

ENVH 417 (Spring 2015, 3 credits) • Course Syllabus
Case Studies in Children's Environmental Health Disparities

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Course Title: Case Studies in Children's Environmental Health Disparities

Course Times: T/TH, 1:30-2:50 pm

Course Location: HSB BB 1404

Instructor:

Catherine Karr MD PHD
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Office Hours: by appointment

Course Website: TBD

Catalog Course Description: This course introduces students to the ways in which children are disproportionately affected by environmental health hazards. Through a series of engaging case studies, students learn the core scientific concepts of children's environmental health while exploring the social, cultural, regulatory, political, and economic factors that lead to children's health disparities.

Syllabus Course Description: This course provides students with an in-depth introduction to the many ways in which children are disproportionately affected by environmental health hazards. Through a series of four engaging case study-based modules, students are introduced to the core concepts of children's environmental health in a multidisciplinary context that emphasizes the foundational scientific principles of exposure assessment and toxicology, as well as the social, cultural, regulatory, political, and economic factors that can lead to disparities in exposures and health impacts for children. All case studies are based on real life scenarios of children in both the developing and developed world. Carefully crafted activities and assignments provide opportunities for students to identify, evaluate, and synthesize scientific information related to children's environmental health, describe policy and regulatory approaches to reducing hazards, and recognize stakeholders' varied perspectives on the issue. Coursework is designed to develop proficiency in communicating with a variety of audiences about children's environmental health disparities and possible solutions.

Diversity requirement: This course is an approved DIV course to fulfill the undergraduate diversity requirement.

Prerequisites: none

Learning Objectives – Upon completing the course, students will be able to:

1. Describe the core concepts of environmental health (toxicity, exposure, susceptibility, risk, and prevention) and apply them in new contexts.

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2. Identify the characteristics of children that make them uniquely vulnerable to environmental hazards and contribute to health disparities.
3. Describe the effects of certain key pollutants on children.
4. Locate, organize, and synthesize information about children's environmental health problems in the context of real world situations.
5. Characterize children's environmental health disparities nationally and globally in biological, cultural, political, socioeconomic, public health and health care contexts.
6. Describe regulatory, policy, and programmatic approaches to reducing children's exposures to environmental health hazards.
7. Effectively communicate about children's environmental health concepts to key audiences.

Course Overview and Format: This course is designed to facilitate student-centered, active and investigative learning. Case-based instructional strategies are used to introduce and explore the core concepts of children's environmental and apply these concepts to realistic situations, with an emphasis on the concept of health disparities as it applies to children. Through the lens of the four case-based modules, students develop a framework for identifying and applying environmental health concepts to child health issues and to identification of susceptible populations disproportionately affected. The course requires students to be actively engaged in their learning and class time is used predominantly for discussions, student led presentations, and group problem solving.

The content of the course is organized around four hazard-based modules, each of which follows a consistent format:

- **Session one** introduces the fundamental concepts from toxicology and exposure science that are relevant to children and the toxicant being addressed.
- **Session two** focuses on identifying and understanding how non-biological factors (social, economic, cultural and political) contribute to health disparities in children. Regulatory and policy approaches to addressing the issue are also explored.
- **Session three** invites students to identify and understand the perspectives of the various stakeholders in the issue.
- **Session four** provides students with an opportunity to explore and critique a variety of communication strategies for the various stakeholders identified in session three.

Thoughtful preparation and active in-class participation is essential for success in the course. The course is designed to develop skills related to finding, evaluating, synthesizing, and translating children's environmental health information to a variety of audiences in a variety of formats.

Course Requirements:

Each student will be expected to:

- Prepare for each class session by completing assigned readings, watching assigned videos, etc.
- Participate actively in class discussions and activities
- Prepare a 15-minute oral presentation for one of the four modules
- Actively participate in small group stakeholder perspective role-plays for each of the four case modules

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- Prepare a written and/or visual communication product for one of the modules and present it to the class
- Research and write a paper about a children's environmental health issue that was not covered in a module

Preparing for Class: Reading and viewing assignments for each class session will be available through the course Canvas pages. These will include both assigned and suggested readings and video materials, such as scientific articles, reports and educational products from both governmental and non-governmental organizations, textbook chapters, online modules, and instructional videos. Video recordings of short lectures by the instructor will also be assigned for viewing prior to class in order to free up class time for active learning.

Textbook (optional): *Children's Environmental Health*. Landrigan & Etzel, eds. Oxford University Press. 2014. A copy will be placed on reserve in the Health Sciences Library. Other required readings will be provided on the Canvas Site.

Student Oral Presentations: Each student will prepare and deliver one 15-minute oral presentation in class. The presentations will take place during the first two sessions of each module. By the end of the 2nd course session (April 2, 2015), students will sign up for which module/focus area they would like to contribute (see below). Each of the 4 modules will involve presentation from 7-8 students. In order to help students succeed, suggested outlines and scoring rubrics for each of the six presentation types will be made available on the course website. All students will complete a brief written peer evaluation of the presentations using the course website. The oral presentations will cover focus areas evenly divided across sessions 1 and 2 as outlined below.

Session 1: One student presentation will address the concept of **exposure** and one will address the concept of **toxicity** in the context of the contaminant(s) of concern. The third and fourth presentation will provide a brief overview and **review of a scientific paper** related to the exposure/toxicity of the contaminant(s). Reference and resource materials that will be useful for preparing the exposure or toxicity presentations will be provided on the course website. A set of scientific papers that may be used for the paper review presentations are provided on the course website for each module. If a student wishes to present an alternative scientific paper, permission from the instructor is required.

Session 2: One student presentation will address the **non-biological vulnerability factors** related to the contaminant of concern. Another student presentation will address **regulatory and/or policy approaches** to reduce harm. Reference and resource materials that will be useful for preparing the vulnerability factors and regulatory/policy approaches will be provided on the course website. The third and fourth presentation will provide a brief overview and **review of a scientific paper** related to health disparities and/or approaches to reducing disparities for the contaminant(s) of concern. A set of scientific papers that may be used for the paper review presentations are provided on the course website for each module. If a student wishes to present an alternative scientific paper, permission from the instructor is required.

Student Stakeholder Role Play: At the end of Session 2, the class will come to consensus on a policy, legislation, intervention, or research project that could help mitigate the risk being considered. Between sessions 2 and 3, students will research and evaluate the various groups who have a stake in the issue and who would be affected by the proposed solution. During session 3, students will be placed in small groups of 5 students and asked to agree on who the

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key stakeholders are, then assign a role to each group member. Each student then gives a short (2-3 minute) summary of his/her position on the issue and thoughts about the proposed solution. Students will be expected to think deeply about stakeholders' beliefs and opinions in order to represent them with relative accuracy and conviction, even if their own views differ greatly from those of the stakeholder they are being asked to represent. They will also be encouraged to use a range of arguments (logical, factual, emotional, values-based) to support the positions they are representing, but to be respectful and avoid stereotyping, insensitive use of accents or slang, etc. Following these brief position statements, the group will then be asked to reach consensus on whether or not the proposed solution is feasible, unfeasible, or feasible with modifications. The role-play ends with each group sharing who their stakeholders were and what consensus they were able to reach. Follow-up class discussion and Q&A will allow for further opportunities to probe stakeholder opinions and biases and explore what is at stake for different groups.

Communication Product: Each student will develop a children's environmental health communication product for one of the modules in the form of a health promotion or risk communication pamphlet, factsheet, poster, radio/TV vignette/campaign or op-ed for a specified audience or stakeholder group (e.g. policymakers, public health professionals, clinicians, community members, parents and/or children, etc.). Students may choose the format/topic/audience for the product. During Session 4 of each module, students will display/share their communication products, describing the target audience and why they selected the approach they did.

Final Paper and Presentation: All students will be required to research and write a 4-5 page briefing paper about a children's environmental health issue that was not covered in a one of the four modules. A list of recommended topics and related resources will be made available on the course website, although students can request instructor permission to address a topic that is not on the list. The paper should address the scope of the problem, who is at risk, what the health effects are, how exposure is measured, and a policies, program or regulation in place to address the problem.. Suggested outline and conceptual framework for the paper will be provided.

Student Evaluation:

Course grades will be based on:

15%	Class participation
25%	Oral presentation
10%	Peer evaluation of oral presentations
20%	Communication product
30%	Final paper

Course Outline:

The first week of the course will include introductory material and background in preparation for case-based discussions and activities in the remaining weeks. All sessions will be led by the course instructor with the following exception. There will be a break in the routine format for class on April 14, 2015 and April 16, 2015 to accommodate guest presentations.

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In general, weeks 2-10 will involve two week blocks comprising four sessions for each of the four case studies (modules). The four sessions for each case study or module will follow the format in the boxes below.

Each case study (module) will include a series of four sessions designed to model a set of higher level thinking skills and provide students with an opportunity to practice those skills. The final paper assesses students' ability to transfer these skills to a new topic area. An outline of the full ten week schedule is provided at the end of this document. Group sizes and numbers of presentations are based on enrollment of 30 students and will be adjusted as needed.

Session 1: Scientific Foundations	
<u>Focus area:</u> <i>Explore the fundamental concepts from toxicology and exposure science that are relevant to children and the toxicant(s) being addressed.</i>	
Class check-in: Any Questions? Suggestions for improving the class? Discussion of assigned readings.	5 min.
Student Oral Presentation #1: Exposure	15 min.
Student Oral Presentation #2: Toxicity	15 min.
Student Oral Presentation #3: Paper Review (Exposure/Toxicity)	15 min.
Student Oral Presentation #4: Paper Review (Exposure/Toxicity)	15 min.
Class review and facilitated discussion of the case study	10 min.
Review expectations for the next session and answer questions	5 min.

Session 2: Health Disparities	
<u>Focus Area:</u> <i>identify and understand how non-biological factors (social, economic, cultural and political) contribute to health disparities in children. Explore Regulatory and policy approaches to addressing the issue.</i>	
Class check-in: Any Questions? Suggestions for improving the class? Discussion of assigned readings.	5 min.
Student Oral Presentation #1: Social, cultural, behavioral, economic, power factors (non biological factors)	15 min.
Student Oral Presentation #2: Regulatory, policy, or program approaches to reduce disparities	15 min.
Student Oral Presentation #3: Paper Review (Understanding or addressing environmental health disparities)	15 min.
Student Oral Presentation #4: Paper Review (Understanding or addressing environmental health disparities)	15 min.
Class review and discussion of the environmental justice issues relevant to the case study. Consensus on a policy, legislation, research project or intervention that could address the disparity. This "solution" will be used in the session 3 small group role-play and discussion.	10 min.
Review expectations for the next session and answer questions	5 min.

Session 3: Stakeholder Perspectives	
<u>Focus Area:</u> <i>Identify and understand the perspectives of the various stakeholders in the issue</i>	

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Class check-in: Any Questions? Suggestions for improving the class? Discussion of assigned readings.	5 min.
Small Group Role Play and Discussion: Students are divided into six groups of five. As a group, they enumerate the various stakeholders for the issue, then identify five to “bring to the table” to discuss the solution proposed at the end of session 2 and come to consensus about its feasibility. See above for a detailed description of the role-play activity.	40 min.
All class discussion: each group briefly describes their process and outcome, followed by instructor-facilitated discussion.	30 min.
Review expectations for the next session and answer questions	5 min.

Session 4: Communication Strategies	
<i>Focus area: Explore and critique a variety of communication strategies for the various stakeholders identified in session three.</i>	
Class check-in: Any Questions? Suggestions for improving the class? Discussion of assigned readings.	5 min.
Communication Product Presentations (7-8 students per module, 5 minutes to give a brief presentation, followed by 2 minutes of Q&A) – see above for more detailed information about the communication product assignment.	55 min.
Instructor-led presentation, discussion, and critique of additional “real world” communication products related to the module topic	15 min.
Review expectations for the next session and answer questions	5 min.

Introductory Sessions		
Week 1 March 31, April 2		
Session 1 March 31	Children's environmental health (CEH) concept mapping activity. Introductions and review of students' backgrounds and interests. Review of class policies, procedures, expectations, and norms. Finding CEH resources. Preparing presentations.	
Session 2 April 2	Introduction to the core concepts of CEH. Preparing presentations.	<ol style="list-style-type: none"> 1. ATSDR Principles of Pediatric Environmental Health 2. ATSDR. Module 1. Introduction to Toxicology. Lecture Notes. 3. ATSDR. Module 2. Routes of exposure. Lecture Notes. 4. Payne Sturgess 2006 5. Landrigan 2011 (Chapters 5, 12, 57)
Module 1: Children in a lead battery recycling village in Vietnam (lead)		
Week 2 April 7, 9		
Session 3 April 7	Scientific Foundations - lead	<ol style="list-style-type: none"> 1. WHO. Childhood Lead Poisoning Booklet 2. Student selected papers

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		(Textbook Chapter 28)
Session 4 April 9	Health Disparities - lead	Students selected papers
Special Presentations Week		
Week 3 April 14,16		
Session 5 April 14	Special Presentation – Science to Policy in Children's Environmental Health. Sheela Sathyanarayana MD MPH, UW Pediatrics/DEOHS	
Session 6 April 16	Special Presentation – Communication in Public Health Practice – Nicole Thomsen, Seattle King County Public Health	
Module 1 continued: Children in a lead battery recycling village in Vietnam (lead)		
Week 4 April 21, 23		
Session 7 April 21	Stakeholder Perspectives - lead	1. Gottesfeld 2011 2. Case Study video
Session 8 April 23	Communication Strategies - lead	
Module 2: Mexican-American farm worker children in eastern WA (pesticides)		
Week 5 April 28,30		
Session 9 April 28	Scientific Foundations - pesticides	1. Roberts JR. 2012 2. Student selected papers (Textbook Chapters 19, 32)
Session 10 April 30	Health Disparities - pesticides	Student selected papers
Week 6 May 5,7		
Session 11 May 5	Stakeholder Perspectives - pesticides	Case study video
Session 12 May 7	Communication Strategies - pesticides	
Module 3: Children with asthma in a low income housing unit in Seattle (air pollutants)		
Week 7 May 12,14		
Session 13 May 12	Scientific Foundations – air pollutants	1. HUD 2012 2. Student selected papers (Textbook Chapters 14, 22)
Session 14 May 14	Health Disparities - air pollutants	1. Case Study interactive module 2. Student selected papers
Week 8 May 19,21		
Session 15 May 19	Stakeholder Perspectives - air pollutants	
Session 16 May 21	Communication Strategies - air pollutants	
Module 4: Fish consumption among Alaskan native pregnant women (mercury)		
Week 9 May 26,28		
Session 17	Scientific Foundations - Mercury	1. Davidson 2004

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May 26		2. Student selected papers
Session 18 May 28	Health Disparities - Mercury	Student selected papers
Week 10 June 2,4		
Session 19 June 2	Stakeholder Perspectives - Mercury	Alaska Bulletin. Updated Fish Advisory
Session 20 June 4	Communication Strategies - Mercury	
FINAL EXAM WEEK		
No class meeting. Final Papers due by 5 pm Friday June 12		

UW Disability Statement:

Access and Accommodations: Your experience in this class is important to us, and it is the policy and practice of the University of Washington to create inclusive and accessible learning environments consistent with federal and state law. If you experience barriers based on a disability or temporary health condition, please seek a meeting with Disability Resources for Students (DRS) to discuss and address them. If you have already established accommodations with DRS, please communicate your approved accommodations to your instructor at your earliest convenience so we can discuss your needs in this course.

DRS offers resources and coordinates reasonable accommodations for students with disabilities and/or temporary health conditions. Reasonable accommodations are established through an interactive process between you, your instructor(s) and DRS. If you have not yet established services through DRS, but have a temporary health condition or permanent disability that requires accommodations (this can include but not limited to; mental health, attention-related, learning, vision, hearing, physical or health impacts), you are welcome to contact DRS at 206-543-8924 or uwdrs@uw.edu or disability.uw.edu

UW Academic Integrity Statement:

Students at the University of Washington (UW) are expected to maintain the highest standards of academic conduct, professional honesty, and personal integrity. The UW School of Public Health (SPH) is committed to upholding standards of academic integrity consistent with the academic and professional communities of which it is a part. Plagiarism, cheating, and other misconduct are serious violations of the University of Washington Student Conduct Code (WAC 478-120). We expect you to know and follow the university's policies on cheating and plagiarism, and the [SPH Academic Integrity Policy](#). Any suspected cases of academic misconduct will be handled according to University of Washington regulations. For more information, see the University of Washington Community Standards and Student Conduct website.