



ROLLINS
SCHOOL OF
PUBLIC
HEALTH
EMORY

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| DEPARTMENT: | Environmental Health | |
| COURSE NUMBER: | EH 500 | SEMESTER: Spring 2018 |
| CREDIT HOURS: | 2 | |
| COURSE TITLE: | Perspectives in Environmental Health | |

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| INSTRUCTOR NAME | Jeremy Sarnat, Sc.D. |
| INSTRUCTOR CONTACT INFORMATION | |
| EMAIL: | jsarnat@emory.edu |
| PHONE: | 404-712-9725 |
| SCHOOL ADDRESS OR MAILBOX LOCATION: | Rm 2029 CNR |
| OFFICE HOURS | By appointment |
| TEACHING ASSISTANTS | Sabrina Haque (sshaque@emory.edu) Katie Lynch (katie.lynch@emory.edu) Jake Rodgers (jake.rodgers@emory.edu) |

BRIEF COURSE DESCRIPTION

EH 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. [[SH]- staying consistent with how the objective is written on page 3]

LIST SCHOOL LEVEL, DEPARTMENT, AND/ OR PROGRAM COMPETENCIES

1. Describe environmental conditions, including biological, physical and chemical factors, which affect the health of individuals, communities and populations (From Core Competencies for all MPH/MSPH students)

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.

LIST LEARNING OBJECTIVES ASSOCIATED WITH THE COMPETENCIES

EH 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 of the course, students will be able to:

1. Name the principal environmental exposures that threaten human health
2. Describe the sources of these exposures and their pathways to humans
3. Discuss how upstream processes (urbanization, housing, transportation, energy use, industrial and work organization, migration, globalization) create environmental risks for health
4. Explain what kinds of evidence are used to assess the health consequences of these exposures, including toxicology, epidemiology, and risk assessment
5. Summarize the known and suspected health consequences of these exposures
6. Cite the major preventive approaches used by environmental public health practitioners
7. List the major legal and policy approaches used in the United States to control environmental health hazards
8. Apply systems thinking tools to a public health issue
9. Define the major features of environmental health hazards in developing countries

EVALUATION

Mid-term Exam: 35 points

Final Exam: 53 points

Article Discussion Group: 0, 2 or 3 points each (4 questions total)

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| 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 |

EH 500: PERSPECTIVES IN ENVIRONMENTAL HEALTH Syllabus - Spring Semester 2018

WHERE AND WHEN: CNR Auditorium; Thursdays, 8:00 – 9:50AM

COURSE DIRECTOR:

Jeremy Sarnat, Sc.D.; email: jsarnat@emory.edu; telephone: 404-712-9725

COURSE TEACHING ASSISTANTS:

Sabrina Haque (sshaque@emory.edu)

Katie Lynch (katie.lynch@emory.edu)

Jake Rodgers (jake.rodgers@emory.edu)

Office hours: contact by email to set up appointment

COURSE CANVAS SITE: <https://canvas.emory.edu/courses/39392>; course title is EH500: Perspectives in Environmental Health – Spring 2018;

TEXT: *Environmental Health: From Global to Local. 3rd Edition.* Howard Frumkin, Editor. Jossey-Bass. San Francisco. (You may use the 1st and 2nd edition of this text as well). The text is available as an eBook through the Woodruff Library (<http://discover.emory.edu>). Using this text throughout the semester will enrich your understanding and appreciation of the in-class content. For those considering going into a field within Public Health, a solid environmental health reference text should be part of any complete professional library. The page numbers in the syllabus correspond to the 3rd edition of the eBook text.

COURSE LEARNING OBJECTIVES: EH 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. Name the principal environmental exposures that threaten human health
2. Describe sources of these exposures and their pathways to humans
3. Discuss how upstream processes (urbanization, housing, transportation, energy use, industry/work organization, migration, globalization) create environmental risks for health
4. Explain the types of evidence used to assess the health consequences of these exposures, including toxicology, epidemiology, and risk assessment
5. Summarize known and suspected health consequences of these exposures
6. Cite major preventive approaches used in environmental public health
7. List major legal and policy approaches used in the United States to control environmental health hazards
8. Apply systems thinking tools to a public health issue
9. Define major features of environmental health hazards in developing countries

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

EVALUATION: Evaluation will be based on your scores on an in-class midterm exam, group discussions of the readings (see below) and the final exam. These exercises are designed to assess your understanding of lecture materials and readings. The mid-term and final exams are in the form of multiple choice questions and short answer questions.

Exams: The **midterm**, worth **35 points**, will be given **in class on March 8th** and will be **50 minutes long**. If for some very extenuating reason you cannot take the exam that day, a make-up exam must be arranged with Dr. Sarnat and be taken **prior** to the scheduled exam dates. The **final exam**, worth **53 points**, will be given once on **April 26th during our regularly scheduled class time and will occupy the entire 1 hour and 50 minutes**; there will be no make-up exam. **PLEASE NOTE:** The final will be administered during the last session of the semester; not during the designated exam week time slot.

Article Discussion Groups (ADGs): A problem for large classes like EH 500 is the lack of interaction between students and speakers, and among students. “Article Discussion Groups” (ADGs) are one way we try to stimulate in-class and out-of-class discussion, deepen your understanding of the readings, and give you a chance to get to know and learn from your fellow students in other RSPH departments.

There will be **4 ADG assignments** throughout the semester, as specified in the course schedule below. Each student will be placed in a three-person ADG at the beginning of the semester (ADG rosters will be posted on Blackboard). Your responsibility as part of this group will be to read and discuss assigned articles on the weekly topic and collectively submit a relevant question on the reading to the Blackboard site. Questions will be submitted by **12:00 noon on the Tuesday** prior to Thursday’s class. Instructions for submission will be posted on Canvas Information. Each week an ADG question is due, the instructor, TAs, and speakers will select several questions to be read aloud by students and answered by the speaker during that week’s lecture.

At a minimum, your group’s question should demonstrate that you have read and understood the paper. For this, your group will receive 2 points. Questions that raise particularly insightful points and are selected to be read aloud in class will earn 3 points. If your group is called on in class and no one is there to respond, your group will receive 0 points. We will ask that you confirm participation of **all** ADG members in drafting the question. **Failure to participate, even if your ADG group submits a question, will result in a grade of 0 for that assignment.**

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| Final Grade | ≥ 95 points | A |
| Midterm (3/8) 35 points | 85 – 94 points | A- |
| Final exam (4/26) 53 points | 78 – 84 points | B+ |
| ADG questions 8+ points | 75 – 77 points | B |
| (up to 12 possible) | 70 – 74 points | B- |
| | 50 – 69 points | C |
| | < 50 points | F |

EH 500 - COURSE SCHEDULE
Spring 2018, Thursday, 8:00 – 9:50 am, CNR Auditorium

| Week | Date | Speaker(s) | Topic(s) | Reading | Assignment |
|--|-------------|---|--|---|---|
| <i>Course Introduction</i> | | | | | |
| 1 | 1/18 | Jeremy Sarnat, Sc.D. Environmental Health | Environmental Health Overview | Class cancelled – Snow Day | None |
| <i>Core Disciplines in Environmental Health</i> | | | | | |
| 1/2 | 1/25 | Jeremy Sarnat, Sc.D. Environmental Health | Environmental Health Overview & Ecology | 1. Frumkin et al., <i>Chapters 1 & 2 (pp. 58 – 131)</i> | None |
| 3 | 2/1 | Michael Caudle, Ph.D. Environmental Health | Environmental Toxicology | 1. Frumkin et al., <i>Chapter 6 (pp. 211-249)</i> | |
| 4 | 2/8 | Kyle Steenland, Ph.D. Environmental Health | Environmental Epidemiology | 1. Frumkin et al., <i>Chapter 4 (pp. 162-194)</i> | |
| 5 | 2/15 | Jeremy Sarnat, Sc.D. Environmental Health | Exposure Science | 1. Frumkin et al., <i>Chapter 8 (pp. 283 – 309)</i> 2. Clougherty, et al., (2007) ‘Synergistic Effects of Traffic-Related Air Pollution and Exposure to Violence on Urban Asthma Etiology’ | ADG #1: Clougherty et al. |
| <i>Environmental Health in Practice: Integrating Science, Policy and Public Action</i> | | | | | |
| 6 | 2/22 | Jeremy Sarnat, Sc.D. Environmental Health | Environmental Risk Assessment and Risk Communication | 1. Frumkin et al., <i>Chapter 27 & 28 (pp. 1032 - 1088)</i> 2. Covello and Sandman (2001) “Risk communication: evolution and revolution” | ADG #2: Group Activity Covello and Sandman |
| 7 | 3/1 | Tom Clasen, Ph.D. Environmental Health | Environmental Health in the Developing World | None | |

| Week | Date | Speaker(s) | Topic(s) | Reading | Assignment |
|---------------------------------------|------|--|--|--|-------------------------------------|
| 8 | 3/8 | MIDTERM EXAM – Week 1 - 7 content (1st part of class: 8:00 – 8:50) in CNR Auditorium | | | |
| | 3/8 | Jeremy Sarnat, Sc.D. Environmental Health | Environmental Health Policy | 1. Frumkin et al., <i>Chapter 26 (pp. 1005 -1031)</i> | |
| | 3/15 | Spring Break – NO CLASS | | | |
| 9a | 3/22 | Gary Miller, Ph.D. Environmental Health | Towards a New Paradigm in Environmental Health: the Exposome | 1. Wild, C. (2005) ‘Complementing the genome with an “exposome”’ | |
| 9b | 3/22 | Melanie Pearson, Ph.D. Environmental Health | Community-Based Research within Environmental Health | None | |
| <i>Environmental Health Stressors</i> | | | | | |
| 10 | 3/29 | Juan Leon, Ph.D. Global Health | Waterborne Disease | 1. Frumkin et al., <i>Chapter 16 (pp. 585 -638)</i> 2. Fewtrell et al., (2005) “Water, sanitation, and hygiene interventions to reduce diarrhea in less developed countries: a systematic review and meta-analysis” | |
| 11 | 4/5 | Dana Boyd Barr, Ph.D. Environmental Health | Pesticides, Heavy Metals & Persistent Organic Pollutants | 1. Frumkin et al., <i>Chapter 18 (pp. 672 -705)</i> 2. Bouchard et al., (2008) “Prenatal Exposure to Organophosphate Pesticides and IQ in 7-Year-Old Children” | ADG #3: Bouchard et al. |
| 12 | 4/12 | Jeremy Sarnat, Sc.D. Environmental Health | Indoor/Outdoor Air Pollution | 1. Frumkin et al., <i>Chapter 13 (pp. 457 -489)</i> 2. Lelieveld et al., (2015) “The contribution of outdoor air pollution sources to premature mortality on a global scale” | ADG #4: Lelieveld et al. |
| 13 | 4/19 | Daniel Rochberg, M.S. Environmental Health | Global Climate Change and Health | 1. Frumkin et al., Chapter 12 (pp. 398 – 455) | |
| 14 | 4/26 | FINAL EXAM – Week 1-13 content, 8 - 9:50AM, CNR Auditorium | | | |