Environment, Health and Society (BIOL394/ENVI394)
Spring 2018

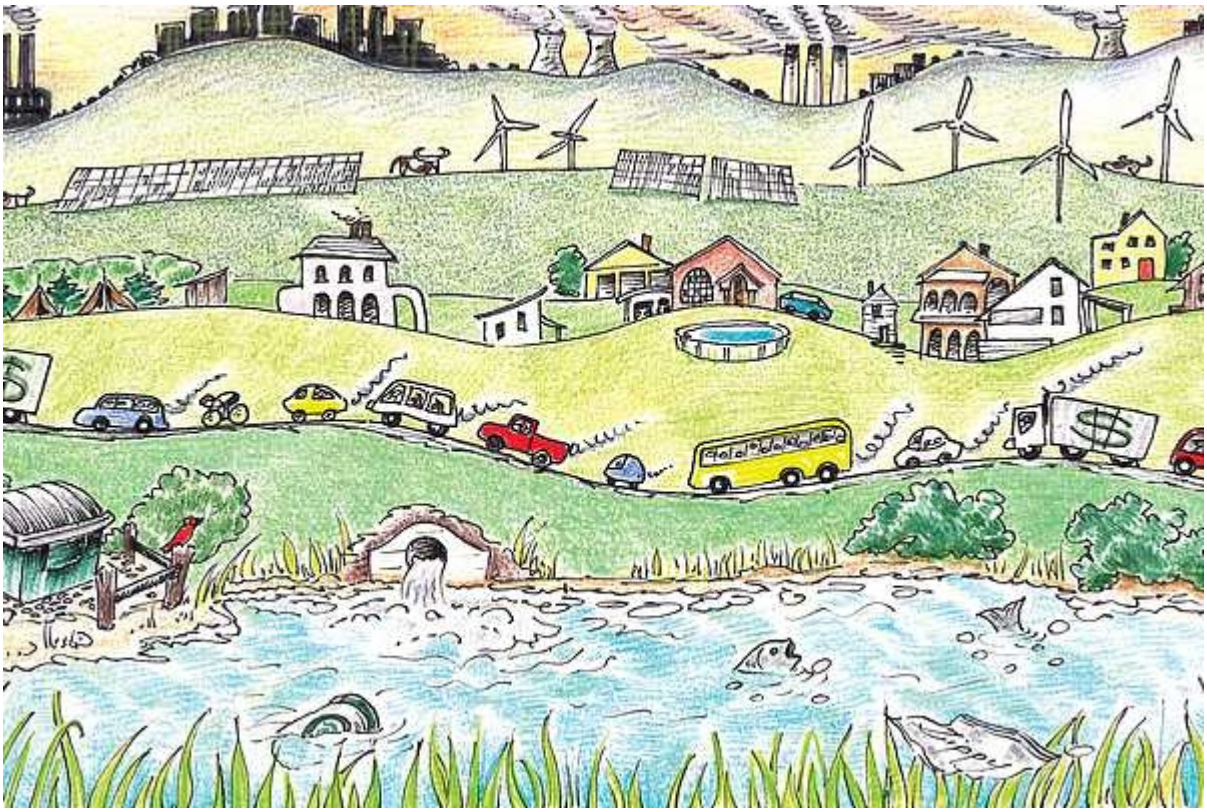

Image by Jennifer Harper on Environmental Pollution Pictures

Instructors: Devavani Chatterjea (Biology) & Roopali Phadke (Environmental Studies)
Tuesdays and Thursdays, 9:40-11:10 AM; Olin-Rice 270

Course Overview

This course will explore the ways in which health is built and shaped by interactions between (human and non-human) bodies and the natural and built environment (air, water, food and shelter) through the lenses of biological responses, vulnerability of populations, social movements and the communication of science to the public.

We will engage students in exploring an interdisciplinary set of paradigms and methods of biological and social analysis including environmental and occupational epidemiology, geospatial analyses, toxicology, exposure science, biomonitoring, environmental health ethics, environmental justice, and the health of vulnerable populations.

Prerequisties: BIOL394 - Two of the following three: Cell Biology, Ecology, Genetics; ENVI394 - Env Politics and Policy

This course will fulfil an upper-division requirement in both biology and environmental studies. Approval for US Identities and Differences designation is pending.

Learning Goals

- Increased knowledge of environmental health methodologies and applications
- Increased ability to recognize and gauge personal, local and global risks and exposures
- Developing interdisciplinary research, writing and presenting skills
- Cross-disciplinary peer-teaching, collaborative problem solving and translating/bridges between science and policy communities
- Engagement with issues of health disparities and environmental health risks through the lens of identities and differences at the level of populations.

Course Grades are assigned as follows:

1) Ten Weekly Learning Responses (including Iron Range fieldtrip response) (30%)

At the end of each week, there is a prompt on Moodle to integrate our readings, class interactions and other outside related events/news/experiences. Everyone will be expected to do a summary response after our three day field trip to the Iron Range (this is one of the ten). You can choose nine other responses to complete.

Your Learning Reflections are **due on Fridays at 5pm**. Your pieces should be approximately 300-400 words in length, about two to three paragraphs. They must be submitted through Moodle. These will be graded on a four point scale satisfactory (C), good (B), excellent (A-) and outstanding (A) basis for each submission. Occasionally, we will respond directly to your submission on Moodle. Please note that given the timely nature of the assignment, late Learning Reflections *cannot* be made up.

2) Student small group presentations (15%)

Students will work in groups of three to deliver a class presentation. These presentations will be linked to a film that we will be viewing as a class. Your responsibility is to use the film as a launching point to discuss the larger topic. See *Guide to Leading a Film Discussion* on Moodle.

3) Final project -- Health controversy study (40%)

You will be asked to choose a health controversy to follow throughout the semester. This project is aimed at analyzing your controversy for a public/lay audience with a goal of translating and assessing available information/arguments. It will be evaluated in **four** stages throughout the semester. You will be asked to present 1) **Topic Proposal** (**March 6)** 2) an **Outline & Workplan (March 22)** 3) **Class Presentation (April 24)** and 4) **Final Submission (May 3)**. You may choose the final format for your assignment. It can be a journalistic article or blog (approx. 10 pages), a website, podcast or 3-5 min TED-style lecture. More details about the project will follow.

The points for this project will be assigned as follows: Proposal (5), Outline and Workplan (5), Presentation (10) and Final Submission (20).

We will partner you with another student to help develop and provide peer feedback on your project, but each of you will submit an individual project and receive an individual grade for this assignment.

4) Semester long Exposure Journal (15%)

You will keep a daily log of biological, chemical, physical exposures encountered through food, water, air, shelter, work/study surroundings, built (e.g. roads, transit, communities, parks, urban setting) and natural (broader ecosystem) environs. The format of the journal can be as you want – bulleted lists, narrative text, text/words combined with images etc. We will provide you with a journal during the first full week of classes. A few times during the semester, we will ask you to do some integrative, reflective work with the journal (e.g. during our shared time during the field trip in Northern MN). The journal will also serve as a grounding "text" of your own environmental health experience as we consider the principles, frameworks and stories of this field of study during the semester.

To succeed in this course

1. **Be prepared and curious** – This is seminar that approaches environmental health by examining materials that come from varied sources and fields of study. Our reading materials will include popular science books and articles, biomedical and policy research articles, and films. Last minute skimming, looking through the paper scanning

for answers during a discussion, or simply skipping over terms, concepts, methods that appear too daunting will *not* suffice in this course.

A key way to make this course much more enjoyable, and to do better in it, is to set aside time to read thoughtfully and critically. Mark up the articles with your questions and what seem to be key ideas or muddy points. Look things up as you need to (and you should need to do that a LOT; We certainly do!). Bring your questions to class.

Nearly a third of your course grade is based on your weekly learning responses. The well articulated response requires you to be prepared you are for class, ask thoughtful questions, follow our discussions, and draw connections between our course material and the world around you.

2. **Be brave** – This will be new territory for most of us. It's seldom just about getting the right answer. More often it turns on participants being brave and sharing your understanding, insight, and, yes, your confusion, uncertainties and questions with the class. During discussions and when writing your responses, don't play it safe. Put your ideas out there even if they feel clunky. Don't be afraid to contradict or disagree during discussions as long as you do it with respect.

3. **Stay humble and be generous** – Make it your goal to listen closely, ask questions of each other, and seek to learn all that you can from your peers. Be willing to teach your classmates what you know or have learned, and when it makes sense, how you got to that understanding. The more you share, the more vibrant our shared work will be, and the more you will continue to learn. If you find a review article or a resource that is particularly useful, send it around to everyone. I encourage you to bring it up and share it in class as well.

4. **Be accountable to yourself and the community** – Our goal in this small seminar-style class is collaborative learning. If you are not prepared and/or vocal with your questions and ideas, the tone of the class as a whole will fall flat.

Attendance and late work policy: We expect that you will attend all class meetings. If you must miss a class meeting for a Macalester event, health reason or family commitment, it is your responsibility to arrange to have any work due handed in on time, get class notes from a colleague in the class and meet with one of us to clarify questions about the material, and make-up work. One-third of the points for an assignment will automatically be deducted for every day the work is late. As mentioned earlier, learning reflections cannot be handed in late.

If an extenuating circumstance should arise that prohibits you from completing work assigned for this class, we may be able to work together with the Dean of Students office to make and implement an alternate plan.

Disability accommodation: We are committed to providing assistance to help you succeed in this course. Reasonable accommodations are available for students with documented disabilities. Please work with the Office of Student Affairs to ensure that your accommodations are approved and in place ASAP. Office of Student Affairs, 119 Weyerhaeuser, 651-696-6220,

Academic integrity and plagiarism: Cheating and plagiarism represent serious breaches of academic integrity. Any student found to have cheated or helped another student cheat will receive a zero for the given assignment, and referred to the Dean of Students office. Macalester academic integrity statement can be found at: http://www.macalester.edu/~dstudent/handbook/academic_policies.html

Course Outline

* Denotes a small group presentation

	TOPIC	READINGS
Thurs 1/18/2017	What is public health? What is environmental health?	Rose/Nash/Hippocrates Introduce exposure journals
Tues 1/23/2017	Exposure and toxicology	Case for Public Health/Bradford Hill Talk about our Exposure Journal first entries Toxic Tutor (Sections 1-7)
Thurs 1/25/2017	One Health	Barrett and Osofsky/Hueston et al.
Tues 1/30/2017	Contested Illness, tools and techniques for justice	Brown et al.
Thurs 2/1/2017	Water	Johnson *The Ghost Map* (purchased)
Tues 2/6/2017	Water: Cholera	UN piece/Sciubba and Jeremy Youde/Bradford Hill BRAC and oral rehydration therapy
Thurs	Water: Atrazine	Aviz/Hayes

2/8/2017	With guest Tyrone Hayes	
Tues 2/13/2017	Water: Fluoride case study	Hicks/ Fluoride Action Network/ Weyant et al./ Irigoyen-Camacho et al. + Introduce final project
Thurs 2/15/2017	Science Live Theater	Workshop 1 - led by Steph Long SMM
Tues 2/20/2017	Science Live Theater	Workshop 2 - Readings of plays by Science Live actors
Thurs 2/22/2017	* Water: Steingraber	Living Downstream Film (on media reserves)
Tues 2/27/2017	Water: Flint Guests: John Vaugh, Lead Safe MN East Side Neighborhood Development Council /Stephanie Yendell Health Department	Readings TBA
Thurs 3/1/2017	Water: PFOAs Skype Guest: Shaina Kasper	Grossman
Tues 3/6/2017	Malaria Guest: Eric Carter, Geography	Readings TBA + Final project proposal due
Thurs 3/8/2017	Risk assessment Guest: Betsy Wattenberg	Steingraber (Rabies principle) + posted videos
Spring break!	Spring break	Spring break
Tues 3/20/2017	Shelter/work	Murphy/ Guardian article
Thurs 3/22/2017	* Shelter/Workplace	Silkwood (on media reserves) + Outline and Workplan Due

Tues 3/27/2017	Shelter/Home	Allergies and Asthma Readings TBA Resource: http://theasthmafiles.org/about
Thurs 3/29/17	Energy/climate: Fracking	Lakind et al./ Osterholm and Kelley/Thomas/ Fractracker https://www.fractracker.org/
Tues 4/3/2017	Energy/climate: Fracking	Promised Land (on media reserves)Block and
Thurs 4/5/2017	**Field trip**	**5-8 April, Iron Range/Northern MN**
Tues 4/10/2017	Food: Safety, Zoonoses and One Health	Walters (Intro, CJD) chapters, Hueston, 2012
Thurs 4/12/2017	Zoonoses and Forecasting pandemics	Walters (Intro, CJD and Hanta Virus) chapters, Wolfe, 2007; Pike, 2010; Hueston, 2012 In class Ted Talk by Wolfe at https://www.ted.com/speakers/nathan_wolfe
Tues 4/17/2017	Food: Sugar	Taubes
Thurs 4/19/2017	Food: Diets and Deserts	Subramanian/Nat Geo
Tues 4/24/2017	Controversy Study Presentations	
Thurs 4/26/2017	Recap	Final Class and Exposure Journals
	FINAL PROJECT DUE **Thurs May 3 5pm**	