

**Epidemiology 786:  
Community-Driven Epidemiology and Environmental Justice  
Spring 2015**

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**Time:** Wednesdays 1:25 - 3:15 PM

**Location:** 2303 McGavran-Greenberg Hall

**Instructor:** Steve Wing, office: 2101F McGavran-Greenberg Hall, 919 966 7416

**Objectives:**

Low income communities and communities of color have challenged public health scientists to conduct research on environmental and occupational hazards that impact their health. Such community-driven research requires epidemiologists and other researchers to modify approaches used in more traditional research conducted for clients in government and industry. This class introduces concepts and methods in community-driven environmental justice research, presents current research and research needs, and offers opportunities for active involvement in problem-solving in environmental justice research. Methodological topics include public health and social justice, study design and analysis in environmental and occupational epidemiology, development of community-driven research questions, community-based participatory research, and preparation of reports that address community and policy needs. Possible topics for 2015 are industrial livestock production, solid waste disposal, coal ash, aluminum production, and energy production from biomass.

**Organization:**

Several introductory class sessions will provide background and identify conceptual and methodological issues related to environmental justice research, issues of race and class in environmental health, and the environmental justice movement. Substantive topics will be addressed during the semester in pairs of classes. In the first class of each pair, speakers from communities experiencing environmental exposures or health problems will present background information about their situation. In the second class of each pair, students and faculty will discuss the community problems and identify possible research questions, study designs, measurement techniques, and ethical issues involved in addressing community research needs (see section on *Research Response* below). In addition to responses to community presentations, students will work on their own or in small groups to develop papers on epidemiologic topics related to environmental justice. Topics may be based on community presentations, your own prior work, or other aspects of the health consequences of environmental injustice (see section on *Paper & Presentation* below).

The syllabus and readings are posted at [sakai.unc.edu](http://sakai.unc.edu). Topics and readings are subject to changes, which will be announced in class, by email, or on Sakai. This class is offered in coordination with the [North Carolina Environmental Justice Network](#), Naeema Muhammad, co-director.

## **Course Requirements:**

*Participation:* Participation is an important part of this class. The quality of our experience as a group depends on everyone contributing their own knowledge, ideas, and questions. In order to participate actively in class discussions, students are expected to complete assigned readings prior to class. In addition, participation and class discussion depend on preparation done outside of class following each community presentation. This preparation may consist of review of scientific literature, on-line data bases, government documents, or reports in the press.

Participation in sessions with community guests is especially important. Our community guests come from outside academia. Please take care to be respectful by being in class on time and by paying close attention to community presenters.

*Research Responses (3):* Following community presentations on Feb 4, Feb 18 and Mar 4, students prepare a 1-2 page Research Response. Research Responses should consist of 3 parts: (1) a summary of the problem and issues described by the community members; (2) identification of research questions or testable hypotheses that respond to community concerns; and (3) description of research methods that could be used to address the research questions or hypotheses. Research methods can be broadly construed to include any of the following:

- literature review about health effects of the relevant exposure(s);
- methods to define or measure environmental or occupational hazards;
- approaches to quantify inequities in exposure;
- methods for evaluating health conditions or occurrence of disease;
- designs for evaluating the relationship between an exposure and a disease;
- approaches for enhancing participation in research or protecting confidentiality.

You will be asked to summarize your Research Response in class. Responses will serve as a basis for class discussion and should be turned in some time on the day of the research design class. Email or paper is fine.

*Paper & Presentation:* A final paper and in-class presentation are required. The format may be a literature review, research proposal, methodological investigation, ethical analysis, or data analysis. Examples of past projects and a description of requirements for the papers will be discussed in class.

A one-page description of the proposed paper topic is due March 18. The proposal should include (1) a title, (2) a statement of the problem and its significance in an environmental justice context, and (3) a description of the research approach (e.g., literature review, analysis of existing records, research protocol, analysis of a methodological or ethical problem).

Class presentations will be scheduled for April 8, 15 & 22.

Papers are due by April 24. *If you need an extension on this due date please make arrangements with the instructor by April 22.*

**EPID 786: Community-Driven Epidemiology and Environmental Justice  
Schedule and Readings - Spring 2015**

*Please check Sakai for changes and additions*

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**1. January 7: Popular movements, public health, and community-driven epidemiology**

[Wing, S. Environmental justice, science and public health. In: Goehl TJ \(ed.\) \*Essays on the Future of Environmental Health Research: A Tribute to Dr. Kenneth Olden\*. Research Triangle Park, NC: National Institute of Environmental Health Sciences, 2005.](#)

For further reading:

[Bullard RD & Johnson GS. Environmental Justice: Grassroots Activism and Its Impact on Public Policy Decision Making. \*Journal of Social Issues\*. 56: 555-578, 2000.](#)

**2. January 14: Concepts, principles, and methods of community-based participatory research**

[Leung MW, Yen IH, Minkler M. Community based participatory research: a promising approach for increasing epidemiology's relevance in the 21st century. \*Int. J. Epidemiol\*. 33: 499-506, 2004.](#)

Scammell M, Howard G. Is a Health Study the Answer for Your Community: A Guide for Making Informed Decisions, [Chapter 1: What Is a Health Study and Why Would You Want One?](#) Boston University School of Public Health Superfund Research Program.

For further reading:

Israel BA, Parker EA, Rowe Z, Salvatore A, Minkler M, López J, Butz A, Mosley A, Coates L, Lambert G, Potito PA, Brenner B, Rivera M, Romero H, Thompson B, Coronado G, Halstead S. Community-based participatory research: lessons learned from the Centers for Children's Environmental Health and Disease Prevention Research. *Environ Health Perspect*. 2005 Oct;113(10):1463-71.

Coughlin SS. Environmental justice: the role of epidemiology in protecting unempowered communities from environmental health hazards. *The Science of the Total Environment* 1996; 184:67-76.

**3. January 21: Design, measurement and causal inference in occupational and environmental epidemiology**

Scammell M, Howard G. Is a Health Study the Answer for Your Community: A Guide for Making Informed Decisions, [Chapter 2: Framing Your Concern as a Research Question, and](#)

[Chapter 3: A Menu of Health Studies: Which Type is the Best Match to Your Research?](#) Boston University School of Public Health Superfund Research Program.

For further reading:

Clapp RW, Ozonoff D. Environment and health: vital intersection or contested territory? *Am J Law Med.* 2004;30(2-3):189-215.

Wing S. Whose epidemiology, whose health? *International Journal of Health Services*, 28:241-252, 1998.

Paddle GM, Harrington JM. Environmental epidemiology--strengths and weaknesses. *Int Arch Occup Environ Health* 2000;73:7-14.

Scammell M, Howard G. Is a Health Study the Answer for Your Community: A Guide for Making Informed Decisions, [Chapter 4: More about Each Type of Health Study](#). Boston University School of Public Health Superfund Research Program.

- 4. January 28: The environmental justice movement in North Carolina.** Guest speakers: Naeema Muhammad, co-director, [NC Environmental Justice Network](#); Kay Jowers Senior Policy Associate, Nicholas Institute for Environmental Policy Solutions, Duke University; David Caldwell, Project Director and Community Organizer, [Rogers-Eubanks Neighborhood Association](#)

Washington Office of Environmental Justice, [Principles of Environmental Justice](#), 1991

Slatin C, Scammell M. “No justice, no peace” and the right to self-determination: An interview with Gary Grant and Naeema Muhammad of the North Carolina Environmental Justice Network. *New Solutions.* 24:203-229, 2014.

Muhammad, S. The Environmental Justice Movement, North Carolina Environmental Justice Network, and the Role of Students. 2014

For further reading:

Minkler M, Vasquez VB, Tajik M, Petersen D. Promoting environmental justice through community-based participatory research: The role of community and partnership capacity. *Health Education and Behavior.* 35:119-137, 2008.

Jensen, Robert. White privilege shapes the US. *Baltimore Sun*, 19 Jul 1998: C-1.

- 5. February 4: Community perspectives: landfills.** Guest speakers: Robert Campbell, Rogers-Eubanks Neighborhood Association; Lewis Dozier, [Royal Oaks Concerned Citizens Association](#); Nick Wood, Lead Organizer, [NC Waste Awareness and Reduction Network](#); Naeema Muhammad, community organizer, NCEJN

## 6. February 11: Research design, landfills

Cowell RL. [Digging deeper: In Orange and Guilford counties, neighbors fight landfill expansions](#). Indy Week, July 6, 2011.

[Heaney CD, Wing S, Campbell RL, Caldwell D, Hopkins B, Richardson D, Yeatts K. Relation between malodor, ambient hydrogen sulfide, and health in a community bordering a landfill. Environmental Research. 111:847-852, 2011.](#)

[Heaney CD, Wing S, Wilson SM, Campbell RL, Caldwell D, Hopkins B, O'Shea S, Yeatts K. Public infrastructure disparities and the microbiological and chemical safety of drinking and surface water supplies in a community bordering a landfill. Journal of Environmental Health, 2013.](#)

For further reading:

Norton J, Wing S, Lipscomb HJ, Kaufman JS, Marshall SW, Cravey AJ. Race, wealth, and solid waste facilities in North Carolina. Environmental Health Perspectives. 115:1344-1350, 2007.

Mitis F, Martuzzi M (eds.). [Population health and waste management: scientific data and policy options](#). Copenhagen: World Health Organization, 2007.

## 7. February 18: Community perspectives, concentrated animal feeding operations.

Guest speakers: Devon Hall, Acting Director, [Rural Empowerment Association for Community Help](#); Elsie Herring, REACH and NCEJN; and Naeema Muhammad, community organizer, NCEJN \*\*Guests did not attend due to snow.\*\*

[...the Rest of the Story: Corporate Hog Farming in NC](#) (video)

Nicole W. [CAFOs and environmental justice: the case of North Carolina](#). Environ Health Perspect. 2013 Jun;121(6):A182-9. [Free PMC Article](#). [Erratum](#)

Hardy S. [The price of pork](#). Endeavors, 2012

## 8. February 25: Research design, CAFOs

Wing S, Horton R, Muhammad N, Grant G, Tajik M, Thu K. Integrating epidemiology, education, and organizing for environmental justice: Community health effects of industrial hog operations. American Journal of Public Health. 98:1390-1397, 2008.

Rule A, Evans SL, Silbergeld EK. Food animal transport: A potential source of community exposures to health hazards from industrial farming (CAFOs). Journal of Infection and Public Health, 2008(1):33-39.

For further reading:

Tajik M, Muhammad N, Lowman A, Thu K, Wing S, Grant G. Impact of odor from industrial hog operations on daily living activities. *New Solutions: A Journal of Occupational and Environmental Health Policy*. 18:193-205, 2008.

Wing S., Horton RA, Rose KM. Air pollution from industrial swine operations and blood pressure of neighboring residents. *Environmental Health Perspectives*. 121:92-96, 2013.

Davis MF, Price LB, Liu CM-H, Silbergeld EK. An ecological perspective on U.S. industrial poultry production: the role of anthropogenic ecosystems on the emergence of drug-resistant bacteria from agricultural environments. *Current Opinion in Microbiology*. 14:244-250, 2011.

Graham JP, et al. Antibiotic resistant enterococci and staphylococci isolated from flies collected near confined poultry feeding operations. *Science of the Total Environment*, 407:2701-2710.

9. **March 4: Worker perspectives, occupational health and safety for mental health workers.** Guest speakers: Larsene Taylor, O'Berry Center; Larry Wellman, Group Home; and Naeema Muhammad, community organizer, NCEJN

**March 11: Spring Break**

10. **March 18: Research design, topic 3**

*Project Topics Due*

11. **March 25: EJ research and Title VI of the Civil Rights Act.** Guest speaker: Marianne Engelman Lado, managing attorney, Northeast Regional Office, Earthjustice.
12. **April 1: Objectivity in science and advocacy in public health?**
13. **April 8: Project Presentations**
14. **April 15: Project Presentations**
15. **April 22: Project Presentations**

*Final papers due April 24*