



## COURSE TEAM

### Course Director

Paul Brandt-Rauf, MD, ScD, DrPH

### Curriculum Coordinator

Catherine S. Lee

### Lecturers

David Brenner, PhD

Joseph Graziano, PhD

Roger Panetta, PhD

Robin Whyatt, DrPH

Dickson Despommier, PhD

Pat Kinney, ScD

Allan Rosenfield, MD

Gabriele Windgasse, DrPH

Greg Freyer, PhD

Sylvia Le Blancq, PhD

Joyce Rosenthal, MPH

### Teaching Assistants

Mohammad Saad Alam

Sarah Mense

Nada K. Hamade

Sapna Surendran

Stephen Lee

Eleanne D.S. van Vliet

## COURSE DESCRIPTION

Environmental factors have a profound impact on the public's health. Essential to understanding and addressing this impact is focused study in basic and applied environmental health sciences. In addition, environmental health problems intersect with health disparities, government policy, reproductive health, population shifts, and economic forces. Recognizing the need for a solid grounding in both environmental health sciences and the interconnections with other societal issues significantly improves the way we conduct public health research and professional practice. In this course, students will engage in scientific inquiry into environmental health issues and develop problem-solving skills for improving health at the local, regional and global levels. This course is part of the core-course requirement for the MPH.

## COURSE LEARNING OBJECTIVES

Students who successfully complete this course will be able to:

- Identify important chemical, physical and other environmental factors that can affect health;
- Identify opportunities for partnerships between public health entities and community-based organizations for the purpose of strengthening a community's capacity to promote environmental health;
- Communicate effectively in writing knowledge of environmental hazards to other health professionals and the public;
- Explain the linkages of environmental health problems with other societal issues (public policy, health disparities, reproductive health, population shifts, etc.) for the purpose of identifying opportunities for multidisciplinary collaboration;
- Analyze how environmental contaminants (chemical, physical and other exposures) interact with biological systems and affect human populations for the purpose of improving the public's health.

## **COURSE STRUCTURE**

Units of analysis are important to the study of environmental health sciences and public health in general. Environmental science at some of its smallest units of analysis involves the study of molecules, while public health units of analysis include people and populations. Improving and sustaining the public's health requires scientific inquiry and public health initiatives at various units of analysis including the individual, home, community, region, and the world. While many public health problems and their solutions blur these distinctions, these units of analysis nonetheless provide a valuable approach for organizing and learning about environmental health issues. This course is divided into three major units with public health issues carefully selected to exemplify the challenges to keeping the public healthy:

Unit 1 – Home Alone: Private Spaces, Public Health Problems

Unit 2 – The Environment, Community Health and Regional Dilemmas

Unit 3 – Global Environmental Health Challenges

In-class learning will take place through lectures and discussions with scientific experts, many of them leaders in their field, along with case studies involving participation from public health professionals and community members. Outside of class learning will take place through reading, writing and critical reflection.

You are expected to be prepared for each class by carefully reading the assigned texts before the lecture. Please be ready to pose questions to the lecturers and invited guests as well as respond to questions asked to you. You have been provided a name card that you should display at each class to assist in facilitating discussion. As you develop your questions, consider the science as well as the impact that these issues have on your own areas of study and the larger mission of taking knowledge and skills into the field as the next generation of public health leaders. As a core class, we come together as a community of learners that is both large in number and diverse in interests. This class will provide you with the possibility to challenge each other to effectively address some of the most pressing issues in public health.

## **ASSESSMENT OF LEARNING**

Student grades will be based on:

Three Essay Exams (each worth 20%)..... 60%

Final Exam..... 40%

Essay Exam: For each of the three units of this course there is a six to eight page essay exam written outside of class. These exams will ask you to integrate and apply the knowledge and skills from each unit to contemporary public health debates and challenges. The essay exam for each unit will be distributed on the first day of the unit and is due on the Tuesday following the last class of the unit (see the lecture schedule for the specific dates). A grading rubric is provided for each exam to clearly define expectations for successful completion of the essays and the criteria for assessment.

Final Exam: This two-hour exam will take place in class on December 14<sup>th</sup> and will evaluate your cumulative knowledge and skills from the course. It will involve short answer responses (one page each) to a variety of questions.

## TEACHING ASSISTANTS

Teaching assistants are important members of the teaching team for this course and meet regularly with the course director and curriculum coordinator. Students are assigned to one of six teaching assistants. The teaching assistants are available to provide guidance during your preparation of unit exams and for clarification of key concepts from lectures and readings. Assistance can be sought via email or by setting up an appointment to meet for office hours. You are strongly encouraged to leaving ample time before an exam is due when seeking assistance. Teaching assistants are responsible for grading of exams using a carefully designed grading rubric and with oversight from the course director and unit lecturers. You are encouraged to first communicate your questions about the course to your teaching assistant. The course director and faculty of the course can be reached for questions as well.

Teaching Assistant	Email	Assigned Students (alphabetical by last name)
Mohammad Saad Alam	<a href="mailto:msa2118@columbia.edu">msa2118@columbia.edu</a>	A through Cad
Nada K. Hamade	<a href="mailto:nkh2103@columbia.edu">nkh2103@columbia.edu</a>	Cal through Fieb
Catherine S. Lee	<a href="mailto:cl2041@columbia.edu">cl2041@columbia.edu</a>	Fiesta through Johnson
Stephen Lee	<a href="mailto:sl2428@columbia.edu">sl2428@columbia.edu</a>	Jones through Michel
Sarah Mense	<a href="mailto:smm2123@columbia.edu">smm2123@columbia.edu</a>	Michie through Polen
Sapna Surendran	<a href="mailto:ss2590@columbia.edu">ss2590@columbia.edu</a>	Pr through Smith
Eleanne D.S. van Vliet	<a href="mailto:ev2117@columbia.edu">ev2117@columbia.edu</a>	Son through Z

## LECTURE AND EXAM SCHEDULE

Please see the lecture section of Courseworks to download the readings, exams, and lecture slides. If you are in need of a reference book, we have placed on reserve at the Health Sciences library a textbook (Our Global Environment) which you may find useful.

<b>Sept. 6</b>	<b>Introduction: This Semester in the EHS Core Course</b> <u>Lecturers:</u> Paul Brandt-Rauf, MD, ScD, DrPH; Joseph Graziano, PhD
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### Unit 1 – Home Alone: Private Spaces, Public Health Problems

<b>Sept. 13</b>	<b>Promoting Healthy Homes: Chemicals Hazards, Toxicity and Public Health</b> <u>Lecturer:</u> Joseph Graziano, PhD  <u>Invited guest:</u> Mark Maddaloni, PhD, Environmental Protection Agency (EPA)  <u>Essay Exam #1 Distributed</u>
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<b>Sept. 20</b>	<b>Chemicals in the Home: A Case Study of Pesticides and Reproductive Health</b> <u>Lecturer:</u> Robin Whyatt, DrPH  <u>Invited guest:</u> Yolanda Baldwin, participant in “Mothers and Newborn Study,” Columbia Center for Children’s Environmental Health
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<b>Sept. 27</b>	<b>Opening the Window: Indoor Air Quality, Asthma, and Health Disparities</b> <u>Lecturer:</u> Pat Kinney, ScD  <u>Invited guests:</u> Ginger Chew, PhD, Assistant Professor of Environmental Health Sciences, The role of indoor allergens in asthma development: the Puerto Rican asthma project; David Evans, MD, Clinical Professor of Sociomedical Sciences, Intervening to reduce cockroach infestation in NYC housing authority buildings; Faruque Parvez, MPH, Senior Staff Associate, Environmental Health Sciences, Exposures to indoor cook-stove emissions among women in Bangladesh
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### Unit 2 – The Environment, Community Health and Regional Dilemmas

<b>Oct. 4</b>	<b>Fresh Air: Outdoor Air Quality, Health, and Public Policy</b> <u>Lecturer:</u> Pat Kinney, ScD  <u>Invited guest:</u> Swati Prakash from WE ACT, Environmental Justice and Environmental Health – Northern Manhattan & Beyond  <u>Essay Exam #1 Due, Essay Exam #2 Distributed</u>
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<b>Oct. 11</b>	<b>Chronic Disease and Ground Water: A Case Study of Bangladesh</b>  <b>Superfund Sites: Case Study of Idaho’s Coeur d’Alene River Basin</b>  <u>Lecturer:</u> Joseph Graziano, PhD
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<b>Oct. 18</b>	<b>Urban Growth and the NYC Water Supply: The History of the Croton Aqueduct</b> <u>Lecturer:</u> Roger Panetta, PhD
	<b>Infectious Disease and Surface Water</b> <u>Lecturer:</u> Sylvia Le Blancq, PhD
<b>Oct. 25</b>	<b>Hazardous and Municipal Waste Management</b> <u>Lecturer:</u> Gabriele Windgasse, DrPH

<b>Unit 3 – Global Environmental Health Challenges</b>	
<b>Nov. 1</b>	<b>Radiation, Public Health, and Terrorism</b> <u>Lecturer:</u> David Brenner, PhD
	<u>Invited guests:</u> Irwin Redlener, MD, Associate Dean and Clinical Professor of Population and Family Health, Director of the National Center for Disaster Preparedness; David Markenson, MD, Assistant Professor of Population and Family Health and Deputy Director of the National Center for Disaster Preparedness
	<u>Essay Exam #2 Due, Essay Exam #3 Distributed</u>
<b>Nov. 8</b>	<b>No Class – Election Day</b>
<b>Environmental Health Sciences Special Events</b>	
<b>Nov. 10</b>	You are encouraged to attend the 13 <sup>th</sup> Annual Granville H. Sewell Distinguished Lecture in Environmental Health Sciences. This year’s talk entitled, “The Ethics of What We Eat” will be given by <b>Peter Singer, PhD</b> . Location: Hammer Health Sciences rm.401 Time: 4:00 pm
<b>Nov. 15</b>	<b>The Globalization of Infectious Disease</b> <u>Lecturer:</u> Dickson Despommier, PhD
<b>Nov. 22</b>	<b>The Environment, Population and Reproductive Health</b> <u>Lecturer:</u> Allan Rosenfield, MD
	<b>Supersizing and Its Effect on Our Health and Planet: The Built Environment</b> <u>Lecturer:</u> Joyce Rosenthal, MPH
<b>Nov. 29</b>	<b>Climate Change and Public Health</b> <u>Lecturer:</u> Pat Kinney, ScD
	<u>Invited Guest:</u> Dr. Klaus S. Lackner

**Dec. 6 Making the Case for Environmental Health: Reflections on the Semester**

Lecturer: Greg Freyer, PhD

Review for final exam during the last hour lead by teaching assistants.

Essay Exam #3 Due

**Dec. 13 Final Exam**

(Note: Due to the change in schedule of the APHA meetings, attendees will have the option to take the final exam at an alternative date that will be worked out shortly)