Climate and One Health for Transmissible Diseases: A Research-Focused Curriculum (2026-1)

Graduate-Level Course

The confluence of climate change and evolving patterns of infectious disease presents one of the most pressing and complex challenges to global public health in the 21st century. The World Health Organization (WHO) and the Pan American Health Organization (PAHO) project that, beginning in 2030, climate change will be responsible for an additional 250,000 deaths annually from climate-sensitive diseases such as malaria, dengue, and heat stress. This is not a distant problem; the effects are already being felt today, with average temperatures rising and more people being impacted by climate-sensitive diseases and other health conditions.[1] Climate change acts as a "threat multiplier," amplifying existing health threats and introducing new public health challenges. It is therefore imperative that the next generation of public health professionals, researchers, and policymakers possess the knowledge and skills to address this multifaceted crisis from a holistic perspective.

This graduate-level course is designed to equip students with a comprehensive understanding of the intricate relationship between climate, ecosystems, and transmissible diseases through the lens of the One Health paradigm.

The curriculum is built on a research-focused framework, emphasizing not only the established links, but also the methodologies required to investigate these connections dynamically. By the end of this course, participants are expected to synthesize knowledge from disparate fields—human, animal, and environmental health—to understand the complex drivers of disease emergence and spread. The training will enable students to master the quantitative and qualitative research methods necessary to investigate these linkages and to translate their findings into actionable public health policies and interventions. The ultimate goal is to cultivate a systems-thinking perspective that is critical for developing effective, multi-sectoral solutions to some of the world's most intractable health problems. The course utilizes a combination of lectures, literature analysis, practical exercises and discussions as analysis and learning strategies.

Course content and agenda: Tuesday 10am-12m (Colombia Time)

No.	Date	Subject	Lecturer
1	February 17th	Principles of One Health	Natalia Cediel, PhD Professor Universidad de la Salle Clara B Ocampo, MSc y PhD Associate Researcher CIDEIM, Founding member of ASASS

2	February 24th	Climate Change as a Determinant of Disease Weather conditions that demonstrate climate change	Camilo Barrios Perez, PhD Specialist in Agroclimatic Modeling Alliance of Bioversity International and CIAT
3	March 3rd	Climate Change as a Determinant of Disease Health indicators and Interventions associated to climate change	Jeadran Malagón MD, PhD Researcher Universidad El Bosque
4	March 10th	Socio-ecological Interconnection: the foundation of one health	Hugo Mantilla, PhD Professor and Researcher Universidad del Quindío
5	March 17th	Transmissible Diseases affected by climate factors: Vector-Borne Diseases Zoonotic Disease	Gabriel Parra MSc, PhD Senior Researcher Universidad Cooperativa de Colombia
6	March 24th	Next-generation veterinary vaccines as a strategy for the prevention of zoonotic diseases	Maria Camila Renjifo, PhD Researcher Agrosavia
Holy Week, March 29th – April 5th			
7	April 7th	Transmissible Diseases affected by climate factors: Food and water-Borne Diseases Fungal Diseases	Eddy Martinez, MD, PhD Emeritus Professor and Senior Researcher and Pamela Duran, MSc, PhD Professor and Researcher Institute for Health and Development Research (IINSAD), School of Medicine, Universidad Mayor de San Andrés (UMSA), La Paz, Bolivia
8	April 14th	Climate effects on cross-species transmission of virus	Colin Carlson, PhD Assistant Professor at Yale University
9	April 21rs	AMR and One Health approach	Natalia Restrepo MD, MPH Researcher Universidad El Bosque
10	April 28th	Insecticide resistance and One Health approach	Clara B Ocampo, MSc y PhD Associate Researcher CIDEIM, Founding member of ASASS
11	May 5th	Research Methodologies and Analytical Tools:Surveillance from One Health perspective Epidemiological Investigations Retrospective Analysis: Prospective Observations	Lyda Elena Osorio MD, PhD Professor and Researcher Universidad del Valle

12	May 12th	Research Methodologies and Analytical Tools: Disease Modeling and Forecasting Mechanistic Models Empirical-Statistical Models	Juan Sebastian Hurtado MD, MSc Clinical Researcher CIDEIM
13	May 19th	Research Methodologies and Analytical Tools: The Role of Remote Sensing and Geospatial Analysis	César Yumiseva, MSc Professor Pontificia Universidad Católica del Ecuador (PUCE)
14	May 26th	In-depth Case Studies for One Health perspective - a Chagas example	Esteban Baus, MSc Professor Pontificia Universidad Católica del Ecuador (PUCE)
15	June 2nd	Translating Research into Policy and Practice • Collaborative Strategies for Prevention and Control • Strengthening Surveillance and Preparedness	Eddy Martinez, MD, PhD Emeritus Professor and Senior Researcher and Pamela Duran, MSc, PhD Professor and Researcher Institute for Health and Development Research (IINSAD), School of Medicine, Universidad Mayor de San Andrés (UMSA), La Paz, Bolivia
16	June 9th	**Conclusions and Future Directions**	Panel

References

1. Cambio climático y salud - OPS/OMS | Organización Panamericana de la Salud, fecha de acceso: agosto 27, 2025, Cambio climático y salud - OPS/OMS
2. Cambio climático, fecha de acceso: agosto 27, 2025, https://www.who.int/es/news-room/fact-sheets/detail/climate-change-and-health
3. The Lancet One Health Commission: harnessing our interconnectedness for equitable, sustainable, and healthy socioecological systems. www.thelancet.com Published online July 16, 2025 https://doi.org/10.1016/S0140-6736(25)00627-0