

Name: Karen Levy

Department: Environmental Health, Rollins School of Public Health

Course: Environmental Health 500: Perspectives in Environmental Health

Date: July 16, 2010

Every student at the Rollins School of Public Health is required to take the course Environmental Health 500, an overview course for non-majors covering a broad spectrum of topics in environmental and occupational health. The students enrolled in EH500 came to Rollins to study other topics, such as maternal and child health, health policy, or epidemiology, so environmental health is not their primary interest. It is therefore up to the course instructor to get the students to understand the importance of considering the role of environmental factors in determining health outcomes. Because the course consists primarily of guest lectures, the principal instructor must tie all the survey lectures together, and emphasize the main themes that tie the course together.

Participating in the Piedmont Project has helped me updated the course syllabus in an effort to engage students more fully in the material, and to care more about the topics covered. Through course assignments on issues of sustainability, I hope to ignite the students' creativity in considering practical ways to make changes on local, national, and global scales to address environmental health issues. Rather than having the students see the course as a boring requirement for graduation, my goal with the syllabus revisions is to get them excited about environmental issues as they pertain to public health, and to get them invested in coming up with creative solutions to address these issues.

The syllabus revisions include the following changes:

READINGS

- In addition to scientific journal articles and textbook chapters, popular articles will be assigned as reading. Articles from magazines such as The New Yorker, Harpers, Atlantic Monthly, Orion Magazine, and The New York Times Magazine covering environmental health topics will be used. These types of articles will engage the students and get them vested in the topics covered in lectures and other readings. These readings will convey the relevance of the topics to their daily lives and/or society as a whole. They will hopefully motivate the students to engage more deeply in the further details of these topics as presented in their other assigned readings and lectures.

ASSIGNMENTS

- Students will also be asked to engage in environmental health topics as they pertain to their daily lives and current affairs by completing a weekly journal of environmental health topics as covered in the popular media. For each clipping, they will be asked to consider questions related to the overall course objectives, including describing the principal environmental exposures that threaten human health; the sources of these exposures and their pathway to humans; how upstream processes (urbanization, housing, transportation, energy use, industry/work organization, migration, globalization) create environmental risks for health; the types of evidence used to assess the health

consequences of these exposures, including toxicology, epidemiology, and risk assessment; known and suspected health consequences of these exposures; and major preventive approaches used, including technical, legal and policy approaches. In addition, for each clipping the students will be asked to address sustainability issues by considering how the local, national, or global action might be used to address the topic at hand over the long-term.

OTHER

- Guest speakers will be asked to specifically address sustainability issues with respect to their topic area.
- Exam questions will be written to engage the students in questions of sustainability, through short answer responses asking them to consider possible solutions to the issue at local, national, and global scales, through both personal actions and legal or policy responses.



DEPARTMENT: Environmental and Occupational Health

COURSE NUMBER: EOH 500 **Semester:** Spring 2011

CREDIT HOURS: 2

COURSE TITLE: Perspectives in Environmental Health

INSTRUCTOR NAME Karen Levy, PhD, MPH

INSTRUCTOR CONTACT INFORMATION

EMAIL: karen.levy@emory.edu

PHONE: 404.727.4502

SCHOOL ADDRESS OR MAILBOX LOCATION: Rm 2019 CNR

OFFICE HOURS: TBA

TEACHING ASSISTANTS TBA

COURSE DESCRIPTION

EOH 500 is a survey course designed to introduce public health students to basic concepts of environmental sciences, to the methods used to study the interface of health and the environment, to the health impacts of various environmental processes and exposures, and to the public health approach to controlling or eliminating environmental health risks.

EVALUATION

Mid-term Exams (2): 25 points each

Final Exam: 35 points

Pop Quizzes: 5 points (5 quizzes, 1 point each)

Environmental Health Journal: 10 points (10 entries, 1 point each)

Grading:	≥ 95 points	A	85 – 94 points	A-		
	78 – 84 points	B+	75 – 77 points	B		
	70 – 74 points	B-	50 – 69 points	C	< 50 points	F

ACADEMIC HONOR CODE

The RSPH requires that all material submitted by a student in fulfilling his or her academic course of study must be the original work of the student.

LEARNING OBJECTIVES OR COMPETENCIES OF THE COURSE

EOH 500 is a survey course designed to introduce public health students to basic concepts of environmental sciences, to the methods used to study the interface of health and the environment, to the health impacts of various environmental processes and exposures, and to the public health approach to controlling or eliminating environmental health risks. Upon completion of the course, students will be able to:

- 1. Identify the principal environmental exposures that threaten human health**
- 2. Describe the sources of these exposures and their pathway to humans**
- 3. Describe how upstream processes (urbanization, housing, transportation, energy use, industrial and work organization, migration, globalization) create environmental risks for health**
- 4. Describe what kinds of evidence are used to assess the health consequences of these exposures, including toxicology, epidemiology, and risk assessment**
- 5. Describe the known and suspected health consequences of these exposures**
- 6. Describe the major preventive approaches used by environmental public health practitioners**
- 7. Know the major legal and policy approaches used in the United States to control environmental health hazards**
- 8. Know how to assess the seriousness of an environmental health problem through information gathered from appropriate sources, in order to define with clarity the problem and possible approaches to solving it**
- 9. Know the major features of environmental health hazards in developing countries**

LEARNING OBJECTIVES OR COMPETENCIES FOR THE DEPARTMENT OR PROGRAM TO WHICH THE COURSE CONTRIBUTES

- 1. The course will develop basic environmental health competencies necessary for continued work in public health.**
- 2. Further class work in environmental health assumes that the material covered in this course has been mastered.**
- 3. A unique feature of the course will be the integration of aspects of environmental science, industrial hygiene, and environmental management.**

After completing this course, students will have been exposed to basic material in environmental health. The course is the basic core course in environmental health for the MPH degree.

EOH 500: PERSPECTIVES IN ENVIRONMENTAL HEALTH
Syllabus - Spring Semester 2011

WHERE AND WHEN: TBA; Thursdays, 08:00 – 09:50AM

COURSE DIRECTOR:

Karen Levy, PhD, MPH; email: karen.levy@emory.edu; telephone: 404.727.4502
Office hours: TBA

COURSE TEACHING ASSISTANTS:

TBA

Office hours: TBA

COURSE BLACKBOARD SITE: <http://classes.emory.edu/>; course title is EOH500:
Perspectives in Environmental Health – Spring 2011; course announcements will be posted at the
Announcements link

TEXT: *Environmental Health: From Global to Local*. Howard Frumkin, Editor. Jossey-Bass.
San Francisco. Cost: \$67.50 (used); \$90 (new)

COURSE LEARNING OBJECTIVES: EOH 500 is a survey course designed to introduce public health students to basic concepts of environmental sciences, methods used to study the interface of health and the environment, health impacts of various environmental processes and exposures, and public health approaches to controlling or eliminating environmental health risks.

Upon completion, students will be able to:

1. Identify the principal environmental exposures that threaten human health
2. Describe sources of these exposures and their pathway to humans
3. Describe how upstream processes (urbanization, housing, transportation, energy use, industry/work organization, migration, globalization) create environmental risks for health
4. Describe the types of evidence used to assess the health consequences of these exposures, including toxicology, epidemiology, and risk assessment
5. Describe known and suspected health consequences of these exposures
6. Describe major preventive approaches used in environmental public health
7. Know major legal and policy approaches used in the United States to control environmental health hazards
8. Know how to assess the seriousness of an environmental health problem through information gathered from appropriate sources, in order to clarify the problem and possible solutions
9. Describe major features of environmental health hazards in developing countries

EVALUATION: This course is designed to supply students with a broad knowledge of environmental health related topics. Basic environmental health principles (environmental toxicology, exposure and risk assessment, environmental epidemiology), as well as specific environmental health issues including water and air pollution, hazardous chemical/waste exposures, climate change, and environmental drivers of disease ecology, will be covered.

Evaluation will be based on your scores on in-class mid-term exams, pop quizzes, environmental health journal (see below), and the final exam. These exercises are designed to assess your understanding of lecture materials and readings. The mid-terms and final exam are in the form of multiple choice questions, short answers, and essay questions.

Mid-terms will be given **in class** on **(DATES TBA)** and will be **50 minutes long**. If for some reason you cannot take the exam on a specific day, make-up exam must be arranged with Dr. Riederer and be taken *prior* to the scheduled exam dates. The **final exam** will be given once on **(DATE TBA)**; there will be no make-up exam.

Environmental Health Journal:

Students will engage in environmental health topics as they pertain to their daily lives and current affairs by completing a weekly journal of environmental health topics as covered in the popular media. Each week you will choose an article from a newspaper or other reputable news source (as determined by the course instructor &/or TAs) on a topic related to environmental health. For each clipping, students will consider questions related to the overall course objectives as outlined in the project assignment that will be handed out on the first day of class.

EH journals will be reviewed by the TAs at the time of each midterm exam and after the final exam. Each journal assignment will be given a grade of 0, 0.5, or 1 point. Completion of the assignment will earn 0.5 points and insightful analysis of the news article will earn a full 1 point.

Final Grade		≥ 95 points	A
Mid-term 1	25 points	85 – 94 points	A-
Mid-term 2	25 points	78 – 84 points	B+
Final exam	35 points	75 – 77 points	B
EH journal	10 points	70 – 74 points	B-
Pop quizzes	5 points	50 – 69 points	C
		< 50 points	F

EOH 500 - COURSE SCHEDULE
Spring 2011, Thursday, 8:00 – 9:50 am
Location TBA

1. Course Introduction

Week 1 – Date TBA

Speaker(s):	Karen Levy, Ph.D., M.P.H. Environmental and Occupational Health
Topic(s):	1.1 “Hot Zones” – Link Between Environmental Changes and Human Health 1.2 Course Overview

2. Core Disciplines in Environmental Health

Week 2 – Date TBA

Speaker(s):	John Wegner, Ph.D. Environmental Studies
Topic(s):	2.1 Ecological Integrity and Human Health
Reading:	1. Frumkin <i>et al.</i> , Chapter 1 (p. 3 -23) 2. (Popular article TBA)

Speaker(s):	Ciannat Howett, J.D. Emory Director of Sustainability Initiatives
Topic(s):	2.2 Environmental Health Impacts of Emory’s Sustainability Programs

Week 3 – Date TBA

Speaker(s):	Gary Miller, Ph.D. Environmental and Occupational Health
Topic(s):	2.3 Environmental Toxicology
Reading:	1. Frumkin <i>et al.</i> , Chapter 2 (p. 24 – 45) 2. Hatcher <i>et al.</i> (2008) “Parkinson’s disease and pesticides: a toxicological perspective” 3. Goetz (2010). “Sergey Brin’s Search for a Parkinson’s Cure.” <i>Wired Magazine</i> , June 22, 2010. http://www.wired.com/magazine/2010/06/ff_sergeys_search/

Week 4 – Date TBA

Speaker(s):	Jeremy Sarnat, Ph.D. Environmental and Occupational Health
Topic(s):	2.4 Environmental Exposure Assessment
Reading:	1. Frumkin <i>et al.</i> , Chapter 4 (p. 72 – 95) 2. Sarnat <i>et al.</i> , (2000) “Assessing the relationship between personal particulate and gaseous exposures of senior citizens living in Baltimore, MD”

	3. Groopman (2010). “The Plastic Panic: How worried should we be about everyday chemicals?” <i>The New Yorker</i> , May 31, 2010. http://www.newyorker.com/reporting/2010/05/31/100531fa_fact_groopman
Assignment :	ADG Question on Sarnat <i>et al.</i>

Week 5 – Date TBA

Speaker(s):	Matthew Strickland, Ph.D. Environmental and Occupational Health
Topic(s):	2.5 Environmental Epidemiology
Reading:	1. Frumkin <i>et al.</i> , Chapter 3 (p. 46 – 71) 2. Malik <i>et al.</i> (2004) “Effect of proximity to hazardous waste sites on the development of congenital heart disease” 3. (Popular article TBA)
Assignment:	ADG Question on Malik <i>et al.</i>

3. Environmental Health Policy

Week 6 – Date TBA

Mid-term 1	Week 1-5 content; Environmental Health Journals #1-4 due
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Speaker(s):	Barry Ryan, Ph.D. Environmental and Occupational Health
Topic(s):	3.1 Environmental Health Policy
Reading:	1. Frumkin <i>et al.</i> , Chapter 33 (p. 961 - 987) 2. (Popular article TBA)

Week 7 – Date TBA

Speaker(s):	Speaker TBA Environmental and Occupational Health
Topic(s):	3.2 Environmental Risk Assessment
Reading:	1. Frumkin <i>et al.</i> , Chapter 32 (p. 940-961) 2. (Popular article TBA)

Topic(s):	3.3 Environmental Risk Communication
Reading:	1. Frumkin <i>et al.</i> , and Chapter 34 (p. 988 - 1010) 2. Covello and Sandman (2001) “Risk communication: evolution and revolution”
Assignment:	ADG Question on Covello and Sandman

4. Environmental Health Hazards

Week 8 – Date TBA

Speaker(s):	Jeremy Sarnat, Sc.D. Environmental and Occupational Health
Topic(s):	4.1 Indoor/Outdoor Air Pollution
Reading:	<ol style="list-style-type: none"> 1. Frumkin <i>et al.</i>, Chapter 14 (p. 331 – 361), Chapter 22 (p. 625 – 647) 2. Pope and Dockery (2006) “Health effects of fine particulate air pollution” 3. (Popular article TBA)

SPRING BREAK – Date TBA (no class)**Week 9 – Date TBA**

Speaker(s):	Speaker TBA Environmental and Occupational Health
Topic(s):	4.2 Heavy Metals and Persistent Organic Pollutants
Reading:	<ol style="list-style-type: none"> 1. Frumkin <i>et al.</i>, p. 311-313, 597-601, Chapter 28 (p. 805-845) 2. Riederer <i>et al.</i>, (2005) “Concentrations of lead and mercury in multimedia samples from homes near the former Clark Air Base, Philippines” 3. Dailaire <i>et al.</i>, (2003). “Time trends of persistent organic pollutants and heavy metals in umbilical cord blood of Inuit infants born in Nunavik (Québec, Canada) between 1994 and 2001” 4. (Popular article TBA)
Assignment:	ADG Question on Riederer <i>et al.</i>

Week 10 – Date TBA

Speaker(s):	Dana Barr, Ph.D. Environmental and Occupational Health
Topic(s):	4.3 Pesticides
Reading:	<ol style="list-style-type: none"> 1. Frumkin <i>et al.</i>, Chapter 20 (p. 544 – 580) 2. Lu <i>et al.</i>, (2008) “Dietary intake and its contribution to longitudinal organophosphorus pesticide exposure in urban/suburban children” 3. (Popular article TBA)
Assignment:	ADG Question on Lu <i>et al.</i>

Speaker(s):	Howard Frumkin, M.D., Dr. P.H. Director, National Center for Environmental Health, CDC
Topic(s):	4.4 Urban Sprawl
Reading:	<ol style="list-style-type: none"> 1. Frumkin <i>et al.</i>, Chapter 16 (p. 387 – 413) 2. Frumkin (2002) “Urban sprawl and public health” 3. (Popular article TBA)

Week 11 – Date TBA

Mid-term 2	Week 6-10 content; Environmental Health Journals #5-8 due
Speaker(s):	Justin Remais, Ph.D. Environmental and Occupational Health
Topic(s):	4.5 Host-Environment-Disease Interactions: Schistosome Parasites in Western China
Reading:	<ol style="list-style-type: none"> Chapter 3, “Linkages between climate, ecosystems, and infectious disease,” in National Research Council (2001) <u>Under the Weather: Climate, Ecosystems, and Infectious Disease</u>. Washington DC: National Academy Press, pp. 20-44 (Available: http://books.nap.edu/openbook.php?record_id=10025&page=20). Liang <i>et al.</i>, (2007) “Environmental effects on parasitic disease transmission exemplified by schistosomiasis in western China” (Popular article TBA)
Assignment:	ADG Question on Liang <i>et al.</i>

Week 12 – Date TBA

Speaker(s):	Jeremy Hess, M.D., MPH Environmental and Occupational Health
Topic(s):	4.6 Global Climate Change
Reading:	<ol style="list-style-type: none"> Frumkin <i>et al.</i>, Chapter 11 (p. 238 – 268) Confalonieri <i>et al.</i>, (2007) “Human health. Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change” Frumkin <i>et al.</i>, (2008) “Climate change: the public health response” (Popular article TBA)
Assignment:	ADG Question on Confalonieri <i>et al.</i> OR Frumkin <i>et al.</i> (2008)

Week 13 – Date TBA

Speaker(s):	Juan Leon, Ph.D. Global Health
Topic(s):	4.7 Waterborne Disease
Reading:	<ol style="list-style-type: none"> Frumkin <i>et al.</i>, Chapter 18 (p. 454 – 515), Chapter 13 (p. 316 – 321) Fewtrell <i>et al.</i>, (2005) “Water, sanitation, and hygiene interventions to reduce diarrhea in less developed countries: a systematic review and meta-analysis” (Popular article TBA)
Assignment:	ADG Question on Fewtrell <i>et al.</i>

5. Environmental Health in Practice: Integrating Science, Policy and Public Action**Week 14 – Date TBA**

Speaker(s):	Kyle Steenland, Ph.D. Environmental and Occupational Health
Topic(s):	5.1 Case Study: PFOA Contamination of a Water System in W. Virginia
Reading:	Steenland <i>et al.</i> , (2009) "Predictors of PFOA levels in a community surrounding a chemical plant" (Popular article TBA)

Speaker(s):	Karen Levy, Ph.D., M.P.H. Environmental and Occupational Health
Topic(s):	5.2 Course Review

**Week 15 – Date TBA – FINAL EXAM, 8-9:50AM, Location TBA, Weeks 1 – 14 content
Environmental Health Journals #9-10 due**