

- Course Title:** Introduction to Environmental Health
- Course Number:** PHCO 0503Web, 2022 Summer Session II
- Course Prerequisite(s):** None
- Course Location:** Online
- Course Date & Time:** Online (Summer Session II, July 11 –August 22, 2022)
- Course Instructor:** Jun-Yan Hong, PhD, Professor, Department of Environmental and Occupational Health, 848-445-6146; hongju@sph.rutgers.edu; <https://rutgers.webex.com/meet/hongju>
- Course Assistant:** TBA
- Office Hours:** 9 am to 5 pm. Students may schedule individual meetings by phone or Webex - Appointment is required.
- 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.

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;
- 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;

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- 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

- Post to and read weekly discussion board for current topic chapters/articles and questions;
- Complete homework assignment/quiz independently;
- Submit homework assignments on **Saturday, July 30, 2022 (home assignment 1) and on Friday, August 19, 2022 (home assignment 2)**. Both are due by 11:59 pm on the submission date;
- Actively participate in discussions

The assessments will include quizzes, discussions and timely submission of two home assignment papers.

Both module-specific quizzes and discussion topics will be released together with corresponding modules. Students should submit independent response to discussion topics first then respond to another student's posts. Quizzes will be open for a limited amount of time (usually 1 hour) and students should get ready before they open the quizzes. **The answers to quizzes, same as module-specific discussions, are due by 11:59 pm on Wednesday or Saturday. Submission of Module 12 quizzes and discussion is due on Friday, August 19th, 2022.**

- **Final grades** will be based on total average weighted percentage shown below:

Quizzes	30%
Discussions	30%
Homework Assignments	40%

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: Course Schedule and Topics (including linked competencies and assessment)

DATE	TOPIC(S) and REQUIRED READINGS from Frumkin (2016), 3 rd Edition
<p>7/11/2022, Mon Module 1</p>	<p>Introduction / Ecology and Ecosystems / Sustainability (Ch. 1, 2, 3)</p> <ul style="list-style-type: none"> • 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; Explain an ecological perspective on the connections among human health, animal health and ecosystem health; Explain how globalization affects global burdens of disease • Assessment: Quizzes and Discussions (due by Wed, July 13, 11:59pm)
<p>7/13/2022, Wed Module 2</p>	<p>Environmental and Occupational Epidemiology / Geospatial Analysis (Ch. 4, 5)</p> <ul style="list-style-type: none"> • Linked competency: Identify the core functions of public health and the 10 Essential Services; Explain effects of environmental factors on a population’s health; Specify approaches for assessing, preventing, and controlling environmental hazards that pose risks to human health and safety • Assessment: Quizzes and Discussions (due by Sat, July 16, 11:59pm)

<p>7/18/2022, Mon Module 3</p>	<p>Toxicology / Exposure Science and Industrial Hygiene (Ch. 6, 8)</p> <ul style="list-style-type: none"> • Linked competency: 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; Specify current environmental risk assessment methods; Describe the direct and indirect human, ecological and safety effects of major environmental and occupational agents; Describe generic, physiological and psychosocial factors that affect susceptibility to adverse health outcomes following exposure to environmental hazards; Explain biological and genetic factors that affect a population’s health • Assessment: Quizzes and Discussions (due by Wed, July 20, 11:59pm)
<p>7/20/2022, Wed Module 4</p>	<p>Food Systems / Pest Control and Pesticides (Ch. 19, 18)</p> <ul style="list-style-type: none"> • 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 • Assessment: Quizzes and Discussions (due by Sat, July 23, 11:59pm)
<p>7/25/2022, Mon Module 5</p>	<p>Energy and Health / Air Pollution (Ch. 14, 13)</p> <ul style="list-style-type: none"> • 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; Explain how globalization affects global burdens of disease • Assessment: Quizzes and Discussions (due by Wed, July 27, 11:59pm)

<p>7/27/2022, Wed Module 6</p>	<p>Water and Health / Solid and Hazardous Waste (Ch. 16, 17)</p> <ul style="list-style-type: none"> • 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 • Assessment: Quizzes and Discussions (due by Sat, July 30, 11:59pm) <p>Homework assignment 1 (3 pages, due by 11:59 pm on Sat, 7-30-22)</p>
<p>8/01/2022, Mon Module 7</p>	<p>Healthy Communities / Buildings and Health (Ch. 15, 20)</p> <ul style="list-style-type: none"> • 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 • Assessment: Quizzes and Discussions (due by Wed, August 3, 11:59pm)
<p>8/03/2022, Wed Module 8</p>	<p>Climate Change (Ch. 12)</p> <ul style="list-style-type: none"> • 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 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 • Assessment: Quizzes and Discussions (due by Sat, August 6, 11:59pm)

<p>8/08/2022, Mon Module 9</p>	<p>Work and Health (Ch. 21)</p> <ul style="list-style-type: none"> • 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 • Assessment: Quizzes and Discussions (due by Wed, August 10, 11:59pm)
<p>8/10/2021, Wed Module 10</p>	<p>Injuries / Environmental Disasters (Ch. 23, 24)</p> <ul style="list-style-type: none"> • 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 environmental health issues • Assessment: Quizzes and Discussions (due by Sat, August 13, 11:59pm)
<p>8/15/2022, Mon Module 11</p>	<p>Risk Assessment / Communicating Environmental Health (Ch. 27, 28)</p> <ul style="list-style-type: none"> • 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 • Assessment: Quizzes and Discussions (due by Wed, August 17, 11:59pm) <p>Homework assignment 2 (3 pages, due by 11:59 pm on Fri, 8-19-22)</p>

<p>8/17/2022, Wed Module 12</p>	<p>Ethics / Environmental Justice (Ch. 10, 11)</p> <ul style="list-style-type: none"> • 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 • Assessment: Quizzes and Discussions (due by Fri, August 19; 11:59pm)
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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.

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/school-calendar.html