

**Recent Trends in Environmental Epidemiology & Exposure Science:
A Hands-On Seminar for Understanding Links between Human Health and the Environment**
May 22nd–May 24th, Weizmann Institute, Rehovot

Lecturers:

- **Dr. Jeremy Sarnat**, Rollins School of Public Health, Emory University, USA
- **Dr. Stefanie Ebelt Sarnat**, Rollins School of Public Health, Emory University, USA
- **Prof. Michele Marcus**, Rollins School of Public Health, Emory University, USA

Sunday – May 22nd

8:30-13:00 Wolfson Buildings, Wolfson Auditorium

8:30 Coffee and Introductions to the day

9:00 Modern Environmental Health: Where are we and how did we get here?

- Overview of the development of modern environmental health (**Jeremy**)
- Emerging Trends
 - Exposures of Concern: Endocrine disrupting chemicals, pesticides, water (**Michele**)
 - Outcomes which may be affected by these environmental exposures: Reproduction, Obesity, Gene-Environment interactions (**Michele**)
 - Urban Air Pollution Mixtures and Synergistic Effects (**Jeremy**)
 - Air Pollution and Global Climate Change (**Stefanie**)

11:00 Break

11:15 Article Review and Discussion

- What do observational studies tell us about current and emerging environmental risk?
Selected examples addressing:
- Air pollution and life expectancy
 - **READING:** Pope CA, Ezzati M, Dockery DW. Fine-Particulate Air Pollution and Life Expectancy in the United States. *New England Journal of Medicine* 360:376-386, 2009.
- Lead and pesticides and neurologic development
 - **READING:** Needleman HL, Gunnoe C, Leviton A, et al. Deficits in Psychologic and Classroom Performance of Children with Elevated Dentin Lead Levels. *New England Journal of Medicine* 300:689-695, 1979.
 - **READING:** Bouchard MF, Chevrier J, Harley KG, et al. Prenatal Exposure to Organophosphate Pesticides and IQ in 7-Year Old Children. *Environmental Health Perspectives* doi: 10.1289/ehp.1003185, Online 21 April 2011.

13:00 Lunch Break

14:00-16:30 Feinberg Graduate School Building, Room B (Group 1) | Belfer Building, Dan Koshland Room (Group 2)

14:00 Group Work for Active Researchers Only

Introductions and areas of interest

- Investigators should bring:
 - 1. Hypothesis in the form of “Does exposure to X cause health outcome Y?”
 - 2. Preliminary data on the population, the exposure and the health outcome.
- We will work together over the 3 days to analyze specific Israeli case studies. This would include Specific Aims, Background (what is already known about this question), Significance (why is this proposed study important – potential impact on Public Health), and methods (study design, target population, data collection methods for the exposure, health outcome, and potential confounders, and plan for statistical analyses).

16:30 Adjourn

Monday – May 23rd

8:30-13:00 Wolfson Buildings, Wolfson Auditorium

8:30 Coffee and Introductions to the day

9:00 Environmental Epidemiology: Study Designs

- Traditional epidemiologic designs: Cohort, Cross-sectional and Case Control (**Michele**)
 - Examples using endocrine disruption and health
- Longitudinal analyses (**Stefanie**)
 - Examples using SOPHIA study
- Panel studies (**Jeremy**)
 - Examples using the Atlanta Commuters Study among others

10:45 Break

11:00 Environmental Epidemiology: Health Outcome Data (Michele)

- Examples of outcome data and their use for different epidemiological questions
- Advantages and limitations of different databases
- Group discussion of health outcome databases and resources in Israel

12:00 Environmental Epidemiology: Exposure Characterization (Jeremy)

- Types of exposure characterization for use in environmental epidemiology
- Implications for understanding health risk
- Recent advances in exposure assessment
 - **READING:** Rappaport. Implications of the Exposome for Exposure Science. *Journal of Exposure Science and Environmental Epidemiology* 21:5-9, 2011.

13:00 Lunch Break

14:00-16:30 Sussman Building, Magaritz Seminar Room (Group 1) | Belfer Building, Dan Koshland Room (Group 2)

14:00 Group Work for Active Researchers Only

Continued discussions and work on Israeli case studies

16:30 Adjourn

Tuesday – May 24th

8:30-13:00 Belfer Building, Botner Auditorium

8:30 Coffee and Introductions to the day

9:00 Case Studies in Environmental Health

- Discussion of selected environmental health case studies illustrating methodologic issues: uncertainties, errors, and biases in population inclusion (selection), measurement of exposure and ascertainment of health outcomes
- Article review and discussion on air pollution and acute health response
 - **READING:** Strickland et al. Short-term Associations between Ambient Air Pollutants and Pediatric Asthma Emergency Department Visits. *American Journal of Respiratory and Critical Care Medicine* 182:307–316, 2010.
- Article review and discussion on endocrine disruption and adverse reproductive outcomes
 - **READING:** Blanck HM, Marcus M, Tolbert PE, et al. Age at Menarche and Tanner Stage in Girls Exposed In Utero and Postnatally to Polybrominated Biphenyl. *Epidemiology* 11:641– 647, 2000.

10:45 Break

11:00 Presentations of ongoing and/or proposed local Israel Studies

13:00 Adjourn