COURSE TITLE: Advanced Environmental Epidemiology

DEPARTMENT: EHS and EPI

COURSE NUMBER: EH747 / EPI747  SEMESTER: Fall 2018

CREDIT HOURS: 2

COURSE LOCATION  1055, CNR  TIME 1:00-2:50 PM

INSTRUCTOR NAME: Kyle Steenland

INSTRUCTOR CONTACT INFORMATION

EMAIL: Kyle: nsteenl@emory.edu
PHONE: Kyle: 404-712-8277          office: CNR 2005

SCHOOL ADDRESS OR MAILBOX LOCATION: Dept of Environmental Health, CNR 2nd Floor

OFFICE HOURS: Kyle Steenland: CNR 2005    Thursday 11-Noon
              Britney Baumert CNR 2036   desk#2040i Mon 11-12 AM
              Jiawen Liao    CNR 2040R desk 2010s   Tues 3-4 PM

BRIEF COURSE DESCRIPTION

Environmental and Occupational Epidemiology is a course for students who have successfully completed their first semesters of epidemiology and biostatistics. Students will gain experience reading, evaluating, and interpreting epidemiologic studies on the health impact of workplace and environmental exposures. The course aims to strengthen each student’s ability to understand and interpret the epidemiological literature. These skills will be developed through class lectures, assigned readings, and case studies. Although most case studies require data analysis, the focus of the class is on conceptual issues common in environmental epidemiology rather than on applied statistics.

MPH/MSPH FOUNDATIONAL COMPETENCIES

1) Apply epidemiologic methods to the breadth of settings and situations in public health practice
2) Select quantitative data collection methods appropriate for a given public health context
3) Analyze quantitative data using biostatistics, informatics, computer-based programming and software, as appropriate
4) Interpret results of data analysis for public health research, policy, or practice

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.
EVALUATION

Grades: The course grade will be based on the following:
8 weekly case studies/problem sets/write-ups - 60%
class participation -- 10%, final project, presentation of a hypothetical study -- 30%

Grades will be determined on a curve based on final rankings. Possible letter grades are A, A-, B+, B, B-, C, F. RSPH does not have C+ or C- as a grade option. Note: C’s and F’s are very very very rare!

CONCENTRATION COMPETENCIES

a) apply the principles of epidemiology to assess the health effects of environmental exposures (EH)
b) characterize the magnitude, frequency, and duration of environmental exposures (GEH)
c) develop an epidemiologic study to address an environmental health question (EH/EPI)
d) conduct basic epidemiologic analysis of environmental health data (EH/EPI)
e) interpret results of epidemiologic studies of an environmental health question (EH/EPI)
COURSE STRUCTURE

Problem Sets: Problems on each case study will be assigned a week in advance and due at the class session when the case is scheduled to be discussed. Several case studies include computer data analysis. Late submissions by Friday 5pm will receive 80% of the grade. Late submissions after Friday 5pm will receive no credit.

Journal Clubs: Journal clubs generally do not have problem sets to turn in; however, students will be graded based on their class participation. Journal clubs are meant to be challenging and intellectually stimulating, allowing the instructors to introduce new topics without students feeling the pressure of “getting the right answer.”

Final Project: A final project is required. Each student will prepare a proposal for an epidemiologic study addressing an environmental health issue selected from a list of possible topics. Students will identify an important unresolved question and develop a study protocol to address the study question. A written abstract of the proposal will be prepared and an oral presentation of the proposal will be made to the class. The class will assume the role of the peer reviewer and will critique the proposal, asking questions of the presenter and scoring the proposal on criteria similar to those used by NIH.

Prerequisites: EPI 530, BIOS 500, and BIOS 501. EPI 534 and EPI 570 recommended but not required.

Recommended Course Text (not required): Checkoway H, Pearce N, Kriebel D, Research Methods in Occupational Epidemiology, 2nd Ed., Oxford University Press, 2004 is the recommended course text. However, key chapters from this book will be posted on Canvas. The questions for the case studies, the articles for the case studies, and the articles for the journal clubs will all be posted on Canvas one week before the due date.

COURSE POLICIES

As the instructor of this course I endeavor to provide an inclusive learning environment. However, if you experience barriers to learning in this course, do not hesitate to discuss them with me and the Office for Equity and Inclusion, 404-727-9877.

RSPH POLICIES

Accessibility and Accommodations

Accessibility Services works with students who have disabilities to provide reasonable accommodations. In order to receive consideration for reasonable accommodations, you must contact the Office of Accessibility Services (OAS). It is the responsibility of the student to register with OAS. Please note that accommodations are not retroactive and that disability accommodations are not provided until an accommodation letter has been processed.

Students who registered with OAS and have a letter outlining their academic accommodations are strongly encouraged to coordinate a meeting time with me to discuss a protocol to implement the accommodations as needed throughout the semester. This meeting should occur as early in the semester as possible.
Contact Accessibility Services for more information at (404) 727-9877 or accessibility@emory.edu. Additional information is available at the OAS website at http://equityandinclusion.emory.edu/access/students/index.html.

Honor Code

**You are bound by Emory University's Student Honor and Conduct Code.** RSPH requires that all material submitted by a student fulfilling his or her academic course of study must be the original work of the student. Violations of academic honor include any action by a student indicating dishonesty or a lack of integrity in academic ethics. *Academic dishonesty refers to cheating, plagiarizing, assisting other students without authorization, lying, tampering, or stealing in performing any academic work, and will not be tolerated under any circumstances.*

The RSPH Honor Code states: “Plagiarism is the act of presenting as one’s own work the expression, words, or ideas of another person whether published or unpublished (including the work of another student). A writer’s work should be regarded as his/her own property.” (http://www.sph.emory.edu/cms/current_students/enrollment_services/honor_code.html)

**COURSE CALENDAR AND OUTLINE**

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<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Instructor</th>
<th>Competencies/Concentrations</th>
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<tbody>
<tr>
<td>8/29</td>
<td>Introduction (1-2PM)</td>
<td>Steenland</td>
<td>1-4,a-e</td>
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<tr>
<td>9/5</td>
<td>Lecture: Poisson regression (4-5 PM)(Room 2001)</td>
<td>Klein</td>
<td>3,d,e</td>
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<tr>
<td>9/12</td>
<td>Case study: Cohort study – lead</td>
<td>Steenland</td>
<td>3-4, a,b,d,e</td>
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<tr>
<td>9/19</td>
<td>Case study: Cohort study - Birth cohort</td>
<td>Steenland</td>
<td>3-4, a,b,d,e</td>
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<tr>
<td>9/26*</td>
<td>Case study: Cross-sectional – cadmium/renal</td>
<td>Thun</td>
<td>3-4, a,b,d,e</td>
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<tr>
<td>10/3</td>
<td>Case study: Maximum likelihood/imputing values below limit of detection</td>
<td>Brittny and Jaiwen</td>
<td>3-4, a,b,d,e</td>
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<td>10/10</td>
<td>Journal club – biomarkers</td>
<td>Brittny</td>
<td>1,4, a,b,e</td>
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<td>10/17</td>
<td>Case study: Measurement error, power exercise bonus</td>
<td>Steenland</td>
<td>3-4, a,b,d,e</td>
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<td>10/24**</td>
<td>Survival analysis (1 hour class); RCTs vs observational studies (HAPIN)</td>
<td>Steenland and Jaiwen</td>
<td>3-4, a,b,d,e</td>
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<td>10/31</td>
<td>Case study: Cohort study - PFOA cohort</td>
<td>Steenland</td>
<td>3-4, a,b,d,e</td>
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<tr>
<td>11/7</td>
<td>Case study: meta-analysis. Lecture: attributable fractions</td>
<td>Steenland</td>
<td>3-4, a,b,d,e</td>
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<td>11/14</td>
<td>Case study: Case-control - renal disease/occ exposures</td>
<td>Steenland</td>
<td>3-4, a,b,d,e</td>
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<td>11/21</td>
<td>Thanksgiving no class</td>
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<td>11/28</td>
<td>Final presentations</td>
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<td>1-4, a-c</td>
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<td>12/5</td>
<td>Final presentations</td>
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<td>12/12</td>
<td>Final presentations</td>
<td>Final presentations</td>
<td>1-4, a-c</td>
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* Dr. Steenland traveling,** Brittney traveling 10/19-10/26