

SYLLABUS Spring 2020

Course Title:	Environmental and Occupational Epidemiology
Course Number:	EPID 0650
Course Pre- and Co-requisite(s):	Principles and Methods of Epidemiology (PHCO 502)
Course Location:	Room 334 School of Public Health, Piscataway
Course Dates:	Thursdays 6:00-8:00pm plus Canvas assignments
Course Instructor:	<i>Elizabeth G. Marshall, PhD Department of Biostatistics and Epidemiology Room 132 SPH, 732-235-4666, marshaeli@sph.rutgers.edu</i>
Office Hours:	<i>Thursday 4-6:00pm or By Appointment</i>
Course Assistant:	<i>None</i>
Course Website:	<i>Rutgers.canvas.edu</i>
Optional Course Texts:	<u>Epidemiology for Public Health Practice</u> , Friis RH, Sellers T. 2014, Jones and Barlett. OR <u>Epidemiology</u> , Leon Gordis, 5 th Edition. OR <u>Epidemiology: Beyond The Basics</u> 4th edition Book author: Moyses Szklo and F. Javier Nieto ISBN number: ISBN-13: 978-0763729271 ISBN-10: 0763729272

Course Description:

Environmental and Occupational Epidemiology is an intermediate level course designed to familiarize students with the major and emerging concepts in environmental and occupational epidemiology as well as with the design, conduct, and interpretation of results from environmental and occupational epidemiology studies. Students will become familiar with specific environmental and occupational research areas, as well as the unique epidemiologic or exposure methodologies used in those studies. Students will be asked to analyze, evaluate, summarize, and present data and published studies used to investigate health effects related to environmental and occupational exposures.

Students are expected to attend class, lead and participate in class and on-line discussion, work singly and in small groups to complete homework, and complete projects. There are two related final projects: One is a critical literature review of an exposure-disease relationship that each student will complete independently. Secondly, students will join a group of 3-4 students and will develop a study proposal to address a gap in the literature. Please see <https://www.canvas.rutgers.edu> course website. Class materials, assignments, readings, and lecture topics will be posted there.

Course Objectives:

By the completion of this course, students will be able to:

- a. Identify epidemiologic study designs and basic statistical analysis methods used in environmental and occupational epidemiology
- b. Apply knowledge of epidemiologic principles, including confounding, bias, measurement, and random error, to understanding the strengths and weaknesses of environmental and occupational epidemiology studies.

- c. Develop a familiarity with some of the primary environmental and occupational exposures and health effects and understand how to assess their importance.
- d. Critically evaluate articles in the environmental and occupational epidemiology literature, identify gaps in research, and obtain experience in literature review and proposal preparation.
- e. Gain experience in reviewing the literature around a specific question, collaborating with peers, and presenting a study proposal to respond to gaps in the scientific literature.

Course Requirements and Assessments:

- Students are required to *a. attend class* each week. Most classes will consist of a lecture followed by discussion or an activity. Some materials will be presented on-line to be completed prior to class. Access to readings and further discussion will also proceed on-line, via the class Canvas site. Students are expected to monitor Canvas in case of changes or discussion. PLEASE check your SPH e-mail consistently.
- Students will be required to *b. lead a discussion* for a review of one journal article or current discussion topic for one class period. Because of the number of students this semester, two students will be responsible for each topic. When not responsible for presenting, students will read, critique, and come prepared to discuss the issues led by their peers.
- Students will work together and separately to *c. complete homework* relevant to that week's lecture and contribute to *d. on-line and in class discussion* of posted materials.
- Students will individually complete *e. a literature review* on a topic of interest to the student, but also approved by the instructor. In general, that topic can be any topic related to environmental and occupational epidemiology, but will require instructor review. The Literature Review paper should be 8-10 pages double-spaced.
- Students work within a group to: *f. 1) identify gaps* in the current literature in their study topic and *2) develop a proposal* for an epidemiological study. The proposal will be completed in the form of a presentation (full paper not required). Students will *3) provide feedback* on their peers' efforts and proposals, and contribute to discussion during class and on-line.
- Groups will *g. present their proposal* to the class – all students will be required to participate in a presentation.

Grades:

10%	Study critique and leading class discussion.
25%	Homework, including data exercises, on-line discussion, and other.
25%	Critical literature review paper (individual)
25%	Proposal outline, peer review, and proposal presentation (group)
15%	Class participation, attendance, and current topics discussion.

There are no required textbooks but you will need either a beginning or intermediate epidemiology text to refer to. Readings and homework for the next class will be posted on Canvas and will often require internet-based resources. You will also be assigned to discussion teams via Canvas for in-class projects and review of study proposals. You are expected to participate in group activities and to communicate with your peers.

Grading Policy:

94 – 100	A
90 – <94	A-
87 – <90	B+
84 – <87	B

80 – <84	B-
77 – <80	C+
70 – <77	C
<70	F

Grades will not be rounded

FURTHER INFORMATION

Learning Management System: Canvas will be used extensively throughout the semester for course syllabus, assignments, announcements, communication and/or other course-related activities. It is the student's responsibility to familiarize themselves with Canvas and check it regularly. If you have difficulties accessing Canvas, please inform the instructor and Canvas Support (help@canvas.rutgers.edu). Canvas is accessible at canvas.rutgers.edu.

School of Public Health Honor Code: The School of Public Health Honor Code is found in the School Catalog (sph.rutgers.edu/academics/catalog.html). Each student bears a fundamental responsibility for maintaining academic integrity and intellectual honesty in his or her graduate work. For example, all students are expected to observe the generally accepted principles of scholarly work, to submit their own rather than another's work, to refrain from falsifying data, and to refrain from receiving and/or giving aid on examinations or other assigned work requiring independent effort. In submitting written material, the writer takes full responsibility for the work as a whole and implies that, except as properly noted by use of quotation marks, footnotes, references cited, etc., both the ideas and the works used are his or her own. In addition to maintaining personal academic integrity, each student is expected to contribute to the academic integrity of the School community by not facilitating inappropriate use of her/his own work by others and by reporting acts of academic dishonesty by others to an appropriate school authority. It should be clearly understood that plagiarism, cheating, or other forms of academic dishonesty will not be tolerated and can lead to sanctions up to and including separation from the Rutgers School of Public Health.

Students with Disabilities: Rutgers University welcomes students with disabilities into all of the University's educational programs. In order to receive consideration for reasonable accommodations, a student must apply for Services by first completing a Registration Form with the Rutgers Office of Disability Services (ODS) at ods.rutgers.edu. The student will also be required to participate in an ODS intake interview and provide documentation. If reasonable accommodations are granted, ODS will provide you with a Letter of Accommodations which should be shared with your instructors as early in your courses as possible.

Commitment to Safe Learning Environment: The Rutgers School of Public Health is committed to helping create a safe learning environment for all students and for the School as a whole. Free expression in an academic community is essential to the mission of providing the highest caliber of education possible. The School encourages civil discourse, reasoned thought, sustained discussion, and constructive engagement. Provocative ideas respectfully presented are an expected result. An enlightened academic community, however, connects freedom with responsibility. The School encourages all students to disclose any situations where you may feel unsafe, discriminated against, or harassed. Harassment or discrimination of any kind will be not tolerated and violations may lead to disciplinary actions.

Reporting Discrimination or Harassment: If you experience any form of gender or sex-based discrimination or harassment, including sexual assault, sexual harassment, relationship violence, or stalking, know that help and support are available. You may report such incidents to the [RBHS Title IX Office](#) or to the School of Public Health's [Office of Student Affairs](#). Rutgers University has staff members trained to support survivors in navigating campus life, accessing health and counseling services, providing academic and housing accommodations, and more. If you experience any other form of discrimination or harassment, including racial, ethnic, religious, political, or academic, please report any such incidents to the School's [Office of Student Affairs](#). The School strongly encourages all students to report any incidents of discrimination or harassment to the School. Please be aware that all Rutgers employees (other than those designated as confidential resources such as advocates, counselors, clergy and healthcare providers as listed in Appendix A to [Policy 10.3.12](#)) are required to report information about such discrimination and harassment to the School and potentially the University. For example, if you tell a faculty or staff member about a situation of sexual harassment or sexual violence, or other related misconduct, the faculty or staff member must share that information with the [RBHS Title IX Coordinator](#). If you wish to speak to a confidential employee who does not have this reporting responsibility, you can find a list of resources in Appendix A to University [Policy 10.3.12](#). For more information about your options at Rutgers, please visit [Rutgers Violence Prevention and Victim Assistance](#).

Graduate Student Computer Policy: Students are required to possess a personal laptop, no older than approximately two years, that must meet minimum requirements which may be found online at: sph.rutgers.edu/student-life/computer-support.html

Policy Concerning Use of Recording Devices and Other Electronic Communications Systems: When personally owned communication/recording devices are used by students to record lectures and/or classroom lessons, such use must be authorized by the faculty member or instructor who must give either oral or written permission prior to the start of the semester and identify restrictions, if any, on the use of mobile communications or recording devices.

Policy Concerning Use of Turnitin: Students agree that by taking this course all required papers may be subject to submission for textual similarity review to Turnitin.com (directly or via learning management system, i.e. Canvas) for the detection of plagiarism. All submitted papers will be included as source documents in the Turnitin.com reference database solely for the purpose of detecting plagiarism of such papers. Use of the Turnitin.com service is subject to the Usage Policy posted on the Turnitin.com site. Students who do not agree should contact the course instructor immediately.

Withdrawal/Refund Schedule: Students who stop attending their course(s) without submitting a completed [Add/Drop Course](#) form will receive a failing grade. Furthermore, students dropping to zero credits for the semester are considered withdrawn and must submit a completed [Leave of Absence](#) form from the School of Public Health's Office of Student Affairs. The School of Public Health refunds tuition only. Administrative and technology fees are non-refundable. You may find the Withdrawal/Refund Schedule on the School of Public Health website at: sph.rutgers.edu/academics/academic-calendar.html

Selected Department Competencies Addressed:

A. For the MPH in Occupational and Environmental Medicine (OEM)

1. Articulate occupational safety and health issues in the workplace and as applicable the related exposure risks to the general public as well as to vulnerable communities or susceptible sub-populations;
2. Explain basic mechanisms of toxicology and dose-response regarding occupational toxicants;
3. Apply federal and state regulatory standards which are related to worker (occupational) safety and health protection;
4. Evaluate the impact that environmental factors have on vulnerable populations

B. For the MPH in Occupational Safety and Health (OSH)

1. Identify occupational safety and health issues in the workplace and as applicable the related exposure risks to the general public as well as to vulnerable communities or susceptible sub-populations
2. Explain basic mechanisms of toxicology and dose-response regarding occupational toxicants
3. Apply federal and state regulatory standards which are related to worker (occupational) safety and health protection
4. Develop testable models to validate occupational exposures (one or more agents) and adverse health outcomes (causing injury, disability, or other morbidity or mortality)
5. List current quantitative risk assessment approaches and methods for specific occupational safety and other health hazards

C. For the MPH in Environmental Health Sciences (EHS)

1. Describe the major environmental health problems facing the general public as well as among specific communities or susceptible, vulnerable sub-populations
2. Explain the basic mechanism of toxicology and dose-response as applied to environmental toxicants
3. Describe the federal and state regulatory programs that relate to environmental (community) protection
4. Develop testable models to validate environmental exposures (one or more agents) and adverse health outcomes (causing injury, disability, or other morbidity or mortality)
5. List current quantitative risk assessment approaches and methods for specific environmental safety and other health hazards

D. For the MPH in Epidemiology

1. Critique epidemiologic literature, assess its strengths and weaknesses, and determine if conclusion(s) are supported
2. Use epidemiologic techniques to quantitatively assess patterns and changes in disease occurrence
3. Formulate a specific hypothesis and determine an appropriate study design and analysis plan
4. Design, implement, and assess ordinary data collection systems for public health research
5. Design and implement basic quality control methods during data entry and analysis
6. Appropriately analyze and interpret epidemiologic data, including large national and state level datasets
7. Communicate and present study findings to professional audiences

A. For the MPH in Occupational and Environmental Medicine (OEM) *DB=Discussion Boards

OEM Competency	Course Objectives(s)	Lessons	Assessment(s)
1	a, b, c, d, e	1-12	Lit Review, Proposal, Homework, Discussion
2	a, b, c	4-12	Lit Review, Critique, Homework

4	c, d, e	2, 5, 7, 8, 10, 12	Lit Review, Proposal, Discussion
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B. For the MPH in Occupational Safety and Health (OSH)

OSH Competency	Course Objectives(s)	Lessons	Assessment(s)
1	a, b, c, d, e	1-12	Lit Review, Proposal, Homework, Discussion
2	b, c, d	4-12	Critique, Homework, Discussion
4	b, d, e	4-12, 13, 14	Lit Review, Proposal, Critique

C. For the MPH in Environmental Health Sciences (EHS)

EHS Competency	Course Objectives(s)	Lessons	Assessment(s)
1	a, b, c, d, e	1-12	Lit Review, Proposal, Homework, Discussion
2	b, c, d	4-12	Critique, Homework, Discussion
4	b, d, e	4-12, 13, 14	Lit Review, Proposal, Critique

D. For the MPH in Epidemiology

EPID Competency	Course Objectives(s)	Lessons	Assessment(s)
1	a, c, d, e, f	1-14	Lit Review, Proposal, Critique, Discussion
2	c, d	1-3, 5, 13-15	Homework, Discussion
3	b, d, e	1-3, 13-15	Homework, Discussion, Proposal
4	a, b, c	1-3, 11-13	Homework, Critique, Discussion
7	d, g, h	13-15	Lit Review, Proposal, Presentation