

EHS 100: Introduction to Environmental Health Sciences

UCLA Fielding School of Public Health

<https://ccle.ucla.edu/course/view/18S-ENVHLT100-1>

Syllabus – Spring 2018 – Last Updated March 29, 2018

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

Course information

Time: Tues & Thurs. 1 pm – 2:50 pm

Location: 43-105 CHS

Instructors:

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Dr. Godwin at a different time, please go
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Teaching Assistants:

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Café Med, in front of Starbucks

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; 2nd edition (2012)

ISBN-10: 9781284026337

Please see the end of this syllabus for a list of additional required readings

Links to the additional required readings will be placed on the date that they are “due” (i.e., the date by which you should have read them) on the course website.

Required Individual Response Devices:

Students are **required** to bring their clickers starting the first day of class in Week 1. You can use the iClicker+, iClicker or iClicker2 for participation. The web-based app (<https://www.iclicker.com/>) can also be used if you have a compatible device and a sufficient WIFI connection. After you purchase a clicker OR the app then you need to register your iClicker ID on the CCLE course website before the start of class. There is a link on the right panel of the course webpage for iClicker registration. We will show you where to register on the first day of class if you cannot find it on your own, or are not clear about what you need to do.

Course Website

All assignments will be posted on the course website, which uses the Moodle platform (<https://ccle.ucla.edu/course/view/18S-ENVHLT100-1>). 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 one of the instructors (blcole@ucla.edu or hgodwin@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.

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/18S-ENVHLT100-1>).

Course grading

There are five primary sources of evaluation for this class:

(1)	Class Participation	10% of total grade
(2)	Group Participation	10%
(3)	Homework Assignments (4)	20%
(4)	Quizzes (Best 3 out of 4)	20%
(5)	Case Study Presentation	20%
(6)	Final Written Report	20%

Class Participation

Class participation points are based on your individual active participation on answering “clicker” questions in class – you do not need to get the “correct” answer to get credit for participating on a given item, but you do need to “click in”/participate using your

individual response unit (either iClicker remote or app) on at least one of the response questions on each day in order to receive credit for participation that day. You will be given two “free” days of participation points. This should account for any technical difficulties, absences, or forgetting your clicker. Each student is responsible for both bringing their response unit to class each day and making sure that it is working and appropriately registered.

Expectations for Group Work and Group Participation Points

Students will be assigned to groups by the instructor, which are the teams that you will work with on both the Case Study Presentation and Homeworks #3 and #4. We will talk more about the goals of and tips for working in groups in class on **Thursday, April 12th**. Your group will prepare a “Group Resume” and a “Group Contract”; you will need to submit these online before the beginning of class on **Tuesday, April 17th**. Please see the “Assignments” tab of the course website for more details.

The grade for this portion of the course will be based on all of the following:

- Submission/completion of the “Introduce Yourself” survey (see “Surveys & Quizzes” section of the course website; due before class on **Thursday, April 5th**);
- Submission/completion of “Group Resume” and “Group Contract” (must be submitted online via the course website by **Tuesday, April 17th**);
- Submission/completion of your written evaluations of the groups that you are assigned to review (due at the end of class on the date you are assigned to do reviews);
- Submission/completion of your peer-evaluations and self-evaluation form for group work;
- Peer evaluations of your contributions to group work from your other group members.

Homework Assignments

There will be 4 homework assignments. (See course website for assignment details.) You must submit your assignments electronically via the course website (<https://ccle.ucla.edu/course/view/18S-ENVHLT100-1>). Do NOT submit your assignments via email. All assignments must be submitted electronically prior to the beginning of class on Tuesday of the week that they are due. 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.

Quizzes

There will be 4 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 3 out of 4 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

Case study presentations are designed to demonstrate your ability to work as a team and explore a case study on how a particular community is impacted by and has coped with an environmental stressor. Presentations will be 15-20 minutes in length, including 3-5 minutes for questions from the class. 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 the "Assignments" tab. Each group will consist of three to five 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.

Your grade for the case study presentation is based on the Instructor and TA evaluations of group presentation. All members of a group will receive the same grade for their presentation.

In addition to presenting on a specific day, your group will also be assigned to **review presentations** for two other groups. Members of the "reviewing groups" should sit in the first two rows of the class on the day that they are assigned as reviewers and are responsible for completing written evaluations for each of the groups that presents on the day that they are assigned as reviewers and turning in their written evaluations at the end of that class. Please note that these peer reviews **will** be given to the groups that you are reviewing and are **not** anonymous. Your reviews do not affect the grade of the individuals that you are reviewing. However, part of your **own** "group participation" grade for the class is dependent upon you completing and turning in your peer reviews on your assigned day.

Final Written Report – Environmental Health Assessment

The Final Written Report is an Environmental Health Assessment for a community or site of your choice. The topic must be different than your in-class case study presentation, however you may choose to write on an issue addressed by another case-study group. (See course website for assignment details.) **The Final Written Report** builds upon Homework Assignments 1-4 AND **MUST BE WRITTEN INDIVIDUALLY**. All written reports must be submitted electronically to both Turnitin.com (see link from our course in my.ucla.edu or the block at the right side of the course website) AND the

course website (<https://ccle.ucla.edu/course/view/18S-ENVHLT100-1>) by 9pm **Saturday, June 9th**. 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 Group Presentation Homework #2 Final Written Report

COURSE LEARNING OBJECTIVES	HOW ASSESSED
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.	Group Presentation Homework #3 Final Written Report
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.	Group Presentation Homeworks #3 & 4 Final Written Report
4. Formulate a plan to identify sources of environmental hazards in collaboration with the affected community.	Case Studies Group Presentation Homeworks and Final Written Report
5. Formulate a plan to mitigate, reduce, or control sources of environmental hazards in collaboration with the affected community.	Group Presentation Homework #4 Final Written Report
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.	Group Presentation Final Written Report
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.	Group Presentation Homeworks Final Written Report
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.	Group Presentation Homework #4 Final Written Report
9. Identify and abstract key pieces of information and/or data from a document and synthesize them to draw evidence-based conclusions.	Group Presentation Homeworks Final Written Report

MPH FOUNDATIONAL KNOWLEDGE GOALS COVERED IN THIS COURSE	HOW ASSESSED
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 Final Written Report

MPH FOUNDATIONAL KNOWLEDGE GOALS COVERED IN THIS COURSE	HOW ASSESSED
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 Final Written Report
6. Explain the critical importance of evidence in advancing public health knowledge.	Case Studies (Class Participation) Group Presentation Final Written Report
7. Explain effects of environmental factors on a population's health.	Case Studies (Class Participation) Group Presentation Homework #2 Final Written Report
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 Final Written Report
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) Final Written Report

MPH FOUNDATIONAL COMPETENCIES COVERED IN THIS COURSE	HOW ASSESSED
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 Final Written Report
4. Interpret results of data analysis for public health research, policy or practice.	Case Studies (Class Participation) Group Presentation Homeworks # 3 & 4 Final Written Report
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) Group Presentation Final Written Report
7. Assess population needs, assets, and capabilities that affect communities' health.	Case Studies (Class Participation) Group Presentation Homework #2 Final Written Report

MPH FOUNDATIONAL COMPETENCIES COVERED IN THIS COURSE	HOW ASSESSED
8. Apply awareness of cultural values and practices to the design or implementation of public health policies or programs	Case Studies (Class Participation) Group Presentation Homework #4 Final Written Report
9. Design a population-based policy, program, project or intervention.	Case Studies (Class Participation) Group Presentation Homework #4 Final Written Report
13. Propose strategies to identify stakeholders and build coalitions and partnerships for influencing public health outcomes.	Case Studies (Class Participation) Group Presentation Homework #2 Final Written Report
14. Advocate for political, social or economic policies and programs that will improve health in diverse populations.	Case Studies (Class Participation) Group Presentation Final Written Report
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) Group Presentation
18. Select communication strategies for different audiences and sectors.	Case Studies (Class Participation) Group Presentation Final Written Report
19. Communicate audience-appropriate public health content, both in writing and through oral presentation.	Case Studies (Class Participation) Group Presentation Final Written Report
20. Describe the importance of cultural competence in communicating public health content.	Case Studies (Class Participation) Group Presentation
21. Perform effectively on interprofessional teams.	Case Studies (Class Participation) Group Presentation
22. Apply systems thinking tools to a public health issue.	Case Studies (Class Participation) Group Presentation Final Written Report

**EHS 100 Spring 2018
Tentative Course Schedule**

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

Class meets 1-2:50 am Tues, Thurs.

Lectures are in 43-105 CHS

Date	Lecture Topic/Case Study	Required Reading (Read before class)	Homework & Other Assignments Due (Must be submitted via CCLE before the beginning of class on the date due)
WEEK 1 Tues, April 3	<i>Introduction to Environmental Health Sciences; Overview of Course Format and Learning Objectives (Cole)</i> Case Study (Cole): Leaded gasoline	Friis: Chapter 1 Nriagu, 1990	
Thurs, April 4	<i>Environmental Toxicology (Godwin)</i> Introduction to Group Work: Overcoming Challenges and Embracing Opportunities	Friis: Chapters 3,6 Ekino et al, 2007	Introduce Yourself Quiz: See the “Surveys & Quizzes” section of the course website
WEEK 2 Tues, April 10	<i>Agents of Environmental Disease: Ionizing and Nonionizing Radiation (Godwin)</i> Case Study (Cole): Hanford Cleanup	Friis: Chapter 8 Gephart, 2010	
Thurs, April 12	<i>Noise and Health (Cole)</i> Case Study (Cole): California High Speed Rail	Basner et al, 2014	Homework Assignment 1: Selection of Community/Site for Environmental Health Action Plan and Initial Survey of Site
WEEK 3 Tues, April 17	<i>Agents of Environmental Disease: Zoonotic and Vector-Borne Diseases (Godwin)</i> Tips for Giving an Effective Powerpoint Presentation	Friis: Chapter 5	Group Resume, Group Contract & Preferences for Group Case Study Dates/Topics

Date	Lecture Topic/Case Study	Required Reading <i>(Read before class)</i>	Homework & Other Assignments Due <i>(Must be submitted via CCLE before the beginning of class on the date due)</i>
Thurs, April 19	Quiz 1 <i>Environmental Epidemiology (Cole)</i> Case Study (Cole) : Health effects of near-roadway air pollution Case Study (Cole): Patterns of Coccidiomycosis (Valley Fever) in California's San Joaquin Valley	Friis: Chapter 2	
WEEK 4 Tues, April 24	<i>Applications of Environmental Health: Air Emissions and Ambient Air Quality (Godwin)</i> Case Study (Godwin) History of Air Quality Management Innovation in Southern California Case Study 1: Clean Air Policies in Beijing	Friis: Chapter 10	Homework Assignment 2: Listing Environmental Problems in Your Community and Collecting Data and Information
Thurs, April 26	<i>Air Quality and Health (Cole)</i> Case Study 2: Indoor Air Quality & Cookstoves	Friis: Chapter 10	
WEEK 5 Tues, May 1	<i>Water Quality and Health (Godwin)</i> Case Study 3: Arsenic in Tube Wells in Bangladesh; Case Study 4: Lead in Water in Flint, Michigan Case Study 5: 2016 Formosa Marine Spill (Vietnam)	Friis: Chapter 9	

Date	Lecture Topic/Case Study	Required Reading (Read before class)	Homework & Other Assignments Due (Must be submitted via CCLE before the beginning of class on the date due)
Thurs, May 2	<p><i>Water Resources and Health (Cole)</i></p> <p>Case Study 6: Access to clean water in post-Maria Puerto Rico</p> <p>Case Study 7: Water resource impacts of tar sand mining in Canada</p> <p>Case Study 8: Groundwater in California's San Joaquin Valley</p>	Sokolow, Cole & Godwin, 2016	
WEEK 6 Tues, May 8	<p><i>Struggles for Environmental Justice (Cole)</i></p> <p>Case Study 9: What carbon cap and trade means for environmental justice</p> <p>Case Study 10: Environmental and health impacts of gold mining in Guatemala</p> <p>Case Study 11: Environmental and health impacts of palm oil plantations in Indonesia</p> <p>Case Study 12: Community organizing in response to the coal-fired powerplant in Mariveles, Philippines</p>	<p>Corburn, 2017</p> <p>Cushing et al. 2015.</p> <p>Lewis, Hoover & MacKenzie, 2017</p>	
Thurs, May 10	<p>Quiz 2</p> <p><i>Municipal Solid Waste (Godwin)</i></p> <p>Case Study (Joyce Thung): Long Beach SERRF</p> <p>Case Study 13: Urban waste disposal in Mumbai (may select a city in another developing country (e.g. Manila, Lagos)</p>	Friis: Chapter 12	

Date	Lecture Topic/Case Study	Required Reading (Read before class)	Homework & Other Assignments Due (Must be submitted via CCLE before the beginning of class on the date due)
WEEK 7 Tues, May 15	<i>Hazardous Waste Management (Godwin)</i> Case Study 14: Hong Kong and the global e-waste crisis Case Study 15: Disposal of pharmaceuticals	Mazur, 2002	
Thurs, May 17	<i>Environmental Policy and Regulation (Cole)</i> Case Study 16: Regulation of powerplant mercury emissions	Friis: Chapter 4 NRDC, 2013	Homework Assignment 3: Establishing Priorities for Environmental Action
WEEK 8 Tues, May 22	Quiz 3 <i>Agents of Environmental Disease: Pesticides and Other Organic Chemicals (Godwin)</i> Case Study 17: Fighting to end use of methyl iodide in California	Friis: Chapter 7	
Thurs, May 24	<i>Traffic Safety (Cole)</i> Case Study 18: Vision Zero Los Angeles Case Study 19: Lessons for improving traffic safety from South Korea	Friis: Chapter 10 WHO, 2017	
WEEK 9 Tues, May 29	<i>Applications of Environmental Health: Occupational Health and Injuries (Godwin)</i> Case Study (Godwin): Work and stress Case Study 20: Oil and gas field workers	Friis: Chapters 13 & 14	
Thurs, May 31	<i>Climate Change and Health (Cole)</i> Case Study 21: Climate change and health: Prospects for Bangladesh	Smith et al, 2014	Homework Assignment 4: Establishing Environmental Health Goals and Potential Strategies for Action

Date	Lecture Topic/Case Study	Required Reading <i>(Read before class)</i>	Homework & Other Assignments Due <i>(Must be submitted via CCLE before the beginning of class on the date due)</i>
WEEK 10 Tues, June 5	<i>Applications of Environmental Health: Food Safety & Food Security (Godwin)</i> Case Study: Agroforestry non-profits and interventions in Western and Central Africa (guest: Zac Tchoundjeu)	Friis: Chapter 11	
Thurs, June 7	Quiz 4 <i>How urban built environments shape health-related behaviors and well-being (Cole)</i> Case study 22: New Columbia Housing Development, Portland, OR Case study 23: Ciclovía, Bogotá, Colombia	Blacksher & Lovasi, 2012 Cattell et al, 2008 Diez-Roux & Mair, 2010	Final Written Reports due, 9pm Saturday, June 9th

Additional Required Readings (See Syllabus for Due Dates)

Basner M, Babisch W, Davis A, Brink M, Clark C et al. 2014. Auditory and non-auditory effects of noise on health. *Lancet*, 383, pp.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, pp. 544-561.

Corburn, J., 2017. Urban place and health equity: critical issues and practices. *International Journal of Environmental Research and Public Health*, 14, 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). *American Journal of Public Health*, 105, pp. 2341-2348.

Diez Roux, A.V. and Mair, C., 2010. Neighborhoods and health. *Annals of the New York Academy of Sciences*, 1186, 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, 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, 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, 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, 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/

Additional 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