

PUBHEPI 7411 – Epidemiology in Environmental Health
3 credits – Spring 2026
Online, Asynchronous

Course Instructor

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Instructor's Office Hours

Dr. Quist: Tuesdays 1:30-2:30pm (in Cunz 310 or via Zoom)
Dr. Song: Thursday, 1-2pm by appointment (in Cunz 404 or via Zoom)

Faculty Feedback & Response Time:

The following gives you an idea of our intended availability during the course:

- **Grading:** You can generally expect feedback within 10 days.
- **E-mail:** We will reply to e-mails (sent via Carmen) within 48 hours on school days.
- **Discussion board:** The instructors will check and reply to messages in the discussion boards at least every 48 hours on school days, and by the next business day on weekends or university holidays, unless a different turnaround time (due to travel, etc.) is announced.

Course Description

The environment consists of where we live, work and play. Therefore, some critical questions about environmental and occupational exposures are: What are the sources of bias and confounding and how do these errors affect interpretation of environmental health studies? How can we minimize these errors through careful study design, statistical causal inference methods and emerging computational procedures, such as systems science methods? This course will examine these questions in depth and provide students an appreciation of epidemiological methods and causal thinking for improving rigor and relevance of scientific and policy research in environmental health and epidemiological research.

Prerequisites

PUBHEPI 6410 or PUBHLTH 6001 or permission of the instructor.

Course Learning Objectives

1. Apply foundational principles of environmental epidemiological research and study design.
 - *Define study designs commonly used in environmental epidemiology and evaluate their strengths and weaknesses.*
 - *Identify and assess sources of bias in study design, with a focus on exposure misclassification bias.*

- *Write a scientific hypothesis, propose methods to test the hypothesis and communicate results in clear and practical language.*
 - *Critique peer-reviewed scientific articles in major epidemiology journals.*
2. Analyze principles of environmental exposure assessment methods and their application in epidemiological research.
 - *Explain how exposure assessment influences health effect estimates.*
 - *Apply methods to address exposure misclassification in retrospective studies.*
 - *Evaluate novel exposure assessment methods for minimizing bias in prospective studies.*
 3. Reflect on and improve your own strengths and weaknesses in designing studies, gathering data, and interpreting results in environmental epidemiology studies.
 - *Demonstrate ongoing improvement in applying course concepts through iterative feedback and self-assessment.*
 4. Develop an individual learning plan to achieve your goals for this course.
 - *Construct and implement a tailored learning plan to support your academic and professional goals.*
 5. Synthesize concepts from epidemiology and exposure science.
 - *Develop a conceptual map of linkages between multiple risk factors for a health outcome.*
 6. Evaluate the complementary role of environmental health sciences and epidemiology in the understanding of environmental burden of disease.
 - *Identify and describe ongoing environmental health concerns from the global to local scale.*
 - *Articulate study designs that would robustly test the evidence for current environmental health issues and translate those findings into action.*
 7. Utilize resources for continuous improvement in study design, exposure measurement, and outcome measurement.
 - *Compile and assess reference materials and tools for ongoing professional development in environmental epidemiology.*

Competencies:

A complete list of College of Public Health Competencies is located on the College of Public Health website: <https://cph.osu.edu/students/competencies>.

Foundational Public Health knowledge objectives (Graduate degree program- All)

- Explain effects of environmental factors on a population's health (7)
- Explain the role of quantitative and qualitative methods and sciences in describing and assessing a population's health (3)

MPH (Epidemiology)

- Analyze and interpret data obtained from an epidemiologic investigation, including data from surveys, matched and unmatched case-control studies, cohort studies, and clinical trials (3)
- Assess confounding and effect modification in data from an epidemiologic investigation (4)

MS/PhD (Epidemiology)

- Communicate in writing and orally a research project's methods, results, limitations, conclusions and public health relevance (5/6)
- Identify and understand the impact of potential sources of bias, including selection bias, measurement error and confounding, in epidemiological studies (6/7)

Text/Readings:

1. Savitz, David A. and Wellenius, George A. *Interpreting Epidemiologic Evidence: Connecting Research to Applications*. Oxford, UK: Oxford University Press, 2016. (Required text. PDF version of this book is available on Carmen.) A free, digital version of this text is available from [OSU Libraries](#) (log in is required).
2. Additional peer-reviewed scientific articles as assigned in the course outline.

Carmen

There is a Carmen site for this course: <https://carmen.osu.edu>. All course materials are available via Carmen.

You will need to use BuckeyePass (buckeyepass.osu.edu) multi-factor authentication to access your courses in Carmen. To ensure that you are able to connect to Carmen at all times, it is recommended that you take the following steps:

- Register multiple devices in case something happens to your primary device. Visit the BuckeyePass - Adding a Device help article for step-by-step instructions (<https://admin.resources.osu.edu/buckeyepass/adding-a-device>)
- Request passcodes to keep as a backup authentication option. When you see the Duo login screen on your computer, click **Enter a Passcode** and then click the **Text me new codes** button that appears. This will text you ten passcodes good for 365 days that can each be used once.
- Download the Duo Mobile application (<https://admin.resources.osu.edu/buckeyepass/installing-the-duo-mobile-application>) to all of your registered devices for the ability to generate one-time codes in the event that you lose cell, data, or Wi-Fi service

If none of these options will meet the needs of your situation, you can contact the IT Service Desk at 614-688-4357(HELP) and IT support staff will work out a solution with you.

Class Format: How this course works

- **Mode of delivery:** This course is 100% online delivery via asynchronous Distance Learning (DL) mode. There are no required sessions when you must be logged in to Carmen at a scheduled time.
- **Credit hours and work expectations:** This is a **3-credit-hour course**. According to [Ohio State policy \(go.osu.edu/credithours\)](https://go.osu.edu/credithours), students should expect around 3 hours per week of time spent on direct instruction (e.g., watching lecture videos) in addition to 6 hours of homework/active learning activities (e.g., reading the textbook, reading scientific papers, completing homework, participating on the discussion boards) to receive a grade of (C) average.
- **Attendance and participation requirements:** Students must log onto the course Canvas site at least once each week and interact through the class discussion boards.

Course Technology

Technology skills needed for this course

- Basic computer and web-browsing skills
- Navigating Carmen (go.osu.edu/canvasstudent)
- CarmenZoom virtual meetings (go.osu.edu/zoom-meetings)

Required equipment

- **Computer:** current Mac (Mac OSX) or PC (Windows 10+) with high-speed internet connection
- **Calculator:** Students should have access to a scientific calculator that can perform basic arithmetic, square roots, logarithms, and exponentiation.
- **Other:** a mobile device (smartphone or tablet) to use for BuckeyePass authentication

Optional equipment (for participation in optional live office hours and/or review sessions)

- **Webcam:** built-in or external webcam, fully installed and tested

- **Microphone:** built-in laptop or tablet mic or external microphone

Required software

- **Microsoft 365 Copilot (formerly Office 365)**
All Ohio State students are now eligible for free Microsoft 365 Copilot (formerly Office 365). Full instructions can be found at go.osu.edu/office365help.

Technology support

For help with your password, university email, Carmen, or any other technology issues, questions, or requests, contact the Ohio State IT Service Desk. Standard support hours are available at and support for urgent issues is available 24/7.

- **Self-Service and Chat support:** <http://it.osu.edu/help>
- **Phone:** 614-688-4357(HELP)
- **Email:** servicedesk@osu.edu

Assignments/Assessments

Exams: 0%

There are no exams in this course.

Assignments: 70%

There are homework exercises, discussion boards, summary section assignments, and a presentation in this course.

- Participation: weekly discussion boards (as check-ins). Students must respond to the questions posted by the instructor and are required to respond substantively to one or more of their classmates' posts.
- Homework assignments: Students will complete the exercises assigned by the instructor for each module. See Carmen website for details.
- Summary sections: Students will do independent learning assignments every other month. Students will choose one chapter/section to summarize (everyone, during first week of the course). When you are the leader, you will summarize what you learned and develop questions. When you are not the leader, you will craft a response to peers' work.
- Oral presentation (45 points): A recorded 15-20 min presentation will need to be submitted. Slides should be prepared based on the final proposal. Oral presentations will be graded based on clarity and engagement, and a survey of peer review. More detailed instructions will be given in Carmen.

Due date policies: Hand in your assignment online. Late assignment will not be accepted except under extenuating circumstance and with prior approval of instructor. Late assignments will be deducted 10% each day from the original grade (e.g., if original grade is 82%, then a one-day late submission will result in a final assignment grade of 72%). Unless otherwise noted, assignments for each module are due Sunday night at 10pm. New modules will be released Monday morning (midnight).

Papers: 30%

This course includes an individually written proposal.

- **Objective:** Develop a research proposal that will answer a scientific hypothesis/question about a current environmental health issue.
- **Details:** The proposal will consist of multiple sections that collectively form a coherent and complete research proposal. The proposal sections will be: *Background, Rationale, Proposed Methods, Expected Outcomes, Challenges, and Conclusion*. Expectations for each section are provided below.

Proposal Section	Description
Background	Describe the context of the environmental health issue in terms of history and geography but also general information on social, economic and political characteristics of the study population. This is where you tell the reader why your proposal topic is important and relevant. Include a summary of previous environmental epidemiological research on the topic.
Rationale	This is a short section (5-8 lines) where you provide the purpose of your proposed study and indicate what new knowledge/method/product it will contribute as a result of achieving the study purpose and the objectives.
Objectives	Write two to three objectives of the proposed study using complete sentences.
Proposed Methods	This section is the longest part of the proposal because here you will provide details on the following methodology components (as applicable): study subjects, inclusion/exclusion criteria, study design, exposure assessment, data collection and analysis strategy. Under study design, you should justify your selected design and discuss why other designs may not be appropriate, impractical and/or too costly to implement. Also, you should discuss any assumptions regarding exposure assessment you are making, mention sources of uncertainty related to exposure assessment approach, choice of study design and statistical analysis. Discussion of uncertainty/bias should be in the context of both the exposure estimate and the health effect estimate.
Expected Outcomes	Provide a brief overview of what you expect to find if you undertook the study. What level of evidence do you expect to find based on existing literature? Do you expect your estimates to be biased? If so, then in what direction?
Challenges	Discuss potential barriers and challenges to conducting the study according to the proposed methods. Also, discuss how you may overcome those barriers and address potential challenges using alternative or modified study designs and exposure assessment approaches. Discuss these challenges in the context of data collection, appropriateness of study measures, such as instruments (quantitative or qualitative), and, biological plausibility.
Conclusion	This last section will be short (5-8 lines) and should summarize your rationale (1 sentence), methods (3-5 sentences) and expected outcomes section (1-2 sentences).

Proposal Outline refers to a bullet-point version of your proposal that includes 3-5 bullet points for each section of the proposal. At the outline stage, we are mainly looking for evidence that you have started to think about the various sections of the paper. We will provide brief comments on bullet points. For the methods section, please provide additional bullet points for each sub-section. The headings for sub-sections will depend on your selected study design but at a minimum should consist of the following sub-sections: *Data collection, Exposure, Health Outcomes, and Statistical Analysis.*

Proposal Draft refers to first draft of the final paper that includes text for each section of the proposal. At the draft stage, we are mainly looking for evidence that you have started to write for each section and sub-section (as applicable) and that you are on track to complete and submit a final paper on time. We will provide some comments on the draft document as well. One way to do this is to expand further on each bullet point in your Proposal Outline document.

Proposal Final refers to the final paper that meets all of the above-mentioned requirements for the proposal.

Due date and other policies: Hand in your assignment online. Late assignment will not be accepted except under extenuating circumstance and with prior approval of instructor. Late assignments will be deducted 10% from the original grade (e.g., if original grade is 82%, then late submission will result in a final assignment grade of 72%).

Formatting guidelines: Written report with the following specifications: 10 pages maximum, double spaced, 1-inch margins, 11pt Arial font

Evaluation criteria:

Criteria	Description	Weight
Format	Does the document follow all formatting guidelines?	10%
Content	Does the content of the document appropriately address the objective of the assignment? Did the student follow expectations for each assignment section? Is there content that is extra or not related to the assignment?	20%
Originality	Is the proposed methodology appropriate for answering the research question? Did the students stretch themselves by going outside of their specialization/program/interest in their proposal topic? If not, then did the student address a topic within their specialization/program/interest that demonstrates a novel approach in terms of exposure assessment approach and/or study design?	40%
Critical Thinking	Does the overall assignment show evidence of critical assessment and problem solving? Is there evidence of incorporating ideas and concepts that have been discussed in class? From outside the class?	30%

For this assignment, students will hand in three separate documents with the following breakdown (adds up to 50% of final mark):

Proposal topic.....	1% (5 points)
Proposal outline	4% (5 points)
Proposal draft.....	10% (5 points)
Proposal final write-up.....	35% (5 points)

Grading

The weighting scheme for the course will be composed of the following items.

Item (Questions to Dr. Quist or Dr. Song)	Description	Weight (breakdown)
Proposal Assignment (Dr. Quist) <ul style="list-style-type: none"> ○ Topic ○ Draft write-up ○ Final write-up 	See details above.	30% overall (see details above for complete breakdown)
Oral Presentation (Dr. Song)	See Carmen website for details.	10%
Participation (Dr. Quist or Dr. Song, see Table 1)	Weekly discussion boards (as check-ins). Students must respond to the questions posted by the instruction and are required to respond substantively to one or more of classmates' posts.	10%

Homework Exercises (Dr. Quist or Dr. Song, see Table 1)	Students will complete exercise assigned by the instructor for each module. See Carmen website for details.	25%
Summary sections (Dr. Quist or Dr. Song)	Students will do independent learning assignments, choosing a chapter to summarize (Step 1, everyone), summarizing what they will have learned and developing questions (Step 2, lead students only), and crafting a response to peers' work (Step 3, non-leaders).	25%

Grading Scale

A	94 to 100	Outstanding work that reflects mastery of the material and the ability to apply it
A-	90 to <94	Excellent work that reflects mastery of the material
B+	87 to <90	Good work that reflects mastery of most of the material
B	84 to <87	Good work that reflects mastery of some of the material
B-	80 to <84	Good work that reflects mastery of a few aspects of the material
C+	77 to <80	Mediocre work that reflects familiarity with, but not mastery of the material
C	74 to <77	Mediocre work that reflects familiarity with most of the material
C-	70 to <74	Mediocre work that reflects little familiarity with the material
D+	67 to <70	
D	61 to <67	
E	Below 61	

Class Policies

Students must sign into Canvas at least once each week. Students are not permitted to upload course materials to Quizlet, Chegg, or other websites.

Copyright Statement

This syllabus and all course materials (e.g., homework assignments, solution keys, course materials) are under copyright by the instructor and cannot be posted elsewhere without written permission.

Generative AI Policy

Given that the learning goals of this class are aligned with the Council on Education for Public Health (CEPH) and OSU's General Elective expectations, the use of generative artificial intelligence (GenAI) tools such as Copilot or ChatGPT, or writer's aids like Grammarly is not permitted in this course. Any use of GenAI tools for work in this class may therefore be considered a violation of Ohio State's Academic Integrity policy and Code of Student Conduct because the work is not your own. If we suspect that you have used GenAI on an assignment for this course, we will ask you to explain your process for completing the assignment in question. The unauthorized use of GenAI tools will result in referral to the Committee on Academic Misconduct

Office of Student Life: Disability Services

The university strives to maintain a healthy and accessible environment to support student learning in and out of the classroom. If you anticipate or experience academic barriers based on your disability (including mental health, chronic, or temporary medical conditions), please let me know immediately so that we can privately discuss options. To establish reasonable accommodations, I may request that you register with Student Life Disability Services. After registration, make arrangements with me as soon as possible to discuss your accommodations so that they may be implemented in a timely fashion.

If you are ill and need to miss class, including if you are staying home and away from others while experiencing symptoms of a viral infection or fever, please let me know immediately. In cases where illness interacts with an underlying medical condition, please consult with Student Life Disability Services to request reasonable accommodations. You can connect with them at slds@osu.edu; 614-292-3307; or slds.osu.edu.

Mental Health Services

As a student you may experience a range of issues that can cause barriers to learning, such as strained relationships, increased anxiety, alcohol/drug problems, feeling down, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may lead to diminished academic performance or reduce a student's ability to participate in daily activities. The Ohio State University offers services to assist you with addressing these and other concerns you may be experiencing. If you or someone you know are suffering from any of the aforementioned conditions, you can learn more about the broad range of confidential mental health services available on campus via the Office of Student Life's Counseling and Consultation Service (CCS) by visiting ccs.osu.edu or calling [614-292-5766](tel:614-292-5766). CCS is located on the 4th Floor of the Younkin Success Center and 10th Floor of Lincoln Tower. You can reach an on call counselor when CCS is closed at [614-292-5766](tel:614-292-5766) and 24 hour emergency help is also available 24/7 by dialing 988 to reach the Suicide and Crisis Lifeline.

Religious Beliefs or Practices Accommodations

Ohio State has had a longstanding practice of making reasonable academic accommodations for students' religious beliefs and practices in accordance with applicable law. In 2023, Ohio State updated its practice to align with new state legislation. Under this new provision, students must be in early communication with their instructors regarding any known accommodation requests for religious beliefs and practices, providing notice of specific dates for which they request alternative accommodations within 14 days after the first instructional day of the course. Instructors in turn shall not question the sincerity of a student's religious or spiritual belief system in reviewing such requests and shall keep requests for accommodations confidential.

With sufficient notice, instructors will provide students with reasonable alternative accommodations with regard to examinations and other academic requirements with respect to students' sincerely held religious beliefs and practices by allowing up to three absences each semester for the student to attend or participate in religious activities. Examples of religious accommodations can include, but are not limited to, rescheduling an exam, altering the time of a student's presentation, allowing make-up assignments to substitute for missed class work, or flexibility in due dates or research responsibilities. If concerns arise about a requested accommodation, instructors are to consult their tenure initiating unit head for assistance.

A student's request for time off shall be provided if the student's sincerely held religious belief or practice severely affects the student's ability to take an exam or meet an academic requirement and the student has notified their instructor, in writing during the first 14 days after the course begins, of the date of each absence. Although students are required to provide notice within the first 14 days after a course begins, instructors are strongly encouraged to work with the student to provide a reasonable accommodation if a request is made outside the notice period. A student may not be penalized for an absence approved under this policy.

If students have questions or disputes related to academic accommodations, they should contact their course instructor, and then their department or college office. For questions or to report discrimination or harassment based on religion, individuals should contact the [Civil Rights Compliance Office](#). (Policy: [Religious Holidays, Holy Days and Observances](#))

Academic Misconduct

It is the responsibility of the Committee on Academic Misconduct to investigate or establish procedures for the investigation of all reported cases of student academic misconduct. The term “academic misconduct” includes all forms of student academic misconduct wherever committed; illustrated by, but not limited to, cases of plagiarism and dishonest practices in connection with examinations. Instructors shall report all instances of alleged academic misconduct to the committee ([Faculty Rule 3335-5-48.7 \(B\)](#)). For additional information, see the [Code of Student Conduct](#).

Intellectual Diversity

Ohio State is committed to fostering a culture of open inquiry and intellectual diversity within the classroom. This course will cover a range of information and may include discussions or debates about controversial issues, beliefs, or policies. Any such discussions and debates are intended to support understanding of the approved curriculum and relevant course objectives rather than promote any specific point of view. Students will be assessed on principles applicable to the field of study and the content covered in the course. Preparing students for citizenship includes helping them develop critical thinking skills that will allow them to reach their own conclusions regarding complex or controversial matters.

Grievances and Solving Problems

A student who encounters a problem related to his/her educational program has a variety of avenues available to seek resolution. According to University Policies, if you have a problem with this class, you should seek to resolve the grievance concerning a grade or academic practice by speaking first with the instructor or professor. Then, if necessary, you may take your case to the department chairperson. Specific procedures are outlined in [Faculty Rule 3335-8-23](#), the [CPH Graduate Student Handbook](#), and the [CPH Undergraduate Student Handbook](#). Grievances against graduate, research, and teaching assistants should be submitted first to the supervising instructor, then to the chairperson of the assistant's department.

Creating an Environment Free from Harassment, Discrimination, and Sexual Misconduct

The Ohio State University is committed to building and maintaining a community to reflect diversity and to improve opportunities for all. All Buckeyes have the right to be free from harassment, discrimination, and sexual misconduct. Ohio State does not discriminate on the basis of age, ancestry, color, disability, ethnicity, gender, gender identity or expression, genetic information, HIV/AIDS status, military status, national origin, pregnancy (childbirth, false pregnancy, termination of pregnancy, or recovery therefrom), race, religion, sex, sexual orientation, or protected veteran status, or any other bases under the law, in its activities, academic programs, admission, and employment. Members of the university community also have the right to be free from all forms of sexual misconduct: sexual harassment, sexual assault, relationship violence, stalking, and sexual exploitation.

To report harassment, discrimination, sexual misconduct, or retaliation and/or seek confidential and non-confidential resources and supportive measures, contact the Civil Rights Compliance Office:

Online reporting form at <http://civilrights.osu.edu/>,

Call 614-247-5838 or TTY 614-688-8605,

Or Email civilrights@osu.edu

The university is committed to stopping sexual misconduct, preventing its recurrence, eliminating any hostile environment, and remedying its discriminatory effects. All university employees have reporting responsibilities to the Civil Rights Compliance Office to ensure the university can take appropriate action:

- All university employees, except those exempted by legal privilege of confidentiality or expressly identified as a confidential reporter, have an obligation to report incidents of sexual assault immediately.
- The following employees have an obligation to report all other forms of sexual misconduct as soon as practicable but at most within five workdays of becoming aware of such information: 1. Any human resource professional (HRP); 2. Anyone who supervises faculty, staff, students, or volunteers; 3. Chair/director; and 4. Faculty member.

Table 1. Alignment of Course Topics, Assignments, Core/Specialization Competencies

Week	Date	Topic	Chapter to read	Additional readings	Instructor	Competencies	Assignments Due Sundays at 10pm
1	1/12/26	Introduction and Overview of Environmental Epidemiology	1, 2	James-Todd, T., Tomsho, K. S., Gaston, S. A., Elliott, K. C., & Jackson, C. L. (2024). Asking why is necessary to address health disparities: a critical approach for solution-oriented environmental epidemiological research. <i>Environmental Health Perspectives</i> , 132(11), 115001. Frumkin, H. (2015). Work that matters: toward consequential environmental epidemiology. <i>Epidemiology</i> , 26(2), 137-140.	Quist	All (3)	Homework exercises (Ch 2) Summary section #1 (lead students only) due 1/18 at 10pm
2	1/19/26	Causal Inference	3	Pearce, N., Vandembroucke, J. P., & Lawlor, D. A. (2019). Causal inference in environmental epidemiology: old and new approaches. <i>Epidemiology</i> , 30(3), 311-316. Zigler, C. M., & Dominici, F. (2014). Point: clarifying policy evidence with potential-outcomes	Quist	All (3)	Homework exercises (Ch 3) Summary section #1 responses (non-leaders) due 1/25 at 10pm

				<p>thinking—beyond exposure-response estimation in air pollution epidemiology. <i>American journal of epidemiology</i>, 180(12), 1133-1140.</p> <p>Optional: Glass, T. A., Goodman, S. N., Hernán, M. A., & Samet, J. M. (2013). Causal inference in public health. <i>Annual review of public health</i>, 34, 61-75.</p>			
3	1/26/26	General Considerations for Exposure Measurement and Misclassification in Environmental and Occupational Health Studies	Ch 1: Introduction to exposure assessment, in <u>Exposure Assessment in Environmental Epidemiology</u> , Nieuwenhuijsen	<p>Gee GC, Payne-Sturges DC. Environmental health disparities: a framework integrating psychosocial and environmental concepts. <i>Environ Health Perspect</i>. 2004 Dec;112(17):1645-53. doi: 10.1289/ehp.7074. PMID: 15579407; PMCID: PMC1253653.</p>	Quist	PhD/MS (6/7)	<p>Homework exercises due 2/1 at 10pm</p> <p>Proposal topic</p> <p>Summary section #2 (lead student only)</p>
4	2/2/26	General Considerations for Exposure Measurement and Misclassification in Environmental and Occupational Health Studies	Choose one chapter to read in <u>Exposure Assessment in Environmental Epidemiology</u> , Nieuwenhuijsen based off your interests	<p>Levy, M. C., Collender, P. A., Carlton, E. J., Chang, H. H., Strickland, M. J., Eisenberg, J. N., & Remais, J. V. (2019). Spatiotemporal error in rainfall data: consequences for epidemiologic analysis of waterborne diseases. <i>American Journal of Epidemiology</i>, 188(5), 950-959.</p>	Quist	PhD/MS (6/7)	<p>Homework exercises due 2/8 at 10pm</p> <p>Summary section #2 responses (non-leaders)</p>

5	2/9/25	Exposure Measurement and Misclassification in Special Populations (e.g., Children, Women, Older Adults)	6	<p>Pereira, G., Bracken, M. B., & Bell, M. L. (2016). Particulate air pollution, fetal growth and gestational length: The influence of residential mobility in pregnancy. <i>Environmental research</i>, 147, 269-274.</p> <p>Hyder, A., Lee, H. J., Ebisu, K., Koutrakis, P., Belanger, K., & Bell, M. L. (2014). PM2.5 exposure and birth outcomes: use of satellite- and monitor-based data. <i>Epidemiology</i> (Cambridge, Mass.), 25(1), 58.</p>	Quist	PhD/MS (6/7)	<p>Homework exercises due 2/15 at 10pm</p> <p>Summary section #3 (lead student only)</p>
6	2/16/26	Advanced Topics in Environmental Epidemiology	6	<p>VoPham, T., Hart, J.E., Laden, F. <i>et al.</i> Emerging trends in geospatial artificial intelligence (geoAI): potential applications for environmental epidemiology. <i>Environ Health</i> 17, 40 (2018). https://doi.org/10.1186/s12940-018-0386-x</p> <p>LaKind, J.S., Idri, F., Naiman, D.Q. <i>et al.</i> Biomonitoring and Nonpersistent Chemicals— Understanding and Addressing Variability and Exposure Misclassification. <i>Curr Envir Health Rpt</i> 6, 16–21</p>	Quist	PhD/MS (6/7)	<p>Homework Exercises (Ch 6)</p> <p>Summary section #3 responses (non-leaders) due 2/22 at 10pm</p>

				(2019).			
7	2/23/26	Confounding and Bias	5	Liu, C. Y., Maity, A., Lin, X., Wright, R. O., & Christiani, D. C. (2012). Design and analysis issues in gene and environment studies. <i>Environmental Health</i> , 11(1), 93.	Song	All (7,3); MPH (3,4); MS/PhD (6/7)	Discussion Summary Section #4 (lead students only, Chapter 5), by 3/1 at 10pm
8	3/2/26	Confounding and Bias	5	Matsui, E.C. & Keet, C.A. Weighing the evidence: Bias and confounding in epidemiologic studies in allergy/immunology. <i>J Allergy Clin Immunol</i> 139, 448-450 (2017).	Song	All (7,3); MPH (3,4); MS/PhD (6/7)	Discussion Homework Exercises Summary Section #4 responses (non-leaders, Chapter 5) by 3/8 at 10pm
9	3/09/26	Methodological Approaches for Confounding and Bias in Environmental Epidemiology	7	Janes, H., Dominici, F., & Zeger, S. L. (2007). Trends in air pollution and mortality: an approach to the assessment of unmeasured confounding. <i>Epidemiology</i> , 18(4), 416-423.	Song	All (7,3); MPH (3,4); MS/PhD (6/7)	Discussion Summary Section #5 (lead students only, Chapter 7) by 3/15 at 10pm
10	3/23/26	Cohort Studies: Applications in Environmental Health	7	Attfield, M. D., Schleiff, P. L., Lubin, J. H., Blair, A., Stewart, P. A., Vermeulen, R., Coble, J. B., & Silverman, D. T. (2012). The diesel exhaust in miners study: a cohort mortality study with emphasis on lung cancer. <i>Journal of the National Cancer Institute</i> , 104(11), 869-883.	Song	All (7,3); MPH (3)	Discussion Homework Exercises Summary Section #5 responses (non-leaders, Chapter 7) by 3/29 at 10pm
11	3/30/26	Case-control Studies: Advances and	8	Van Brusselen, D., Kayembe-Kitenge, T., Mbuyi-Musanzayi, S.,	Song	All (7,3); MPH (3)	Discussion

		Applications in Environmental Health		Lubala Kasole, T., Kabamba Ngombe, L., et al. Metal mining and birth defects: a case-control study in Lubumbashi, Democratic Republic of the Congo. <i>Lancet Planet Health</i> 4, e158-e167 (2020)			Summary Section #6 (lead students only, Chapter 8) by 4/5 at 10pm
12	4/6/26	Case-control Studies: Advances and Applications in Environmental Health	8	Silverman, D. T., Samanic, C. M., Lubin, J. H., Blair, A. E., Stewart, P. A., Vermeulen, R., Coble, J.B., Rothman, N., Schleiff, P.L., Travis, W.D., & Ziegler, R. G. (2012). The Diesel Exhaust in Miners Study: A Nested Case-Control Study of Lung Cancer and Diesel Exhaust. <i>J Natl Cancer Inst</i> , 104, 1-14.	Song	All (7,3); MPH (3)	Discussion Homework Exercises Summary Section #6 responses (non-leaders, Chapter 8) by 4/12 at 10pm
13	4/13/26	Integrating, interpreting and communicating evidence	13,14	Brody, J. G., Dunagan, S. C., Morello-Frosch, R., Brown, P., Patton, S., & Rudel, R. A. (2014). Reporting individual results for biomonitoring and environmental exposures: lessons learned from environmental communication case studies. <i>Environmental Health</i> , 13(1), 40.	Quist	MS/PhD (5/6)	Discussion Homework exercises due 4/19

14	4/20/26	Project presentation/ Peer feedback			Song	All (7,3); MPH (3,4); MS/PhD (5/6, 6/7)	Final oral presentation by 4/26, Peer feedback by 4/28
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