DEPARTMENT: EH
COURSE NUMBER: 590R  SECTION NUMBER: 2  SEMESTER: Spring 2018
CREDIT HOURS: 1
COURSE TITLE: Oceans and Human Health

INSTRUCTOR: Matt Gribble
EMAIL: matt.gribble@emory.edu
PHONE: 404-712-8908
SCHOOL ADDRESS OR MAILBOX LOCATION: CNR 2023
OFFICE HOURS: I am available 10:15 – 11:15 AM in CNR 2023, or by appointment (send me an email to set up a meeting), also see TA hours below:

TEACHING ASSISTANT: Jake Rodgers, jake.rodgers@emory.edu
Thursday 10:30-11:30 AM in CNR 2nd floor kitchenette, or by appointment

BRIEF COURSE DESCRIPTION
This systems thinking course covers a broad range of topics pertaining to Oceans and Human Health, but is not comprehensive. There are many more ways that the oceans and human health are interconnected than are discussed in this class. This course focuses on four primary substantive topics: climate change, mercury, persistent organic pollutants, and pharmaceutical/personal care products. This course will highlight different kinds of reviews (e.g., scoping, narrative, systematic reviews), and good practices for each type. Students will gain practice in critically reading scientific review articles.

LIST SCHOOL LEVEL, DEPARTMENT, AND/ OR PROGRAM COMPETENCIES
• Describe environmental conditions, including biological, physical, and chemical factors, that affect the health of individuals, communities and populations
• Assess global forces that influence the health of diverse populations around the world.
• Critically evaluate the strengths and weaknesses of different study designs with respect to a given research question
• Apply systems thinking tools to a public health issue

LEARNING OBJECTIVES ASSOCIATED WITH THE COMPETENCIES
• Independently and confidently read published epidemiologic studies.
• Correctly apply common terminology to describe epidemiologic study designs and sources of bias.
• Interpret different measures of association and the results of multivariate statistical models.
• Understand the assumptions needed for various epidemiological study designs to be valid.
• Express criticism in a thoughtful, constructive, and respectful manner.

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

Evaluation is based on regular classroom participation (25%), homework assignments (50%), and an in-class final exam (25%).

Class Participation: Class attendance informs the participation grade; if you need to miss class then e-mail me before class. A student is responsible for one written critique per topical collection (four total, one per module); students who selected that article for their critique will lead the in-class discussion of that article. However, regardless of which article per module is selected for the written critique, **all of the assigned readings are mandatory and must be completed prior to the corresponding class session**. For example, on the syllabus for 1/26 there is a required reading (Grant and Booth 2009) which should be finished before you come to class on 1/26. Each class will involve discussion of that week’s assigned article in depth, so it is essential to complete all assigned readings. Evident lack of familiarity with the week’s reading will adversely affect participation grades.

Article Critiques: Each module, students will choose one article from the required reading list to critique. Written critiques should address methodological strengths and weaknesses of the review article, and be accompanied by a PRISMA checklist assessing the reporting in the article according to the PRISMA standards. The PRISMA checklist will be worth 20% of the article critique grade, the written portion will be worth 80%. It is okay (and actually, encouraged) for the written critiques to be informed by what PRISMA checklist elements are missing, but a good critique will go beyond a checklist of what is present or absent. Students may also refer to the COHERE reporting guidelines for One Health studies. Note: it is not required that a review article meet all PRISMA guidelines for the review article to be good - these are only guidelines. Students are encouraged to learn PRISMA expectations as a starting point for thinking critically about the content of a review.

Final Exam: The final exam will have two parts: a multiple choice section, and an article written critique. The multiple choice will review substantive points from the class about how changes in earth systems (e.g., climate change, disruption of the mercury biogeochemical cycle, etc.) impacting the oceans are affecting human well-being. The written critique will be an in-class writing assignment based on a reading assigned the week before. The reading will be provided again attached to the exam, but the PRISMA checklist will not be provided. Students are expected to, from memory, address whether the article reports the details expected for review articles (as defined by PRISMA), as well as other criticisms they choose to bring to bear on the final exam review article.
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<th>Date</th>
<th>Topic</th>
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| 1/19 | **Oceans and Human Health, Earth Systems Thinking, and the One Health Perspective**  
Discuss Syllabus  
**Assignment:**  
- Edit the Ground Rules Google Doc by 10 PM of Thursday 1/19  
**Optional Reading:**  
| 1/26 | **Types of Reviews**  
TA-led Session: How to Read a Review  
**Required Reading #1:**  
| 2/2 | **Module 1: Climate Change**  
Climate change and harmful algal blooms  
**Required Reading #2:**  
| 2/9 | **Module 1: Climate Change**  
Climate change and waterborne infectious disease  
**Required Reading #3:**  
| 2/16 | **Module 1: Climate Change**  
Climate change and marine ecosystem services  
**Required Reading #4:**  
| 2/23 | **Module 2: Mercury**  
Mercury in the food web  
**Required Reading #5:**  
| 3/2 | **Module 2: Mercury**  
Mercury and nutrient joint exposures  
**Required Reading #6:**  
| 3/9 | **Module 2: Mercury**  
Mercury pollution  
**Required Reading #7:**  
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<thead>
<tr>
<th>Date</th>
<th>Module</th>
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<tr>
<td>3/16</td>
<td><strong>Module 2: Mercury</strong></td>
<td>Cost-benefit analysis of mercury pollution controls</td>
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<td>3/23</td>
<td><strong>Module 3: Persistent Organic Pollutants</strong></td>
<td>Plastics in the ocean</td>
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<td>3/30</td>
<td>SPRING BREAK – NO CLASS</td>
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<td><em>Optional but encouraged reading:</em> Bratman et al. (2012) “The impacts of nature experience on human cognitive function and mental health.”</td>
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<td><em>Optional but encouraged activity:</em> enjoy someplace outdoors</td>
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<td><em>Extra Credit Opportunity:</em> attend 2018 Society of Toxicology meeting (in Texas), attend a platform presentation session with at least one epidemiological study, write a &lt;1 page summary of the epidemiology study and how it relates to the other toxicology work presented in that session.</td>
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<tr>
<td>4/6</td>
<td><strong>Module 3: Persistent Organic Pollutants</strong></td>
<td>Persistent organic pollutants over time</td>
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<tr>
<td>4/13</td>
<td><strong>Module 3: Persistent Organic Pollutants</strong></td>
<td>Persistent organic pollutants over time</td>
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<td>4/20</td>
<td><strong>Module 4: Pharmaceuticals and Personal Care Products</strong></td>
<td>Discharge of pharmaceuticals into the environment</td>
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<td>4/27</td>
<td><strong>Class Theme: FINAL EXAM REVIEW</strong></td>
<td>Final Exam Review – Class will be a TA-led Question and Answer session</td>
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<td><em>Optional but Recommended:</em></td>
<td>- Read assigned article for the final exam critique (will be shared in class and posted to Canvas).</td>
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<td>5/03</td>
<td><strong>Closed book final exam.</strong></td>
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<td>*A copy of the article to be critiqued will be included with the exam.</td>
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<td>*Calculators/cell phones/class notes are not permitted.</td>
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<td>*Bring a black or blue ink pen.</td>
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