**Class Time:** Tue/Thu 9:30-11:00 am **Instructor:** Professor Caryl Waggett, PhD

**Class Location:** Carr Hall 239 **Office:** Carr Hall 207

**Lab Time:** Tue 1:30 - 4:30 pm **Office Hours:** M1:30-3:30, T11-12, W12:30-1:30, Th11-12

**Lab Location:** Carr Hall 239 **E-mail:** [cwaggett@allegheny.edu](mailto:cwaggett@allegheny.edu)

**COURSE DESCRIPTION**

The goal of public health as a discipline is to reduce risk to the public as a whole and to high risk populations in particular. It is in many ways the opposite of traditional medicine, which operates in a reactionary fashion to heal those who are already unwell. In contrast, public health serves to prevent illness and disease. Traditional medicine focuses on the individual, while public health on society as whole.

Environmental health is a subset of public health that deals with those issues whose etiology, or cause, is environmental in nature or is exacerbated by environmental factors. It requires its practitioners to have a solid foundation in the environmental foundations of the issues at hand, the geological and ecological movement and migration of the agent or pathogen, sound biological and physiological foundation of its potential effects on human health, and an understanding of risk management and communication.

The interdisciplinary nature of this topic makes it both more challenging and more holistic than many fields that have become more reductionist over time (e.g., cardiology, molecular biology). Some students have applied these tools to ecological health as well. With a background in environmental health, students can choose to go into medical research (virology, toxicology, neurology), medicine, public health, environmental health, social welfare, consulting positions, or state and federal health advisory positions. Issues of critical concern range broadly: childhood exposure to lead; arsenic and mercury deposition from coal burning power plants; consumption of mercury from chemically contaminated fish; groundwater contamination and transport; environmental exposure to indoor and ambient air pollution; and infectious disease transmission. Accelerated changes in climate and urban sprawl are exacerbating these issues.

This course will provide an overview to key environmental health issues with a focus on evaluating and planning foundational research and risk assessments that can directly impact future research initiatives in the field.



**COURSE GOALS**

1. **Assess significance of environmental issues of public health concern based on scientific literature**
   1. Interpret and critique scientific articles
   2. Assess validity of causative associations
   3. Evaluate appropriateness and execution of epidemiological study design
   4. Identify specific sub-populations at potentially high risk
   5. Prioritize significance of range of environmental health issues
2. **Evaluate strengths/weaknesses of a risk assessment for a specific environmental health concern or issue** 
   1. Explain key components (dose-response, exposure, management, communication) of risk
   2. Evaluate biologic, ecologic and geologic foundations of contaminant or pathogen interactions
3. **Explore the systems involved in pathogens that occur in natural environment and chemicals and other exposures that occur in the physical and built environments as they relate to human health**
   1. Evaluate literature for a given environmental health topic
   2. Describe how historical and current anthropogenic patterns (use and extraction of natural resources, location of developments, etc) result in past and current human health incidence and distribution in the environment
   3. Characterize distributions in population risks as they change temporally and spatially by age, race/ethnicity, socioeconomic status, and geography
   4. Develop appropriate management strategies to reduce risk of exposure and minimize adverse health outcomes
4. **Recommend course of action for management of environmental health issues to appropriate agencies and organizations** (e.g., EPA, DEP, DOH, research agencies, county health officials, etc.)

##### Texts

* Frumkin, Howard, ed. 2010. Environmental Health, From Global to Local, 2d edition. Jossey-Bass.
* Peer reviewed research and review articles, available digitally on Sakai or as assigned

**SCHEDULE OF TOPICS**

**Weeks 1-3 Overview of environmental health and investigative and epidemiological tools**

Measuring disease and wellness

Assessing causality

**Weeks 4-9 Natural environment and human health**

Pathogen transmission: Case study of drinking water contamination

Vector-borne diseases: Case study of Lyme disease

Climate change and human health

Tropical disease management in the United States

**Weeks 10-15 Built environment and human health**

Chemical exposure and synergistic exposures

Nature deficit disorder

Community structure and design: Sidewalks and suburbs

Community structure and design: Food environment

Community structure and design: housing and equity

**Assessment of Student Achievement of Course**

This is a proposed assessment plan; specific assignments and weights may be modified. Students will be consulted any time modifications are made to the course schedule.

### Assignments 400 points

* 1. Epidemiological study design (100 pts)
  2. Problem set on assessing causality (100 pts)
  3. Chronic disease assessment (100 pts)
  4. Management plan (100 pts)

### Lab Quizzes 200 points

* 1. Data analysis (50 pts)
  2. Data interpretation (50 pts)
  3. Mapping exercise (50 pts)
  4. Summative write-up (50 pts)

### Group research project 200 points

* 1. Formal presentation
     1. Presentation (joint grade: 50 points)
     2. Poster (joint grade: 50 points)
  2. Final written document (joint grade: 100 pts)

### Class participation and facilitation of discussion 100 points

### Attendance 100 points

**TOTAL: 1000 points**

**PAPER FORMATTING**

I will provide specific formats for each of your written and oral assignments. However, all papers will have some formatting in common. Each paper should be in Calibri, 11 point font, and should have 1” margins on all sides. Length is estimated based on this font size. Your name should be in the top right hand corner of the running header and the page number in the bottom right hand corner of the running footer (example: p. 1 / 4). The title (or an abbreviated version) should be included in the top left hand corner of the running header on all but the first page, where the title should be centered in bold. I recommend using APA citations.

**STUDENTS WITH DISABILITIES**

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact the Learning Commons at 332-2898. If you have a learning disability that requires accommodation, please be sure to contact me directly or a member of the Learning Commons contact me as soon as possible.

**LATE PAPER POLICY**

Assignments or papers turned in for group work are not accepted late. You will receive a “0” for that assignment if it is not turned in on time due to the collaborative nature of this work. Late submission of coursework is NOT accepted without prior permission; with permission, assignments will be marked down one-third of a grade per day (e.g., a paper evaluated as a “B” will be assigned a letter grade of “C+” if turned in two days late).

**ATTENDANCE**

Attendance is required. This is a seminar class and the success of the class as a whole is dependent on full participation. This class should be a priority for you. Scheduled absences need to be discussed well in advance and I will expect you to make up the materials covered in class by some means that shows your understanding of the material. I do not consider a paper due in another class or printer malfunctions to be an emergency.

##### PARTICIPATION

##### Please note that a significant portion of your grade is determined by your regular attendance, your assigned facilitation of readings and your contribution to class discussions. You will be evaluated on the following criteria:

* ***A for class participation*** is awarded when students regularly initiate discussion. This means coming to class thoroughly familiar with the assigned readings and prepared to raise questions, open discussion, and actively engage other students in discussion. This does not mean monopolizing a discussion, shutting other comments or ideas out or talking for its own sake rather than making a point on the topic. Students who are self-starters and do not rely on the instructors’ questions to set the agenda for discussion will be awarded a grade of A for participation as opposed to a B.
* ***B for class participation*** is awarded to students who participate regularly and productively in class discussion, who are prepared, and who are willing to engage.
* ***C for class participation*** is awarded to those who participate on a regular but less frequent basis than the B student. “C” discussants will be prepared for class, but their contributions will indicate that less thought has been given to the assigned materials.
* ***D for class participation*** is given to those who contribute infrequently to the discussion and whose contributions do not appear to arise from thoughtful consideration of the assignments.
* ***F for non-participation.*** Of course, participation is impossible if you don’t attend class. Frequent absences mandate an F grade.

**PLAGIARISM AND ACADEMIC HONESTY**

As a member of the Allegheny community, you are bound by all aspects of the Honor Code. If you have never read the section on plagiarism in particular, Article III, Section 3, do so now. For specific questions on references, citations, or sharing work with peers, I am happy to help work with you before you hand your assignment in.