

ENVS 406:
Community-Based Environmental Health
SPRING SEMESTER 2009

Tuesdays and Thursdays
1:30 – 2:50 P.M.

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Course Overview:

Over the last 20 years, the field of environmental health has matured and expanded to become one of the most comprehensive and humanly relevant disciplines in science. The environment affects health more strongly than biological factors, medical care and lifestyle. The water we drink, the food we eat, the air we breathe are all components of the environment. Some estimates, based on morbidity and mortality statistics, indicate that the environment contributes to more than 80 percent of health effects¹; one clear example is asthma. Asthma data in Philadelphia suggest that about 10 percent of all children suffer asthma episodes during any given year, while up 22 percent of the City's minority populations experience asthmatic attacks during the year. The existing regional air quality, both out-door and in-door, are clearly the overriding factors that exacerbate this urban epidemic.

Students in the University of Pennsylvania's ABCS program will partner with a variety of residents and experts in the West Philadelphia communities to identify the most important environmental health issues in the area. **Environmental Health** is defined as the impact of a person's surroundings and lifestyle on their health. Environmental factors can include air, water, toxic agents, infectious agents, nutrition, and housing. Your participation in this course will help to identify and clarify the important environmental health issues in our community, and your challenge will be to develop reasonable and practical solutions to reduce risks to vulnerable populations that are living in the Penn community.

The goals of this assessment course are to collaborate with the community to:

- Identify one significant environmental or public health issue to investigate
- Develop a project statement that can be comprehensively explored from a team and individual approach
- Propose reasonable steps towards a solution – with alternatives - that can be evaluated
- Make final recommendation(s) to be implemented to reduce risks or mitigate existing adverse impacts to vulnerable populations

This course will not only examine the toxicity of physical agents, but also the effects of lifestyle, social and economic factors, and the current environment on human health. Selected topics will include endocrine

¹ Morgan, *Environmental Health*, p. 14

disrupting compounds (EDCs); the reciprocal relationships between of nutrition, obesity, and physical exercise; children's environmental health issues; licensed and unlicensed day care centers; indoor air quality; occupational health risks; and environmental justice issues concerning the exposure to hazardous materials.

The environmental health topics explored must assess not only the medical consequences, but also important underpinnings, such as healthcare, socio-economics, and environmental ethics, that often exacerbate these public health challenges. Students will use these frames, as well as other viewpoints, to determine the impacts of the problem they want to comprehensively investigate. Each student will have the opportunity to examine the Public Health, Environmental Safeguards, Public Policy, or Environmental Education perspectives as they develop their alternatives and solutions to mitigating certain environmental health risks. Students, working in groups and individually, will assess one environmental health topic in detail, develop a cadre of experts and community members to assist in their planning, present their findings to the class (and relevant experts), and propose recommendations and mitigations for future action.

Course Structure:

This seminar consists of lectures, readings, student presentations, discussions, community outreach, and a final research paper.

Course Requirements: Attendance, Readings and Class Discussion:

This course will be run as a seminar and will focus primarily on presentations and discussions. Because this course is student-centered and features experts in their field with limited availability, attendance is mandatory and active class participation is expected. It is expected that the assigned articles and readings will be completed before class.

- Classes begin promptly at 1:30 PM.
- Absences or lack of participation will contribute to a lower grade.
- You are expected to be prepared to discuss *at least* the required readings on the dates for which they are assigned.
- More than two absences will adversely affect the student's final grade.
- Requests for an excused absence must be emailed to the TA in advance. Numerous amounts of absences – even excused – will result in a lower grade.
- Oral presentations are an integral part of the curriculum; the course is affiliated with Communication Within the Curriculum (CWIC). Meetings with the CWIC advisor are a requirement of the course. Details will follow.

Class Assignments and Grading:

1. **Class participation, discussion questions, preparation, and attendance.** This includes a 2-page explanation of why you want to work on a particular topic **Feb . 5 (15%)**
2. **Group Environmental Health Assessment Statement:** This written statement must include: 1) the project to be investigated, 2) potential public health or environmental consequences, 3) policy, socioeconomic, legal or EJ considerations, 4) research methods and 5) the required development of expert network to assist you in your investigation (please provide contact information for your experts and the reason for their inclusion in the network. Details will be provided in class.

Group names/List of potential questions DUE Feb. 10 (by 9pm) (not graded but req)
First draft DUE Feb. 19 (not graded but required).
Final draft DUE Mar. 5 with accompanying assessment form (details provided in class) Final draft + blank assessment form + self-assessment. (15%)

3. **Group statement presentation & materials:** 15-minute group presentation summarizing the assessment statement, identify issues described above, and their significance to the West Philadelphia & Penn community. The presentation should include handouts for the class outlining the investigation and analysis Problem-Oriented Research. (20%)
4. **Feedback & Assessments of other groups.** Details provided in class. Includes written and in-class feedback. (10%)
5. **Group final presentation:** A formal 30-minute group presentation with five (5) minutes of Q & A at the end of the course outlining the hypothesis, research methods, findings, analysis, alternatives and recommendations of the research project. Appropriate use of PowerPoint slides, evidence of substantive research, creativity, and use of feedback will be major factors considered in the grading. Project experts will assist in evaluations. Meeting with the CWiC Adviser is required prior to giving this oral presentation. (25%)
6. **Individual research paper:** Each student will select one unique aspect of the overall project and prepare a final research paper on their findings. This paper may cover how their component meets the needs of the overall goals of the project or another aspect of the problem investigated. (15%)

Required Readings:

The list of assigned readings will be posted on Blackboard (<https://courseweb.upenn.edu>) along with the assignments and announcements. All readings will be available electronically. There is no required purchase of reading materials.

DATE	TOPIC	SPEAKER	Assignment & Readings:
Th 1/15	Course Introduction	Pepino	
Tu 1/20	Urban Environmental Health Intro; Major Issues: Indoor Air Quality	Pepino	<ol style="list-style-type: none"> 1. Frumkin, 2004, Chapter 3 2. Landrigan, 2001, "Neighborhood Dangers" 3. Barnett, 2003 Appendix A 4. EPA, 1991, Indoor Air Facts 5. Knuckles, 2003, Chapter 9 6. Jordan, 2007
Th 1/22	Major Issues: IAQ (continued)	Pepino	<ol style="list-style-type: none"> 1. Wigle, 2003, Chapter 2 2. EPA, 2003, America's Children 3. Etzel, 2003 4. Landrigan, 2001, "Avoid Asthma & Allergy Attacks" 5. Slutzky, 2001 6. Bashir, 2002
Tu 1/27	Major Issues: EDCs & Nutrition, Obesity & Exercise & Occup. Health Risks	Pepino CWIC: Cara B	<ol style="list-style-type: none"> 1. Rabe, 1997 2. Newbold, 2007 3. Snyder, 2003 4. Epstein, 2006 5. Brulle, 2006 6. Hornberg, 2007 7. Clinton, 1994 Exec. Order 12898
Th 1/29	Major Issues: Nutrition, Obesity & Exercise and Occupational Health Risks	Pepino	<ol style="list-style-type: none"> 1. Engels, 2005 2. Fiore, 2006 3. Krenichyn, 2006
Tu 2/3	Overview: Children's Environmental Health	Dalton Paxman	<ol style="list-style-type: none"> 1. Clinton, 1997 2. Landrigan, 2001 "Healthier Schools" 3. WHO, 2006, Summary... 4. WHO, 2006, Principles for Eval... 5. Wigle – Chapter 2
Th 2/5	Overview: Using GIS	Dennis Culhane	Individual Topic Paper Due 1. Smith, 1999
Tu 2/10	Class discussion & group formation		Group Names and List of Potential Questions Due 9pm
Th 2/12	Environmental Justice and Hazard Exposure	Reggie Harris, EPA	<ol style="list-style-type: none"> 1. Bullard, 2000, Chapters TBD 2. Morello-Frosch, 2006
Tu 2/17	Nutrition?	??	<ol style="list-style-type: none"> 1. Mann, 2006 2. Plotnikoff, 2004 3. Stanley, 2005
Th 2/19	Children's Environmental Health: Controversies	Marjorie Bowman, CPhi	Group Statement – First Draft
Tu 2/24	Licensed and Unlicensed Child Care Center	Robert Himmelsbach, Dept of Health, Phila	Statement Drafts Returned <ol style="list-style-type: none"> 1. Burrige, 20070 2. Jacobs, 2007 3. Shaw, 2004 4. HHS, 2008, Healthy Homes Init. 5. HUD – Help Yourself...
Th 2/26	EDCs	Elaine Francis	<ol style="list-style-type: none"> 1. Dean, 2007 2. Ruhoy, 2007 3. Landrigan, 2001, "Household chemicals" 4. Reiner et al, 2007
Tu 3/3	Indoor Air Quality	Laureen Burton, Chemist/Toxicologist, Indoor Environments Division, EPA (D.C.)	<ol style="list-style-type: none"> 1. Delfino, 2002 2. O'Connor, 2008 3. EPA, Guide to Mold, Mold Basics 4. EPA The Inside Story 2005

DATE	TOPIC	SPEAKER	Assignment & Readings:
Th 3/5	Governance and Multi-Jurisdictional Responsibilities	Pepino	Group Statement – Final Draft + Assessment forms TBD
Tu 3/10	<i>Spring Break – no class</i>	<i>No class</i>	
Th 3/12	<i>Spring Break – no class</i>	<i>No class</i>	
Tu 3/17	Occupational Health Risks	Ted Emmett, M.D., CEET	<ol style="list-style-type: none"> 1. Haz-Map, NLM 2. Envir. Diseases A to Z, 2007 3. HHS, Worker Health Chartbook, 2004 4. Medline Plus – Occupational health
Th 3/19	Group Statement Presentation	Groups 1,2	
Tu 3/24	Group Statement Presentation	Groups 3,4	
Th 3/26	Group Statement Presentation	Groups 5,6	
Tu 3/31	Problem Evaluator Presentation 1		
Th 4/2	Problem Evaluator Presentation 2		
Tu 4/7	Problem Evaluator Presentation 3		
Th 4/9	Problem Evaluator:Presentation 4		
Tu 4/14	Problem Evaluator Presentation 5		
Th 4/16	Problem Evaluator Presentation 6		
Tu 4/21	Final group presentations	Groups 1,2	
Th 4/23	Final group presentations	Groups 3,4	
Tu 4/28	Final group presentations	Groups 5,6	

Final Paper: Due Date TBA