Environmental Epidemiology, EPID 785
Spring 2014
Room 2305 McGavran-Greenberg
Tu, Th 9:30AM - 10:45AM

Course Instructor

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Objectives

This course provides an introduction to topics and methods in environmental epidemiology. Topical areas include selected air and water pollutants, radiation, pesticides, metals, environmental microbial exposures, asbestos, persistent organic pollutants, endocrine-disrupting chemicals, disease clusters, disaster epidemiology, and climate change. Exposure assessment and statistical methods for evaluation of environmental and occupational factors will be considered in the context of specific applications. The course will prepare students to critically interpret environmental epidemiologic research, understand the types of questions that can and cannot be answered in environmental epidemiology, and help provide a foundation for designing and conducting such studies.

Organization

Lectures by the instructor and guests will be mixed with student-led discussions. Students will facilitate discussions that address issues of study design and conduct, sources of bias in measures of frequency and association, analytic methods, and choice of study questions.

Requirements

Class Participation (10%): Class participation is important. Prior to each class, students should prepare at least two questions or comments based on each assigned reading, and bring these to class for discussion.

Student Facilitation of Journal Article Critique (15%): Each student will be responsible for facilitating one class discussion of a paper on a non-lecture day. Prior to the journal article critique class, everyone should complete the Journal Article Critique Outline. At the end of the discussion, the facilitators are required to turn in the Journal Article Critique Outline assignment to the instructor.

Student Debate (15%): Students will debate a topical issue in environmental epidemiology/health. Students will be divided into groups and each group will be assigned a position, which they will research, prepare for, and then defend in a classroom debate. Each group will turn in a summary of their main points at the end of the debate.

Final Project (60%): Each student is responsible for designing a study proposal to investigate a research question in the area of environmental epidemiology. The proposed study can address an exposure-outcome relation or a methodologic issue (e.g., exposure assessment, method of statistical analysis). The paper should be about 10-15 double-spaced pages (excluding references, tables, and figures) and should include 1) an abstract (≤ 1 page), 2) a review of the literature (2-4 pages), 3) a statement of research hypothesis(es) and specific aims of the study (1-2 pages), 4) a research proposal (5-10 pages), and 5) references, tables, figures, appendices. A title and abstract for the final project must be submitted by February 27. The final project is due April 24.

Grading

P will be given for adequate completion of course requirements. H will be given for outstanding work in one or more areas.

Class schedule

#	Date		Topic	Speaker
1	January	9	Introductions, overview	Engel L
2		14	Choosing research questions	Engel L
3		16	Cluster studies	Engel L
4		21	Radiation: exposure assessment	Sit
5		23	Ionizing radiation: A-bomb, occupational, power plants	Richardson
6		28	Non-ionizing radiation: power lines, cell phones	Engel L
7		30	Student-led discussion	
8	February	4	Pesticides and cancer	Engel L
9		6	Pesticides and neurological outcomes	Engel L
10		11	Pesticide exposure assessment	Engel L
11		13	Student-led discussion	
12		18	Air pollutants: sources, constituents, measurement	West
13		20	Introduction to air pollution epidemiology	Neas
14		25	Student-led discussion	
15		27	Metals and health effects	Fry
16	March	4	Arsenic	Wade
17		6	Asbestos	Dement
		11	Spring break	
		13	Spring break	
18		18	Student-led discussion	
19		20	Environmental microbial exposures	Stewart
20		25	Student-led debate: Health effects of climate change	
21		27	Persistent organic pollutants 1	Engel L
22	April	1	Persistent organic pollutants 2	Engel L
23		3	Endocrine disruptors, PBDEs	Stapleton
24		8	Endocrine disrupting chemicals and neurological disorders in children	Engel S
25		10	Hydraulic fracturing (“fracking”)	Engel L, Werder
26		15	Student-led discussion	
27		17	Disaster epidemiology	Engel L
28		22	Case study: GuLF STUDY 1	Engel L
29		24	Case study: GuLF STUDY 2	Engel L