

- Course Title:** Introduction to Environmental Health
- Course Number:** PHCO0503, Spring semester 2020
- Course Location:** Conference Room C (2nd Floor), Environmental and Occupational Health Sciences Institute (EOHSI), 175 Frelinghuysen Rd, Piscataway NJ.
- Course Date & Time:** Mondays nights, 6:00 – 8:00 PM
- Course Instructor:** Robert J. Laumbach M.D., M.P.H. C.I.H.
Associate Professor, Rutgers SPH-ENOH
EOHSI Rm 204, 170 Frelinghuysen Rd., Piscataway, NJ
(848) 445-6084 laumbach@eohsi.rutgers.edu
- Office Hours:** Before class or by appointment
- Course Assistant:** Sean Stratton sas536@sph.rutgers.edu
- Course Website:** canvas.rutgers.edu
- Required Course Text:** *Environmental Health: From Global to Local*, Howard Frumkin, Ed. 3rd edition S.F., CA: Jossey-Bass. 2016 **(THE 2016 EDITION IS REQUIRED BECAUSE WEEKLY ASSIGNED READING FOLLOWS THE BOOK CLOSELY)**

Additional/Supplemental Readings/Resources:

For suggested supplemental readings by topic/subtopics covered in each module, please see online supplemental materials with PDFs and websites accessed on Canvas.

- Course Description:** In this course we will discover and explore how the environments that we inhabit and encounter in our daily lives can have profound impacts on health and wellbeing. We will examine how ecosystems provide goods and services that support life and health, and how natural events and human activity can lead to harm from biological, chemical, physical, and radiological agents in air, water, soil, food, homes, and workplaces. We will apply multidisciplinary concepts and analysis from ecology, toxicology, epidemiology, and behavioral sciences. We will review policies intended to improve public health by enhancing or maintaining the environments that we live in. We will focus on environmental health challenges and responses in urban settings, with examples from greater Newark.

Competencies Addressed: The competencies addressed in this course include:

1. Identify the core functions of public health and the 10 Essential Services.
2. Describe federal and state regulatory programs, guidelines and authorities that control environmental health issues.
3. Explain effects of environmental factors on a population's health.
4. Explain an ecological perspective on the connections among human health, animal health and ecosystem health.
5. Specify current environmental risk assessment methods.
6. Explain the general mechanisms of toxicity associated with various environmental exposures.
7. Specify approaches for assessing, preventing, and controlling environmental hazards that pose risks to human health and safety.
8. Describe the direct and indirect human, ecological and safety effects of major environmental and occupational agents.
9. Describe physiologic, social and psychological factors that affect susceptibility and vulnerability to adverse health outcomes following exposure to environmental hazards.
10. Explain biological and genetic factors that affect a population's health.
11. Discuss various risk management and risk communication approaches in relation to issues of environmental justice and equity.
12. Explain how globalization affects global burdens of disease.

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

- A. Describe the spectrum of environmental and occupational health problems;
- B. Characterize target populations exposed to hazardous agents, and susceptibility and vulnerability factors;
- C. Describe the tools that are used to analyze health impacts of environmental exposures, such as the risk assessment process, epidemiology, and industrial hygiene;
- D. Describe the main methods used to control health hazards, i.e., reduce and/or prevent exposure;
- E. Describe the existing regulatory framework for controlling environmental and occupational risks and promoting health.

Course Requirements and Grading:

The course sessions will be a mixture of questions and group discussion based on readings and previous class discussions, instructor presentation, and whole-group and small-group problem-solving and discussion.

Preparation prior to each class is essential. The usual weekly class preparation includes reading 2 chapters in the textbook, and taking a thought-provoking, open-book quiz before class. Quizzes are due before class.

Assigned reading and participation in discussions are required to make the course a successful learning experience. We will discuss expectations for participation in class. Part of the assessment of class participation will be a self-assessment early in the course, so that we can develop collaborative strategies to encourage and maintain high-quality student engagement. In addition, keeping up with assigned readings and class participation will be important for success on the written exams and projects. Weekly before-class, open-book, quizzes based on the readings will be a substantial part (20%) of the overall grade.

Numeric grades from exams, assignments and related class participation will be weighted in the proportions shown below to produce an overall numeric course grade:

Class participation	10%
Weekly open-book quizzes (best 10 of 11)	20%
Mid-term examination	20%
Final examination	20%
Small Group Project	30%

Final letter grades will be assigned for the course as follows:

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

Mapping of competencies, objectives, modules and assessments.

Competency	Course Objective	Module	Assessments
1	A, B, C, D, E	1	Midterm
2	D, E	6,7,9,10,12,13	Module Quiz, Midterm, Final Exam
3	A, B, C	1,2,3,4,5,6,7,9,10,11,12,13	Module Quiz, Midterm, Final Exam
4	A, B, C, D, E	1,3,11	Module Quiz, Midterm, Final Exam
5	B, C, E	4, 6, 10	Module Quiz, Midterm, Final Exam
6	A, D	2, 4	Module Quiz, Midterm
7	B, C, D, E	2, 4, 6, 7, 9, 10	Module Quiz, Midterm, Final Exam
8	A, B, C, D, E	1,2,3,4,5,6,7,9,10,11,12,13	Module Quiz, Midterm, Final Exam
9	A, B	2,5,6,10	Module Quiz, Midterm, Final Exam
10	B, C	2,5	Module Quiz, Final Exam
11	A, B, C, D, E	2,3,4,5,6,7,9,10,11,12,13	Module Quiz, Midterm, Final Exam
12	A, B, C, D, E	5,7	Module Quiz, Midterm, Final Exam

Course Schedule:

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Course Schedule and Topics (subject to change as needed; readings may be supplemented). Weekly on-line quizzes based on weekly preparatory reading (chapters from the Frumkin textbook) will be due before class.

DATE	TOPIC(S) and REQUIRED READINGS from Frumkin (2016) 3rd Edition.
1/27/2020 Week 1	Introduction to the Course/ Introduction to Environmental Health (Frumkin Ch. 1) Core Functions of Public Health and 10 Essential Services
2/3/16/2020 Week 2	Toxicology (Ch. 6) / Environmental and Occupational Epidemiology (Ch. 4) Including Biological and Genetic Factors that Affect Health
2/10/2020 Week 3	Ecology and Ecosystems (Ch 2) / Sustainability (Ch 3) Including the Ecological Perspective
2/17/2020 Week 4	Exposure Science / Risk Assessment (Ch. 8 and 27)
2/24/2020 Week 5	Ethics / Environmental Justice (Ch 10 and 11)
3/2/2020 Week 6	Solid and Hazardous Waste / Environmental Disasters (Ch. 17, 24)
3/9/2020 Week 7	Water and Health / Food Systems (Ch 16 and 19)
3/16/2020 Week 8	Midterm Exam / Pest Control and Pesticides (Ch 18)
3/23/2020 Week 9	Work and Health / Injuries (Ch 21 and 23)
3/30/2020 Week 10	Air Pollution / Energy and Health (Ch 13 and 14)
4/6/2020 Week 11	Climate Change / Communicating Environmental Health (Ch 12 and 28) Including Globalization and Global Burdens of Disease
4/13/2020 Week 12	Healthy Communities / Buildings and Health (Ch 15 and 20)
4/20/2020 Week 13	Radiation (Ch. 22) / Preparation for presentations
4/27/2020 Week 14	Presentations and Discussion
5/4/2020 Week 15	Review and Wrap-up / Final Exam

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, 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