

Course Title: Introduction to Environmental Health, Fall 2022

Course Number: PHCO 0503-030

Course Prerequisite(s): None

Course Location: 1 Riverfront Plaza, Room 1023

Course Date & Time: 6-8 pm Mondays, September 12 to December 21, 2022

Course Instructor: Sean Stratton, MPH, CSP, PhD Candidate in Department of Environmental and Occupational Health and Justice.
sas536@sph.rutgers.

Office Hours: Monday 4:30-5:30pm (before class) or by appointment

Course Assistant: none

Course Website: canvas.rutgers.edu

Required Course Text: Howard Frumkin (2016), Environmental Health: From Global to Local, published by Jossey-Bass, ISBN 978-1-118-98476-5

Additional/Supplemental Readings/Resources: See Course Schedule

Course Description: We will explore ways in which environments can and do affect health. We will examine how ecosystems provide goods and services that support life and health, and how natural 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 science. We will review policies intended to improve public health by altering or maintaining environments.

Minimum Grade Requirement for Select Prerequisite Courses

PHCO 0503 Introduction to Environmental Health serves as a prerequisite course for ENOH 0656 Environmental Risk Assessment. ENOH 0656 requires not only completion of PHCO 0503 but also requires a minimum grade of "B" or better in PHCO 0503. Students who have completed PHCO 0503 with the required minimum grade will be allowed to register for ENOH 0656. Students who have completed PHCO 0503 with a grade less than the required minimum grade should review the [Minimum Grade Requirement for Select Prerequisite Courses Policy](https://sph.rutgers.edu/academics/assets/docs/PolicyPrereqMinimumGradeRequirement.pdf) (<https://sph.rutgers.edu/academics/assets/docs/PolicyPrereqMinimumGradeRequirement.pdf>) for more information.

Competencies Addressed: The competencies addressed in this course include:

- Identify the core functions of public health and the 10 Essential Services;
- Describe federal and state regulatory programs, guidelines and authorities that control environmental health issues;
- Explain effects of environmental factors on a population's health;
- Explain an ecological perspective on the connections among human health, animal health and ecosystem health;

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- Specify current environmental risk assessment methods;
- Explain the general mechanisms of toxicity associated with various environmental exposures;
- Specify approaches for assessing, preventing, and controlling environmental hazards that pose risks to human health and safety;
- Describe the direct and indirect human, ecological and safety effects of major environmental and occupational agents;
- Describe physiologic, social and psychological factors that affect susceptibility and vulnerability to adverse health outcomes following exposure to environmental hazards;
- Explain biological and genetic factors that affect a population's health;
- Discuss various risk management and risk communication approaches in relation to issues of environmental justice and equity; and
- Explain how globalization affects global burdens of disease.

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

- Describe the spectrum of environmental and occupational health problems
- Characterize target populations exposed to hazardous agents, and susceptibility and vulnerability factors
- Describe the tools that are used to analyze health impacts of environmental exposures, such as the risk assessment process, epidemiology, and industrial hygiene
- Describe the main methods used to control health hazards, such as reducing or preventing exposure
- Describe the existing regulatory framework for controlling environmental and occupational agents

Course Requirements and Grading:

Students are required to

- Complete weekly readings and online 30's
- Complete weekly online quizzes independently
- Actively participate in classroom discussions
- Submit final projects prior to class on December 12th

The assessments will include weekly quizzes and two in class exams (October 31st and December 19th). Online quizzes will be open book and open for a limited amount of time (usually 1 hour). In class exams will be closed book, students will be provided two hours for the exam.

Final grades will be based on the following:

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| 1. <i>Weekly Online Quizzes</i> | 20 pts. |
| 2. <i>Mid Term Exam</i> | 25 pts. |
| 3. <i>Final Exam</i> | 25 pts. |
| 4. <i>Project & Presentation</i> | 20 pts. |
| 5. <i>Class Participation</i> | 10 pts. |
| <i>Total:</i> | 100 pts. |

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

**Course Schedule: Schedule and Topics (including linked competencies and assessment)
(Required Readings from Frumkin (2016), 3rd edition, videos on canvas)**

Week	Date	Course Topic	Online 30	Assignments/ Assessments	Link To Competencies And Assessments
1	12-Sep	Introduction to Environmental Health	Introduction to Ecology Video Flow of energy and matter through ecosystem video	Read Chapter 1 and 2 from textbook for class	Linked competency: Identify the core functions of public health and the 10 Essential Services; Explain effects of environmental factors on a population's health; Explain how globalization affects global burdens of disease
2	19-Sep	Air Pollution	Renewable Energy Explained in 2 1/2 Minutes Video Air Pollution 101 National Geographic Video Top 10 Energy Sources of the Future Video Delhi: the city with the most polluted air, The	Read Chapters 13 and 14 from textbook for class Online Quiz due by Mon, September 26, 11:59pm	Linked competency: Describe the direct and indirect human, ecological and safety effects of major environmental and occupational agents; Specify approaches for assessing, preventing, and controlling environmental hazards that pose risks to human health and safety; Describe federal and state regulatory programs, guidelines and authorities that control environmental health

			<p>Economist Video</p> <p>WHO: Breathe Life – How air pollution impacts your body video</p>		<p>issues; Explain how globalization affects global burdens of disease</p>
3	26-Sep	Water Pollution and Hazardous Waste	<p>Water Pollution video</p> <p>What is Water Pollution, Chemistry for All video</p> <p>China's Polluted water video</p> <p>Solid and Hazardous Waste video</p> <p>Hazardous Waste Management video</p>	<p>Read Chapters 16 and 17 from textbook for class</p> <p>Online Quiz due by Mon, October 3rd, 11:59pm</p>	<p>Linked competency: Identify the core functions of public health and the 10 Essential Services; Describe the direct and indirect human, ecological and safety effects of major environmental and occupational agents; Specify approaches for assessing, preventing, and controlling environmental hazards that pose risks to human health and safety; Describe federal and state regulatory programs, guidelines and authorities that control environmental health issues</p>
4	3-Oct	Environmental Disasters and Climate Change	<p>Causes and Effects of Climate Change, National Geographic video</p> <p>The Crucial Connection: Change and Health, Kaiser Permanente video</p> <p>4 Unbelievable Natural Disasters Caught on Tape video</p> <p>Top 10 worst Man Made</p>	<p>Read Chapters 12 and 24 from textbook for class</p> <p>Online Quiz due by Mon, October 10th, 11:59pm</p>	<p>Linked competency: Identify the core functions of public health and the 10 Essential Services; Explain effects of environmental factors on a population's health; Describe the direct and indirect human, ecological and safety effects of major environmental and occupational agents; Specify approaches for assessing, preventing, and controlling environmental hazards that pose risks to human health and safety; Describe federal and state regulatory programs, guidelines and authorities that control</p>

			Environmental Disasters video Disaster Management PSM video		environmental health issues; Discuss various risk management and risk communication approaches in relation to issues of environmental justice and equity; Explain how globalization affects global burdens of disease
5	10-Oct	Occupational Health	Workplace Injury and Disease 1947 USA video The Accident Cascade Workplace Injury Prevention video Introduction to Health and Safety at Work video The Work Health and Safety Roadmap for NSW 2022 video	Read Chapters 8, 21, and 23 from textbook for class Online Quiz due by Mon, October 17th, 11:59pm	Linked competency: Describe the direct and indirect human, ecological and safety effects of major environmental and occupational agents; Specify approaches for assessing, preventing, and controlling environmental hazards that pose risks to human health and safety; Describe federal and state regulatory programs, guidelines and authorities that control environmental health issues; Discuss various risk management and risk communication approaches in relation to issues of environmental justice and equity; Explain how globalization affects global burdens of disease
6	17-Oct	Toxicology	Basic Principles of Toxicology video Toxicology video	Read Chapters 6 and 18 from textbook for class Online Quiz due by Mon, October 24th, 11:59pm	Explain effects of environmental factors on a population's health. Explain the general mechanisms of toxicity in eliciting a toxic response to various environmental exposures Specify approaches for assessing, preventing, and controlling environmental hazards that pose risks to human health and safety Describe the direct and indirect human, ecological and safety effects of major

					environmental and occupational agents Describe physiologic, social and psychological factors that affect susceptibility and vulnerability to adverse health outcomes following exposure to environmental hazards Explain biological and genetic factors that affect a population's health
7	24-Oct	Exposure Science	Is Radiation Dangerous video Radiation vs Radioactive Atoms video Nuclear Energy Explained: How does it work? Video Environmental Epidemiology and Exposure Science video Exposure Science, Wikipedia audio article	Read Chapter 22 from textbook for class Online Quiz due by Mon, October 31st, 11:59pm	Explain effects of environmental factors on a population's health. Explain the general mechanisms of toxicity in eliciting a toxic response to various environmental exposures Specify approaches for assessing, preventing, and controlling environmental hazards that pose risks to human health and safety Describe the direct and indirect human, ecological and safety effects of major environmental and occupational agents Describe physiologic, social and psychological factors that affect susceptibility and vulnerability to adverse health outcomes following exposure to environmental hazards Explain biological and genetic factors that affect a population's health
8	31-Oct	Midterm Exam		In class Midterm Exam	
9	7-Nov	Environmental Epi	Environmental epidemiology, Wikipedia audio article	Read Chapter 4 and 5 from textbook for class	Linked competency: Identify the core functions of public health and the 10 Essential Services; Explain effects of environmental factors on

			<p>Epidemiological studies – made easy video</p> <p>What is Geospatial Analysis? video</p>	<p>Online Quiz due by Mon, November 14th, 11:59pm</p>	<p>a population's health; Specify approaches for assessing, preventing, and controlling environmental hazards that pose risks to human health and safety</p>
10	14-Nov	Risk Assessment/ Communication	<p>Hazard, Risk & Safety – Understanding Risk Assessment, Management and Perception video</p> <p>What is environmental risk assessment? Video</p> <p>Environmental Communication video</p> <p>Risk Communication video</p> <p>Why are Environmental Health Services So Important - video</p>	<p>Read Chapters 27 and 28 from textbook for class</p> <p>Online Quiz due by Mon, November 21st, 11:59pm</p>	<p>Linked competency: Describe the direct and indirect human, ecological and safety effects of major environmental and occupational agents; Specify approaches for assessing, preventing, and controlling environmental hazards that pose risks to human health and safety; Describe federal and state regulatory programs, guidelines and authorities that control environmental health issues; Discuss various risk management and risk communication approaches in relation to issues of environmental justice and equity</p>
11	21-Nov	Food Systems, the Environment, and Public Health	<p>Industrial Vs. Sustainable Agriculture video</p> <p>Why do we need to change our food system? Video</p> <p>Pesticides and Pest Control – video</p>	<p>Read Chapter 19 from textbook for class</p> <p>Online Quiz due by Mon, November 21st, 11:59pm</p>	<p>Linked competency: Identify the core functions of public health and the 10 Essential Services; Describe the direct and indirect human, ecological and safety effects of major environmental and occupational agents; Specify approaches for assessing, preventing, and controlling environmental hazards that pose risks to human health and safety; Explain how globalization affects global burdens of disease</p>

12	28-Nov	Sustainability and Healthy Communities	<p>Sustainability explained video</p> <p>Sustainability: told as a children's fair tale with beautiful montage video</p> <p>5 Steps to Reduce your Ecological Footprint Video</p>	<p>Read Chapters 3 and 15 from textbook for class</p> <p>Online Quiz due by Mon, December 5th, 11:59pm</p>	<p>Linked competency: Explain effects of environmental factors on a population's health; Describe the direct and indirect human, ecological and safety effects of major environmental and occupational agents; Explain an ecological perspective on the connections among human health, animal health and ecosystem health; Explain how globalization affects global burdens of disease</p>
13	5-Dec	Environmental Justice	<p>Environmental Justice and Clean Energy in New Jersey (NJ Spotlight News) video</p> <p>Priorities of the Equitable and Just Climate Platform (Center for American Progress) video</p> <p>Countdown to Cleaner Air: Community – Engaged Truck Counting and Air Monitoring in Elizabeth, NJ (Rutgers EOHSI) video</p> <p>Warren County: When Environmental Justice Meets Human Rights (American Masters PBS) video</p>	<p>Read Chapters 10 and 11 from textbook for class</p> <p>Online Quiz due by Mon, December 12th, 11:59pm</p>	<p>Linked competency: Describe generic, physiological and psychosocial factors that affect susceptibility to adverse health outcomes following exposure to environmental hazards; Discuss various risk management and risk communication approaches in relation to issues of environmental justice and equity; Explain how globalization affects global burdens of disease</p>
14	12-Dec	Presentations		<p>In Class presentation</p> <p>Presentation Slides due</p>	

				before class on Monday December 12th	
15	19-Dec	Final Exam		In Class 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.

Student Well-Being: The School of Public Health recognizes that students may experience stressors or challenges that can impact both their academic experience and their personal well-being. If the source of your stressors or challenges is academic, students are encouraged to discuss these challenges and circumstances with their instructor, if they feel they may need additional support or temporary accommodations at the beginning or during this course. The course instructor may consider making reasonable temporary adjustments depending on the student's situation. For personal concerns or if additional support is needed, students may reach out to the [Office of Student Affairs](#) or any of the appropriate referral resources listed on the [SPH Student Connect](#) Canvas page.

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](#).

Overview of School Policies: Academic and non-academic policies and procedures, such as Auditing a Course, Retaking Courses, Grade Grievance and others that cover registration, courses and grading, academic standing and progress, student rights and responsibilities, graduation and more may be found under [Policies](#) on the School of Public Health website. Below are select specific policies; however, students are responsible for keeping informed about academic and non-academic policies and procedures beyond those noted on this syllabus.

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