

MPH|HP EHS 100: Introduction to Environmental Health Sciences

UCLA Fielding School of Public Health

<https://ccle.ucla.edu/course/view/19W-ENVHLT100-3>

Syllabus – Winter 2019 – Last Updated December 29, 2018

Please note that this syllabus is subject to change. Check course website for updates

Course information

Time: Fri/Sat/Sun 1:30 pm – 5:30 pm Jan. 11-13, Feb. 1-3, Mar. 15-17, 2019

Location: 61-262 CHS

Instructor:

Brian Cole, DrPH
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Course Overview

In this class, you will obtain an introduction to current areas of research in, applications of, and methodologies used in the field of Environmental Health Sciences. We will particularly focus on how environmental stressors impact the health of communities, both locally and globally, and how communities can build resiliency to those impacts.

Texts & Individual Response Devices

Required text:

Essentials of Environmental Health (either paperback or electronic)
by Robert H. Friis, PhD
Publisher: Jones & Bartlett Publishers; 3rd edition (2018)
ISBN-13: 978-1284123975

Recommended text:

A Community Guide to Environmental Health
by Jeff Conant and Pam Fadem
Publisher: Hesperian Health Guides (2008, 2012)
ISBN-10: 9780942364569

Free download available at:

http://en.hesperian.org/hhg/A_Community_Guide_to_Environmental_Health

Course Website

All assignments will be posted on the course website, which uses the Moodle platform (<https://ccle.ucla.edu/course/view/19W-ENVHLT100-3>). In addition, copies of the lectures (Powerpoint presentations) and any handouts will be posted on the course website AFTER each class. If you are unable to access the course website, please contact the instructor (blcole@ucla.edu) as soon as possible.

Students are highly encouraged to post questions to the course website discussion forum. This will allow your classmates to benefit from your questions and the responses from the TAs and Professors.

Recordings

Some (if not all) of the sessions of EHS 100 will be recorded during the quarter, which means that your voice and/or visuals of you may be captured during course recordings. These recordings will be made available for online viewing to students registered in the class. Recordings are a complement to attending class in person and are not intended as a replacement for active participation and engagement during class. Some of the benefits of having access to lectures online include allowing you to review material before quizzes and to go over concepts you would like to reinforce after class on your own time, or to review areas you want more clarification on. Recordings will be made available via our course website: <https://ccle.ucla.edu/course/view/19W-ENVHLT100-3>

Course Structure

The class meets from 1-2:50 Tuesdays and Thursdays. Please read all required readings prior to coming to each class. Reading Assignments are listed in the tentative course schedule found at the end of this syllabus; any updates will be posted on the course website (<https://ccle.ucla.edu/course/view/19W-ENVHLT100-3>).

Course grading

There are five primary sources of evaluation for this class:

(1)	Homework Assignments (5)	25% of total grade
(2)	Class participation	5%
(3)	Quizzes (Best 2 out of 3)	20%
(4)	Case Study Presentations (2)	20%
(5)	Team Project Written Report	20%
(6)	Team Project Presentation	10%

Homework Assignments

There will be 5 homework assignments. Four of these (HW 1, 2, 4, 5) lay a foundation for the final report. Homework assignment #2 is an op-ed essay addressing an environmental health issue. See course website for detailed instructions. You must submit your assignments electronically via the course website (<https://ccle.ucla.edu/course/view/19W-ENVHLT100-3>). Do NOT submit your assignments via email. All assignments must be submitted electronically on the date specified below. A 10% penalty (of the total possible points) will be deducted from late assignments for every day or partial day that the assignment is late. Late assignments will not be accepted after 3 days. Homework assignments are individual work (see **Academic Integrity**, below) unless you are explicitly told in writing to complete the assignment with your group.

Class Participation

Class participation points will be credited for attendance, active participation in class discussions, full participation in group activities and completion of four peer reviews of other students' in-class case study presentations.

Quizzes

There will be 3 short quizzes given during the quarter, which cover material covered in lecture and assigned readings. The Learning Objectives at the beginning of assigned textbook chapters (*Essentials of Environmental Health*, by Robert H. Friis) provide a good guide for the scope of material covered on the quizzes). Quizzes are individual work and are closed book/closed notes. Your grade for this portion of the class will be based on your best 2 out of 3 quiz scores. If you are unable to attend class on one of the dates that a quiz is being held, that will count as your quiz grade that is dropped.

Case study Presentation

Working in pairs you will develop and deliver two case study presentations. These presentations will provide an opportunity for you to explore environmental health problems, how they have impacted communities and what is being done to address these problems. By completing this assignment, students will demonstrate their ability to work in teams and to communicate environmental health concepts to diverse audiences. Presentations will be 15-20 minutes in length, including 5-10 minutes for questions and discussion. A sign-up list with dates and topics will be circulated in class during the second day of class.

Guidelines for presentations are posted on the CCLE course website under “Week 1.” Each group will consist of at least two and no more than four students. All group members are expected to contribute to the research, preparation and delivery of case study presentations.

After the lecture you will have 24 hours to make any revisions to your presentation slides. You will turn in two documents (pdf format) via the CCLE course website:

1. Presentation in pdf format (2 slides per page). Including:
 - a. A list of three to five learning objectives (these may be incorporated into your presentation immediately after the title slide).
 - b. A statement of contributions detailing the specific contributions of each group member (last slide)
2. A 100-150 word promotional summary of the presentation that could be put on a flyer inviting members of the general public to attend this presentation.

All members of a group will receive the same grade for their presentation, but exceptionally low or high levels of contribution may affect class participation points.

Team Projects: Community Environmental Assessment and Action Plan (Written Report and Presentation)

Working in teams of 3 to 4 students, you will identify a community and work with an organization or public agency in that community to prepare a community environmental assessment and action plan. Using insights from discussions with your client organization or agency, along with your review of available data and research, you will identify environmental health priorities in the community and propose strategies for addressing those priorities.

While this is a group project, each group member will take responsibility for drafting their own section of the written report. Group members are expected to equitably divide writing responsibilities. All group members should be involved in researching, analyzing and formulating the action plan, even though they may not be responsible for writing that particular section. Please discuss any concerns or problems regarding division of group efforts with the instructor. Group members are encouraged to review and provide feedback on drafts of each other's sections. Grades for the final report will consist of

two equally weighted components: (1) an overall group grade for the entire report and (2) an individual grade for the section(s) authored by each student.

Each group will deliver a 10-minute presentation on their assessment and action plan. The presentation should be designed to be delivered to local elected officials (e.g. city council, local planning commission or county board of supervisors). Other students listening to the presentation are expected to pose questions as if they were local elected officials.

All written reports must be submitted electronically via the course website (<https://ccle.ucla.edu/course/view/19W-ENVHLT100-3>) by 9pm Wednesday, March 20. A 10% penalty (of the total possible points) will be deducted from late assignments for every day or partial day that the assignment is late. Late assignments will not be accepted after 3 days.

Students Requiring Accommodations

Students needing academic accommodations based on a disability should contact the Center for Accessible Education (CAE) at (310) 825-1501 or in person at Murphy Hall A255. When possible, students should contact the CAE within the first two weeks of the term as reasonable notice is needed to coordinate accommodations. For more information visit www.cae.ucla.edu.

Academic Integrity

Many of the assignments for this course involve group work. The Case Study Presentation, Homework Assignments #3 and #4 and the Final Project are all group projects. You are expected to participate in group meetings, equitably share responsibility for completing group work, and complete assigned tasks in a timely fashion. Concerns about fair and constructive participation in group work should be addressed to the instructor as early as possible. Homework Assignments #1 and #2 may be discussed and researched as a group, but each individual will submit their own individually completed assignment. In addition, all quizzes must be performed individually and are closed book. All work, both group and individual, must be original and IN YOUR OWN WORDS AND PROPERLY CITED where appropriate. You are expected to read and follow the UCLA Student Conduct Code (<http://www.deanofstudents.ucla.edu/Student-Conduct>) and the guidelines from the Registrar's office on avoiding plagiarism (see <http://www.registrar.ucla.edu/Registration-Classes/Enrollment-Policies/Class-Policies/Plagiarism-and-Student-Copyright>). If you are not sure whether a particular action is in violation of UCLA's standards of academic integrity or constitutes plagiarism, please contact the instructor and err on the side of caution. Ignorance of the University's policies is not a legitimate excuse for violating them. All violations of these policies will be referred immediately to the Dean of Students for review and disciplinary action.

Learning Objectives and MPH Foundational Knowledge and Competencies

Upon completion of this course, you should be able to demonstrate the skills listed as "Course Learning Objectives" below. These learning objectives were selected to help

you build foundational knowledge and competencies required for the MPH program. To find out more information about goals for foundational knowledge and competencies for MPH students, please <https://ceph.org/assets/2016.Criteria.pdf>.

COURSE LEARNING OBJECTIVES	HOW ASSESSED
1. Describe the ways that specific environmental stressors can impact the health of communities and populations.	Quizzes Case Study Presentations Homework #1 and #2 Team Project Report and Presentation
2. Identify which environmental problems are most likely to have a significant impact on the health of a specific community or population, based on input from stakeholders and information from the literature.	Homework #2 Team Project Report and Presentation
3. Identify appropriate approaches, metrics and data sources to determine how severely a particular environmental issue impacts the health of a particular community or population.	Quizzes Team Project Report and Presentation
4. Formulate a plan to identify sources of environmental hazards in collaboration with the affected community.	Team Project Report and Presentation
5. Formulate a plan to mitigate, reduce, or control sources of environmental hazards in collaboration with the affected community.	Team Project Report and Presentation
6. Accurately and effectively communicate environmental health risks to targeted stakeholders and explain why/whether some populations are at greater risk than others for specific agents.	Homework #1 Case Study Presentation Team Project Report and Presentation
7. Identify individual or societal factors that contribute to the extent to which the health of a specific population is impacted by a particular environmental stressor and/or needs to be taken into account when designing an intervention strategy.	Quizzes Case Study Presentation Homework #1 and #2 Team Project Report and Presentation
8. Describe an example of how regulations and/or inspections have been used to prevent environmental health problems; describe who has the authority to impose these regulations for a particular region.	Quizzes Case Study Presentations
9. Identify and abstract key pieces of information and/or data from a document and synthesize them to draw evidence-based conclusions.	Case Study Presentations Team Project Report and Presentation

<i>MPH FOUNDATIONAL KNOWLEDGE GOALS COVERED IN THIS COURSE</i>	<i>HOW ASSESSED</i>
3. Explain the role of quantitative and qualitative methods and sciences in describing and assessing a population's health.	Case Studies (Class Participation) Group Presentation Team Project Report and Presentation
4. List major causes and trends of morbidity and mortality in the US.	Quizzes
5. Discuss the science of primary, secondary and tertiary prevention in population health, including health promotion, screening, etc.	Case Studies (Class Participation) Group Presentation Team Project Report and Presentation
6. Explain the critical importance of evidence in advancing public health knowledge.	Case Studies (Class Participation) Group Presentation Team Project Report and Presentation
7. Explain effects of environmental factors on a population's health.	Case Studies (Class Participation) Group Presentation Homework #1 Team Project Report and Presentation
10. Explain the social, political and economic determinants of health and how they contribute to population health and health inequities.	Case Studies (Class Participation) Group Presentation Team Project Report and Presentation
11. Explain how globalization affects global burdens of disease.	Case Studies (Class Participation)
12. Explain an ecological perspective on the connections among human health, animal health and ecosystem health	Case Studies (Class Participation) Team Project Report and Presentation

<i>MPH FOUNDATIONAL COMPETENCIES COVERED IN THIS COURSE</i>	<i>HOW ASSESSED</i>
1. Apply epidemiological methods to the breadth of settings and situations in public health practice	Case Studies (Class Participation) Group Presentation
2. Select quantitative and qualitative data collection methods appropriate for a given public health context.	Quizzes Homework #2 Team Project Report and Presentation
4. Interpret results of data analysis for public health research, policy or practice.	Case Studies (Class Participation) Team Project Report and Presentation
6. Discuss the means by which structural bias, social inequities and racism undermine health and create challenges to achieving health equity at organizational, community and societal levels.	Case Studies (Class Participation) Team Project Report and Presentation

MPH FOUNDATIONAL COMPETENCIES COVERED IN THIS COURSE	HOW ASSESSED
7. Assess population needs, assets, and capabilities that affect communities' health.	Case Studies (Class Participation) Homework #2 Team Project Report and Presentation
8. Apply awareness of cultural values and practices to the design or implementation of public health policies or programs	Case Studies (Class Participation) Team Project Report and Presentation
9. Design a population-based policy, program, project or intervention.	Case Studies (Class Participation) Team Project Report and Presentation
13. Propose strategies to identify stakeholders and build coalitions and partnerships for influencing public health outcomes.	Case Studies (Class Participation) Team Project Report and Presentation
14. Advocate for political, social or economic policies and programs that will improve health in diverse populations.	Case Studies (Class Participation) Team Project Report and Presentation
16. Apply principles of leadership, governance and management, which include creating a vision, empowering others, fostering collaboration and guiding decision making.	Case Studies (Class Participation) Team Project Report and Presentation
18. Select communication strategies for different audiences and sectors.	Homework #1 Case Studies (Class Participation) Team Project Report and Presentation
19. Communicate audience-appropriate public health content, both in writing and through oral presentation.	Homework #1 Case Studies (Class Participation) Team Project Report and Presentation
20. Describe the importance of cultural competence in communicating public health content.	Homework #1 Case Study Presentations & Class Participation Team Project Report and Presentation
21. Perform effectively on interprofessional teams.	Case Study Presentations & Class Participation Team Project Report and Presentation
22. Apply systems thinking tools to a public health issue.	Case Study Presentations & Class Participation Team Project Report and Presentation

MPH|HP EHS 100 Winter 2019**Tentative Course Schedule**

please note that this syllabus is subject to change – please check course website for updates

Class meets 1:30-5:30pm

Lectures are in 61-262 CHS

Date	Lecture Topic/Case Study	Required Reading (Read before class)	Recommended Reading	Due Dates
Fri. Jan. 11	<i>Introduction to Environmental Health Sciences;</i> <i>Overview of Course Format and Learning Objectives</i> Case Study: Leaded gasoline	Friis: Chapter 1 Nriagu, 1990	Conant and Fadem: Appendix A	
	<i>Environmental Toxicology</i> Case study: Minamata	Friis: Chapters 3,6 Ekino et al, 2007	Conant and Fadem: Chapters 16 & 20	
Sat. Jan. 12	<i>Ionizing and Nonionizing Radiation</i> Case Study: Clean-up of the Hanford Nuclear Weapons Facility	Friis: Chapter 8 Gephart, 2010	Conant and Fadem: Chapters 12 & 13	
	<i>Noise and Health</i> Case Study: California High Speed Rail	Basner et al, 2014		
Sun. Jan. 13	<i>Zoonotic and Vector-Borne Diseases</i> Case Study 1: Schistosomiasis Case Study 2: Malaria	Friis: Chapter 5	Conant and Fadem: Chapter 8	
	Quiz 1 <i>Environmental Epidemiology</i> Tabletop Environmental Health Investigation	Friis: Chapter 2	Conant and Fadem: Chapters 1, 2 and 4	
				HW #1 6pm, Jan. 16 HW #2 6pm, Jan. 25 HW #3 6pm, Jan. 31

Date	Lecture Topic/Case Study	Required Reading (Read before class)	Recommended Reading	Due Dates
Fri. Feb. 1	<i>Air Quality and Health</i> Student Case Study Presentations:	Friis: Chapter 10		
	<i>Water Resources and Health</i> Student Case Study Presentations:	Friis: Chapter 9 Sokolow, Cole & Godwin, 2016	Conant and Fadem: Chapters 5, 6 and 9	
Sat. Feb. 2	<i>Municipal Solid Waste</i> Student Case Study Presentations:	Friis: Chapter 12	Conant and Fadem: Chapters 7, 18 & 19	
	<i>Hazardous Waste Management</i> Student Case Study Presentations:	Mazur, 2002		
Sun. Feb. 3	Environmental Policy and Regulation Student Case Study Presentations:	Friis: Chapter 4 NRDC, 2013	Conant and Fadem: Chapter 3, 9, 10, 11 and Appendix B	
	<i>Struggles for Environmental Justice</i> Student Case Study Presentations:	Corburn, 2017 Cushing et al. 2015. Lewis, Hoover & MacKenzie, 2017	<i>Conant and Fadem:</i> Chapters 4,21,22	
	<i>Pesticides</i> Student Case Study Presentations: Quiz 2	Friis: Chapter 7	Conant and Fadem: Chapter 14	
				HW #4 6pm Mar. 1 HW #5 6pm Mar. 8
Fri. Mar. 15	<i>Climate change and Health</i> Student Case Study Presentations:	Smith et al, 2014		

Date	Lecture Topic/Case Study	Required Reading (Read before class)	Recommended Reading	Due Dates
	<i>Food Safety & Food Security</i> Student Case Study Presentations:	Friis: Chapter 11	Conant and Fadem: Chapters 8, 9 & 11	
Sat. Mar. 16	Project Presentations <i>Occupational Health and Injuries</i>	Friis: Chapters 13 & 14		
Sun. Mar. 17	<i>Traffic Safety</i> Student Case Study Presentations:	Friis: Chapter 10 WHO, 2017	Conant and Fadem: Chapters 21 & 22	
	<i>How urban built environments shape health-related behaviors and well-being</i> Student Case Study Presentations: Quiz 3	Blacksher & Lovasi, 2012 Cattell et al, 2008 Diez-Roux & Mair, 2010		<i>Team Projects Due, 9pm Monday, March 18</i>
<i>THERE IS NO FINAL EXAM FOR THIS COURSE</i>				

Additional Required Readings

Basner M, Babisch W, Davis A, Brink M, Clark C et al. Auditory and non-auditory effects of noise on health. *Lancet* 2014; 383: 1325–32.

Blacksher, E. and Lovasi, G.S., 2012. Place-focused physical activity research, human agency, and social justice in public health: taking agency seriously in studies of the built environment. *Health & place*, 18(2), pp.172-179.

Cattell V, Dines N, Gesler W, Curtis S. 2008. Mingling, observing, and lingering: Everyday public spaces and their implications for well-being and social relations. *Health & Place* 14:544-561.

Corburn, J., 2017. Urban place and health equity: critical issues and practices. *International journal of environmental research and public health*, 14(2), p.117.

Cushing, L., Faust, J., August, L.M., Cendak, R., Wieland, W. and Alexeeff, G., 2015. Racial/ethnic disparities in cumulative environmental health impacts in California: Evidence from a statewide environmental justice screening tool (calenviroscreen 1.1). *Journal Information*, 105(11).

Diez Roux, A.V. and Mair, C., 2010. Neighborhoods and health. *Annals of the New York Academy of Sciences*, 1186(1), pp.125-145.

Ekino, S., Susa, M., Ninomiya, T., Imamura, K. and Kitamura, T., 2007. Minamata disease revisited: an update on the acute and chronic manifestations of methyl mercury poisoning. *Journal of the neurological sciences*, 262(1), pp.131-144.

Gephart, R.E., 2010. A short history of waste management at the Hanford Site. *Physics and Chemistry of the Earth, Parts A/B/C*, 35(6), pp.298-306.

Lewis, J., Hoover, J. and MacKenzie, D., 2017. Mining and Environmental Health Disparities in Native American Communities. *Current Environmental Health Reports*, 4(2), pp.130-141.

Mazur, A., 2002. Looking back on love canal. *Public health reports*, 117, p.95.

NRDC, 2013. An Introduction to Federal Environmental Policy.
<https://www.nrdc.org/sites/default/files/policy-basics-full.pdf>

Nriagu, J.O., 1990. The rise and fall of leaded gasoline. *Science of the total environment*, 92, pp.13-28.

Smith, K.R., A. Woodward, D. Campbell-Lendrum, D.D. et al., 2014: Human health: impacts, adaptation, and co-benefits. In: *Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* [Field, C.B., V.R. Barros, D.J. Dokken, K.J. et al. (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, pp. 709-754.
http://www.ipcc.ch/publications_and_data/publications_and_data_reports.shtml

Sokolow, S., Godwin, H. and Cole, B.L., 2016. Impacts of urban water conservation strategies on energy, greenhouse gas emissions, and health: Southern California as a case study. *American journal of public health*, 106(5), pp.941-948.

World Health Organization (WHO), 2017. Global Status Report on Road Safety 2017. Pp. 1-40. Available at http://www.who.int/violence_injury_prevention/road_safety_status/report/en/