



Course Syllabus:

Introduction to Environmental and Occupational Health מבוא לבריאות העובד והסביבה

סמסטר א', יום ה', 16-18, 2023-2024

University of Haifa, School of Public Health

A. Course Introduction:

The field of environmental and occupational health is inter-disciplinary and broad. We will provide the students with a broad overview of the core topics of environmental and occupational health including toxicological concepts (source, exposure pathway, route of absorption, target organ, dose-response, susceptibility and effect), use of epidemiologic tools (sentinel events, relative and attributable risk, case-control studies, prospective cohort, cross-section, and time-series methods), and significance of major environmental exposures (ambient air and water pollution), and occupational exposures (gasses, metals, pesticides, and ionizing radiation). The course will focus on global environmental and occupational health problems and how policy, politics and leadership can impart a positive health impact on global communities.

In addition to the core topics listed above, we will discuss some of the societal aspects of environmental and occupational health including international disparities in disease incidence, impact of environmental exposures on susceptible populations, environmental and occupational health legislation, ethics and advocacy. We will practice critical review of the epidemiological literature and apply the concepts discussed in the course to real-world environmental and occupational public health hazards.

B. Course Schedule:

Lecture hours- Thursday Office hours- Thursday before class;

C. Course Instructor:

Yonah Amster MD MPH (Course Coordinator) Email: eamster@post.harvard.edu
Cell: 054-356-5855

D. Lecture Topics:

Lecture	Topics	Readings
19.10.2023	Introduction to Environmental Health 1. Overview of core topics (toxicology, exposure assessment, epidemiology, air pollution, water pollution)	Chapter 1 Chapter 2



	<p>Introduction to Occupational Health</p> <ol style="list-style-type: none"> 1. Overview of core topics (industrial hygiene, occupational injuries and illness, occupational health and safety) 2. Discuss common occupational exposures and illnesses 	
26.10.2023	Continuation introductory lecture	
01.11.2023	<p>Exposure Assessment</p> <ol style="list-style-type: none"> 1. Describe the exposure hierarchy 2. Review various types of environmental and occupational exposures and different methods to measure exposures 	Chapter 26
09.11.2023	<p>Introduction to Environmental and Occupational Epidemiology</p> <ol style="list-style-type: none"> 1. Review common epidemiological methods in EOH 2. Discuss common sources of bias and error in environmental and occupational epidemiology 3. How to read and analyze environmental and occupational epidemiology literature 	Chapter 24
16.11.2023	<p>Introduction to toxicology</p> <ol style="list-style-type: none"> 1. Understand the relationship between mechanistic, descriptive, and regulatory toxicology 2. Understand dose response curves and the difference between threshold and linear response 3. Understand the relationship between toxicology and the precautionary principle 	Chapter 25
23.11.2023	<p>Chemical Hazards</p> <ol style="list-style-type: none"> 1. Review of common occupational and environmental chemical hazards including solvents, metals, and persistent organic pollutants 2. Discuss common routes of exposure and related health effects 	Chapter 11
30.11.2023	<p>Physical Hazards- Noise, vibration, temperature, radiation</p> <ol style="list-style-type: none"> 1. Describe basic physiology of exposure to physical hazards 2. List illnesses associated with exposure to physical hazards 3. Discuss prevention and engineering controls of physical hazards 4. Briefly describe differences between ionizing and non-ionizing radiation 	Chapter 12
07.12.2023	<p>Water Pollution</p> <ol style="list-style-type: none"> 1. Identify common sources of water pollution. 2. Discuss common routes of exposure and related health effects of aquatic toxins 	Chapter 8



14.12.2023	Indoor and Ambient Air Pollution <ol style="list-style-type: none"> 1. Discuss the global burden of disease attributed to air pollution 2. Identify primary pollutants to the indoor and outdoor environments List associated health effects from O ₃ , NO _x , SO ₂ , and PM	Chapter 6 Chapter 7
21.12.2023	Built Environment: Transportation and Health <ol style="list-style-type: none"> 1. Describe the current epidemiology of road trauma in terms of us exposure and risk for all road users. 2. Describe the role of the public health professional in assessment and prevention in urban and rural environments ----- Climate Change <ol style="list-style-type: none"> 1. Discuss the potential mechanism of effect the changing global environment has on human health outcomes. 	Chapter 39
28.12.2023	Pediatric Environmental Health and Vulnerable Populations <ol style="list-style-type: none"> 1. Recognize the physiological and developmental aspects which pose children at risk for environmental exposures. 2. Recognize routes of exposures to children Learn preventative practices	Chapter 4
04.01.2024	Environmental Health Policy <ol style="list-style-type: none"> 1. Understand how toxicological data (NOAEL, LOAEL) is used to develop drinking water standards 2. Understand the relationship between air pollution standards and epidemiologic findings regarding the health effects of air pollution Understand how human biomonitoring can inform environmental health policy	Chapter 3
11.01.2024	Ethics and advocacy <ol style="list-style-type: none"> 1. Review case scenarios in ethical conflicts common in occupational and environmental health 2. Discuss problem solving conflicts of interests 3. Advocating for environmental and occupational safety and health Course Conclusion—what next? <ol style="list-style-type: none"> 1. Review of main course topics 2. Discuss educational and job opportunities in OEH (research, advocacy, prevention, clinical) 	Chapter 30 Chapter 31

E. Course Textbook:

- Levy B, Wegman D, Baron S, Sokas R. **Occupational and Environmental Health**. 6th edition. Lippincott, Williams & Wilkins. 2011. (Suggested readings listed)



- Frumkin, P. Environmental Health: From Global to Local. 2nd ed. Wiley & Sons. 2010.
(Recommended additional reference)

F. Course participation: Active participation is an important part of the course. Activation of camera for zoom classes is a requirement for participation during online class.

G. Grading:

The goal of the course is to go beyond simple memorizing of facts related to environmental and occupational health. Students will also practice critical review of the public health literature and application of the concepts discussed in the course to actual public health issues. The students will be asked to present an oral group presentation to their peers. In order to develop writing skills and integrate the topic matter, the students will write a research/project proposal requested funding for a potential research or community project on a topic of environmental and occupational health.

- 35% 15-minute oral critique of environmental/occupational epidemiology paper
- 65% Midterm knowledge test

סטודנט יקר,

אם יש לך לקות למידה או מוגבלות/בעיה רפואית שעשויה להשפיע על לימודיך, ושכגינה את/ה זקוק/ה להתאמות אנא פנה/י לדיקנאט הסטודנטים למדור נגישות ולקויות למידה:

דואל LDA@univ.haifa.ac.il טל: 8249265-04

לאבחון והתאמות בגין לקות למידה ו/או הפרעת קשב יש לפנות ליה"ל:

דואל mhait@univ.haifa.ac.il טל: 8249022-04

אם יש ברשותך מכתב התאמות מהאוניברסיטה ואת/ה זקוק/ה להנגשה בקורס אנא פנה/י אליי בשעות הקבלה או במייל בסמוך לתחילת הקורס.

If you have a disability that may affect your studies and for which you may require accommodations, please contact the Accessibility and Learning Disabilities Department at the Dean of Students office e-mail: LDA@univ.haifa.ac.il Phone number: 04-98249265

Students that receive accommodation letters, and need academic adjustments, please meet with me to discuss the provisions of those accommodations as early in the semester as possible.