interventions. • Evidence-based recommendations. • Databases and documentation in the environmental health field and their use. • Communication tools for the population and advocacy. • Relationships between prevention departments, family doctors and pediatricians, local authorities and roles in the National Prevention Planes and the National Development Plans.

Water, food and sustainable diets	The course will focus on: • Nutrition and global health; effects of malnutrition. • Diet as a modifiable risk factor for chronic diseases and mortality. • Major food groups and their nutritional and non-nutritional components: fruits and vegetables, whole grains, legumes, dairy products, eggs, fish and shellfish, and meat. • Dietary patterns, inflammation, and the development of chronic diseases. • Italian dietary guidelines: standard portions and recommended frequency of consumption. • Evidence-based dietary recommendations and institutions providing nutritional guidance. • Sustainable diets and their nutritional, health, and environmental implications.
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Assessment methods

Subject	Assessment methods
Health and climate changes	The final assessment of acquired knowledge is conducted by an oral exam. The grade is expressed on a scale of thirty, up to a maximum of 30/30 cum laude (with honors). The final score is a single grade for the entire Integrated Course. The examination board consists of all teachers of the modules that make up the Integrated Course. Students will not receive individual grades or evaluations for the single modules; instead, they will receive one final grade reflecting their overall performance in the Integrated Course. The oral examination consists of an interview during which questions will cover at least three different topics from the course curriculum. The assessments aim to evaluate: i) the level of knowledge in the disciplines; ii) the ability to apply this knowledge to solve specific problems related to the disciplines (autonomous problem-solving); iii) clarity of expression; iv) proficiency in medical-scientific language. The assessment of learning can also be conducted remotely if the conditions necessitate it. For the assignment of the final grade, the following parameters will be considered: • Score 29-30 with honors: The student demonstrates an in-depth knowledge of the topics, promptly and correctly integrates and critically analyzes presented situations, independently solving even highly complex problems. They possess excellent communication skills and command medical-scientific language proficiently.
Water, food and sustainable diets	• Score 26-28: The student has a good understanding of the topics, is able to integrate and critically and logically analyze presented situations, can fairly independently solve complex problems, and presents topics clearly using appropriate medical-scientific language. • Score 22-25: The student has a fair understanding of the topics, although it may be limited to the main areas. They can integrate and critically analyze presented situations, although not always in a linear fashion, and present topics fairly clearly with moderate language proficiency. • Score 18-21: The student has minimal knowledge of the topics, possesses modest ability to integrate and critically analyze presented situations, and presents topics sufficiently clearly, although their language proficiency may be underdeveloped.

	Exam not passed: The student lacks the minimum required knowledge of the core content of the course. Their ability to use specific language is minimal or nonexistent, and they are unable to independently apply acquired knowledge.
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Examples of common questions and/or exercises

Subject	Examples of common questions and/or exercises
Health and climate changes	- What are the effects of climate change on health? - What is the war economy? - Explain the relationship between migration, environment and non-communicable diseases.
Water, food and sustainable diets	- Whole-grain consumption and risk of chronic diseases - Recommendations for fruit and vegetable intake - Dietary strategies for cardiovascular disease prevention - Characteristics of the sustainable diet

Reference texts

Subject	Textbooks
Health and climate changes	Climate Change and Urban Environment Sustainability. Editors: Bhawana Pathak, Rama Shanker Dubey. Springer 2023. https://doi.org/10.1007/978-981-19-7618-6 Health of People, Health of Planet and Our Responsibility. Editors Wael K. Al-Delaimy, Veerabhadran Ramanathan, Marcelo Sánchez Sorondo. Springer 2020. https://doi.org/10.1007/978-3-030-31125-4 Climate Change and Human Well-Being. Editor Inka Weissbecker. Springer 2011. https://doi.org/10.1007/978-1-4419-9742-5
Water, food and sustainable diets	Slides, scientific publications, and other material will be provided/indicated during the lessons.

Course format

Subject	Course format
Health and climate changes	The teaching will primarily be conducted through in-person lectures with a blend of theory and practical exercises. In the event that teaching is delivered in a blended or remote mode, necessary adjustments may be introduced compared to what has been previously stated, in order to adhere to the planned program as outlined in the Syllabus.
Water, food and sustainable diets	

Attendance

Subject	Attendance
Health and climate changes	Mandatory attendance.
Water, food and sustainable diets	

Course schedule

Subject	Course schedule
Health and climate changes	• Book 1, chapters 2-4. • Book 2, chapters 1-18. • Book 3, chapters 1-6.
Water, food and sustainable diets	For each course content specific slides, scientific publications, and guidelines will be provided/indicated after the lesson.