DEPARTMENT: Environmental Health
COURSE NUMBER: EH 500
SEMESTER: Spring 2015
CREDIT HOURS: 2
COURSE TITLE: Perspectives in Environmental Health

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: Cheryl Cornwell (cheryl.cornwell@emory.edu), Kelly Genskow (kelly.genskow@emory.edu), Jamie Schenk (jamie.schenk@emory.edu)

BRIEF COURSE DESCRIPTION
EH 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.

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, 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. Name the principal environmental exposures that threaten human health
2. Describe the sources of these exposures and their pathway 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. Recognize how to assess the seriousness of an environmental health problem through information gathered from appropriate sources
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 (6 questions total)

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
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:
Cheryl Cornwell (cheryl.cornwell@emory.edu)
Kelly Genskow (kelly.genskow@emory.edu)
Jamie Schenk (jamie.schenk@emory.edu)

Office hours: contact by email to set up appointment

COURSE BLACKBOARD SITE: http://classes.emory.edu/; course title is EH500: Perspectives in Environmental Health – Spring 2015; course announcements will be posted at the Announcements link


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 pathway 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. Recognize how to assess the seriousness of an environmental health problem through information gathered from appropriate sources
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/waste exposures, climate change, and environmental drivers of disease ecology, 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 5th** 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 23rd 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 **6 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. Typically, the readings will be peer-reviewed papers from scientific journals. Questions will be submitted by **12:00 noon on the Tuesday** prior to Thursday’s class. Instructions for submission will be posted on Blackboard under Course 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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<thead>
<tr>
<th>Final Grade</th>
<th>≥ 95 points</th>
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<tbody>
<tr>
<td>Midterm (3/5)</td>
<td>85 – 94 points</td>
<td>A-</td>
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<td>Final exam (4/23)</td>
<td>78 – 84 points</td>
<td>B+</td>
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<td>ADG questions (up to 18 possible)</td>
<td>75 – 77 points</td>
<td>B</td>
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<td>70 – 74 points</td>
<td>B-</td>
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<td></td>
<td>50 – 69 points</td>
<td>C</td>
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<td>&lt; 50 points</td>
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## EH 500 - COURSE SCHEDULE
Spring 2015, Thursday, 8:00 – 9:50 am, CNR Auditorium

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Speaker(s)</th>
<th>Topic(s)</th>
<th>Reading</th>
<th>Assignment</th>
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<td><strong>Course Introduction</strong></td>
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<tr>
<td>1</td>
<td>1/15</td>
<td>Jeremy Sarnat, Sc.D. Environmental Health</td>
<td>Environmental Health Overview</td>
<td>None</td>
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| 2    | 1/22  | Jeremy Sarnat, Sc.D. Environmental Health  
Ciannat Howett, J.D. Emory Director of Sustainability Initiatives | Ecological Integrity and Human Health  
Environmental Health Impacts of Emory’s Sustainability Programs | 1. Frumkin et al., Chapter 1 (p. 3 – 23) | None       |
|      | 1/29  | Jeremy Sarnat, Sc.D. Environmental Health | Exposure Science | 1. Frumkin et al., Introduction, Chapter 4 (p. 72 - 95)  
| 3    | 2/5   | Matthew Strickland, Ph.D. Environmental Health | Environmental Epidemiology | 1. Frumkin *et al.*, Chapter 3 (p. 46 – 71)  
| 5    | 2/12  | Michael Caudle, Ph.D. Environmental Health | Environmental Toxicology | 2. Frumkin *et al.*, Chapter 2 (p. 24 – 45) | None       |
|      |       |            |          |         |            |
| 6    | 2/19  | Jeremy Sarnat, Sc.D. Environmental Health | Environmental Risk Assessment and Risk Communication | 1. Frumkin *et al.*, Chapter 32 (p. 940 – 961) and Chapter 34 (p. 988 - 1010)  
Covello and Sandman (ADG #3) |
<p>| 7    | 2/26  | Tom Clasen, Ph.D. Environmental Health | Environmental Health in the Real World: Water, Sanitation, and Health: Intervention and Efficacy | 1. TBA | ADG #4 on Barnard <em>et al.</em> |</p>
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<th>Reading</th>
<th>Assignment</th>
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<tr>
<td>8</td>
<td>3/5</td>
<td>MIDTERM EXAM – Week 1 - 7 content (1st part of class: 8:00 – 8:50) in CNR Auditorium</td>
<td>Jeremy Sarnat, Sc.D. Environmental Health</td>
<td>1. Frumkin et al., Chapter 33 (p. 961 - 987)</td>
<td>None</td>
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<td>Environmental Health Policy</td>
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<td>3/12</td>
<td>Spring Break – NO CLASS</td>
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<td><strong>Environmental Health Stressors</strong></td>
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<td>9</td>
<td>3/19</td>
<td>Karen Levy, Ph.D. Environmental Health</td>
<td>Ecology, Epidemiology and Enteric Disease</td>
<td>1. TBA</td>
<td>None</td>
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<td>10</td>
<td>3/26</td>
<td>Juan Leon, Ph.D. Global Health</td>
<td>Waterborne Disease</td>
<td>2. Frumkin et al., Chapter 18 (p. 454 – 515), Chapter 13 (p. 316 – 321)</td>
<td>None</td>
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<td>3. Fewtrell et al., (2005) “Water, sanitation, and hygiene interventions to reduce diarrhea in less developed countries: a systematic review and meta-analysis”</td>
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<td>11</td>
<td>4/2</td>
<td>Dana Boyd Barr, Ph.D.</td>
<td>Pesticides, Heavy Metals &amp; Persistent Organic Pollutants</td>
<td>1. Frumkin et al., Chapter 20 (p. 544 – 580)</td>
<td>ADG #5 on Lu et al.</td>
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<td>12</td>
<td>Jeremy Sarnat, Sc.D. Environmental Health</td>
<td>Indoor/Outdoor Air Pollution</td>
<td>1. Frumkin et al., Chapter 14 (p. 331 – 361), Chapter 22 (p. 625 – 647)</td>
<td>None</td>
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<td>13</td>
<td>Jeremy Hess, M.D., MPH Emergency Medicine</td>
<td>Global Climate Change</td>
<td>1. Frumkin et al., Chapter 11 (p. 238 – 268)</td>
<td>ADG #6 on Shindell et al.</td>
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<tr>
<td>14</td>
<td>4/23</td>
<td>FINAL EXAM – Week 1-13 content, 8 - 9:50AM, CNR Auditorium</td>
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