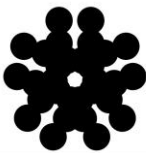


## SYLLABUS **(Tentative, April 8, 2025)**

### One Health -advanced themes in infectious diseases epidemiology

July 20-25, 2025 | Course No.

<b>Course Coordinators:</b>	<b>Prof. Khitam Muhsen and Prof. Eric Sampane-Donkor</b>
<b>Course Lecturers:</b>	<b>Prof. Eric Sampane-Donkor</b> , Department of Medical Microbiology, University of Ghana Medical School, Accra, Ghana <b>Prof. Khitam Muhsen</b> , Department of Epidemiology and Preventive Medicine School of Public Health, Tel Aviv University <b>Prof. Dani Cohen</b> , Department of Epidemiology and Preventive Medicine School of Public Health, Tel Aviv University
<b>Guest Lecturers</b>	<b>Dr. Mark Smolinski and Ms. Nomita Divi</b> , Ending Pandemics Academy, Global Health Institute, University of Arizona <b>Prof. Amos Adler</b> , Tel Aviv Medical Center & Department of Epidemiology and Preventive Medicine, School of Public Health, Tel Aviv University <b>Dr. Yaniv Lustig, Prof. Michal Mandelboim</b> (Central Virology Laboratory, Ministry of Health & Department of Epidemiology and Preventive Medicine, School of Public Health, Tel Aviv University <b>Prof. Uri Obolski</b> , Department of Epidemiology and Preventive Medicine School of Public Health, Tel Aviv University
<b>Date &amp; Time:</b>	July 20-25, 2025   8:30-13.15 (or 8:30-14:00)
<b>Final Exam:</b>	July 25, 2025   9:00-11:00
<b>Location:</b>	Faculty of Medical and Health Sciences, Tel Aviv University
<b>Teaching Assistant:</b>	TBA
<b>Course Documents:</b>	TBA
<b><u>Pre-requisites</u></b>	
Basic knowledge in epidemiology, microbiology and public health	
<b><u>Intended Audience</u></b>	
The course is intended for Israeli and international Master, Ph.D, MD, DVM level students, physicians, veterinarians, nurses, and other health professionals	
<b><u>Academic Credit &amp; Course Requirements</u></b>	
2 Academic Credits (4 ECTS). Participants must pass the final exam with a grade of 60 (D). Noncredit participants will receive a certification of participation and are not required to take the final exam but are expected to actively take part in lectures and exercises.	
<b><u>Grading for Academic Credit</u></b>	
30% exercise and participation in small group discussions, and 70% final exam.	
<b><u>Course Description</u></b>	



The course aims to equip students with cutting-edge, advanced knowledge in the epidemiology of infectious diseases, along with the essential tools for conducting epidemiological studies in real-world settings. Embracing the emerging "One Health" approach, the curriculum will emphasize the interconnectedness of human medicine, animal health, and the environment in shaping the occurrence of infectious diseases.

A key focus will be on examining disparities in infectious disease epidemiology and control strategies between high-income and middle-to-low-income countries.

Special attention will be given to exploring changes in infectious disease patterns, the emergence and resurgence of infectious diseases, and the pivotal roles played by animal reservoirs and environmental factors in driving these shifts.

The curriculum will delve into fundamental principles of infectious disease epidemiology, encompassing topics such as host-pathogen interactions, modes of transmission, and the natural progression of infectious diseases. Furthermore, students will gain insights into the principles and methodologies underpinning the prevention and control of infectious diseases, including surveillance techniques and vaccine development.

The course will delve into specific areas of infectious diseases, including:

- Enteric infections
- Respiratory infections, encompassing both viral and bacterial pathogens
- Hospital-acquired infections
- Antibiotic resistance
- Zoonotic infections
- Foodborne infections
- Vaccine-preventable diseases

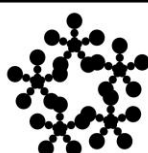
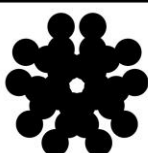
Through comprehensive exploration of these selected topics, students will acquire a nuanced understanding of the multifaceted landscape of infectious diseases and the strategies employed to combat them effectively.

### **Reading**

Articles that will be given during the course

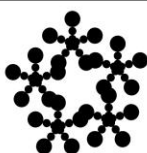
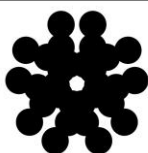
### **Optional reading**

- Red Book: 2021–2024 Report of the Committee on Infectious Diseases (32<sup>nd</sup> edition) By Committee on Infectious Diseases, American Academy of Pediatrics; David W. Kimberlin, Elizabeth D. Barnett, Ruth Lynfield, Mark H. Sawyer. ISBN electronic: 978-1-61002-578-2. Publication date: January 2021
- Red Book: 2021–2024 Report of the Committee on Infectious Diseases | Red Book Online | American Academy of Pediatrics (aap.org)
- Control of Communicable Diseases Manual, David L. Heymann, MD, Editor. 21<sup>st</sup> Edition, 2022
- McNeil C, Verlander S, Divi N, Smolinski M. The Landscape of Participatory Surveillance Systems Across the One Health Spectrum: Systematic Review. JMIR Public Health Surveill. 2022 Aug 5;8(8):e38551



Course timetable

	Topic	Lecturer
Day 1 Sunday 20.7.2025		
8:30-10:00	<ul style="list-style-type: none"><li>One Health approach in infectious diseases epidemiology</li><li>The relationship between human, animal, and environmental health.</li><li>Zoonotic infections, reservoir and direct and indirect routes of transmission.</li></ul>	Prof. Eric Sampane-Donkor, Prof. Khitam Muhsen
10:00-10:30	Break	
10:30-12:00	Surveillance of zoonotic diseases (laboratory-based, syndromic, environmental, sero-surveillance)	Prof. Eric Sampane-Donkor Prof. Khitam Muhsen
12:00-12:30	Break	
12:30-13:15	Surveillance of zoonotic diseases (cont.)	Prof. Eric Sampane-Donkor Prof. Khitam Muhsen
Day 2 Monday 21.7.2025		
8:30-10:00	Viral respiratory zoonotic diseases	Prof. Michal Mandelboim
10:00-10:30	Break	
10:30-12:00	Environmental factors influencing disease transmission: Vector-borne diseases	Dr. Yaniv Lustig
12:00-12:30	Break	
12:30-14:00	Mathematical models to predict vector-borne disease transmission	Prof. Uri Obolski
Day 3 Tuesday 22.7.2025		
8:30-10:00	Zoonotic foodborne disease	Prof. Eric Sampane-Donkor Prof. Dani Cohen
10:00-10:30	Break	
10:30-12:00	The role of the animal reservoir in food security and zoonotic disease prevention.	Prof. Eric Sampane-Donkor Prof. Dani Cohen
12:00-12:30	Break	



12:30-14:00	Participatory surveillance toward rapid risk assessment and response	Dr. Mark Smolinski Ms. Nomita Divi
Day 4 Wednesday 23.7.2025		
8:30-10:00	Environmental factors influencing disease transmission: Hospital-acquired infections	Prof. Eric Sampane-Donkor Prof. Amos Adler
10:00-10:30	Break	
10:30-12:00	The relationship between antimicrobial resistance (AMR) in animals, the environment and humans	Prof. Eric Sampane-Donkor Prof. Amos Adler
12:00-12:30	Break	
12:30-13:15	Exercise: Epidemiological investigation of epidemics - the "One Health" approach (case studies)	Prof. Eric Sampane-Donkor Prof. Khitam Muhsen Prof. Amos Adler
Day 5 Thursday 24.7.2025		
8:30-10:00	The role of vaccines in prevention and control of zoonotic diseases	Prof. Eric Sampane-Donkor Prof. Dani Cohen
10:00-10:30	Break	
10:30-12:00	Students' presentations	Prof. Eric Sampane-Donkor Prof. Khitam Muhsen Prof. Dani Cohen
12:00-12:30	Break	
12:30-13:15	Review and conclusions Certificate ceremony and class photo	Prof. Eric Sampane-Donkor Prof. Khitam Muhsen Prof. Dani Cohen