

Course Syllabus

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ENVH 501 Foundations of Environmental Health Autumn Quarter 2018

Instructor:

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Office Hours:

Tuesday 9:00 - 10:00 AM by appointment: (contact Vickie Ramirez <ramirezv@uw.edu> (<mailto:ramirezv@uw.edu>)) to schedule appointments)

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Days/Times and Location:

- **Mondays**, 3:00-4:50 AM, in HSB BB-1602
- **Wednesdays**, 3:00-4:50 AM, in HSB BB-1602

Course Description

This course provides an overview of environmental and occupational health, stressing a systems approach to complex problems. The course examines a representative sample of environmental hazards and major environmental media, with comparative local and global case problem solving. The course also emphasizes a “One Health” approach to environmental and occupational health issues that considers the ecological relationships between human, animal, and environmental health. Course assignments stress developing basic literacy in environmental and occupational concepts and science and applying this knowledge to problem solving.

Pre--requisites: Graduate students majoring in Environmental and Occupational Health Sciences; or other graduate students with permission of the instructor plus previous college-level courses in chemistry and biology.

Learning Objectives

At the end of this course, the student should be able to:

1. **Foundations:** *Describe and discuss foundational concepts and strategies of environmental and occupational health sciences; their relationship to public health practice, and draw generalizable conclusions about how they apply in different situations.*
 - **Hazards:** Describe major chemical, microbial, and physical health hazards found in air, water, food, soil, and wastes, and describe their principal effects on health.
 - **Exposure:** Describe basic strategies for identifying, evaluating, preventing, and controlling exposures to health and safety hazards in environmental and occupational settings.
 - **Health risk:** Describe basic strategies for assessing health risk and identifying acceptable levels of risk associated with environmental and occupational hazards.
 - **Health impacts:** Describe major environmental and occupational health problems associated with morbidity and mortality, in industrialized countries and in developing countries.
 - **Environmental controls:** Describe basic strategies for preventing and controlling exposures to health and safety hazards in environmental and occupational settings, including the 10 essential services of Public Health and the concepts of primary, secondary, and tertiary prevention.
 - **Policies:** Describe major policies, regulations, and institutions involved in controlling or mitigating environmental and occupational health risks, and the history and philosophy of public health related to environmental health policy.
 - **Vulnerability:** Discuss the importance of factors that contribute to individual and population vulnerability, such as biological susceptibility, social, political and economic determinants of health and how they contribute to health and health inequities as well as the cumulative burden of environmental health impacts.
 - **Values:** Discuss the importance of equity, justice and sustainability in addressing problems related to the environment and health.
 - **Evolutionary change:** Describe and discuss potential impacts of demographic change, economic development, energy demand, human--modified environments, pollution, and climate and ecosystem change on human health, food security and water security.

2. **Systems:** *Apply foundational concepts and strategies to environmental and occupational health problems; characterize broader environmental and social contexts; and assess relationships that cumulatively influence health, well--being and equity.*
 - **Environmental context:** Identify and characterize natural ecosystems and human--altered environments that might influence distribution, human exposure, health risk or vulnerability associated with an environmental hazard.
 - **Social context:** Identify and characterize the socioeconomic, political, cultural, behavioral and perceptual factors that might influence or interact with environmental hazards or health risks.
 - **Stakeholders:** Identify and describe stakeholders, and characterize stakeholder relationships and power dynamics.

- **Systems thinking:** Analyze relationships between and cumulative influences of environmental hazards, environmental and social contexts, and vulnerability on health, well-being and equity.
 - **One Health approach to health systems:** Explain an ecological perspective on the connections among human health, animal health and ecosystem health (e.g., One Health). Be able to diagram the relationships between human, animal, and environmental systems, ranging from the planetary to the molecular scale.
 - **Opportunities:** Identify opportunities for and barriers to sustainable changes that could promote health, well-being and equity.
3. **Investigative skills:** Apply foundational concepts and strategies, contextual analysis, and systems thinking in comprehensive investigations of environmental and occupational health problems.
- **Evidence base:** Locate, organize and analyze information about the problem and context, including reading of scientific literature (experimental, observational, and qualitative studies).
 - **Critical thinking:** Apply evidence-based decision making and critical thinking in the investigation.
 - **Scholarship:** Demonstrate creativity, inquisitiveness, passion, and rigor in the application of public health problem-solving skills.
 - **Alternatives:** Formulate evidence--based, context-appropriate and sustainable alternatives to address the problem and promote health, well-being and equity.
4. **Communication skills:** Communicate information in plain language (orally and in writing) to a target audience about environmental health risks, influential factors, and prevention strategies; and anticipate or identify risk perceptions and relevant concerns in the target audience.
5. **Professional skills:** Perform effectively on teams and in different team roles; promote collegiality, inclusion and trust; and apply ethical principles to the learning experience.

Classroom Climate

Diverse backgrounds, embodiments, and experiences are essential to the critical thinking endeavor at the heart of university education. Therefore, I expect you to follow the UW Student Conduct Code in your interactions with your colleagues and me in this course by respecting the many social and cultural differences among us, which may include, but are not limited to: age, cultural background, disability, ethnicity, family status, gender identity and presentation, citizenship and immigration status, national origin, race, religious and political beliefs, sex, sexual orientation, socioeconomic status, and veteran status. I will acknowledge from the beginning that all of us, including your instructor, have a lot to learn about combatting racism, sexism, classism, and other forms of discrimination and bias, and that this learning process will continue throughout our careers. Please talk with me right away if you experience disrespect in this class, and I will work to address it in an educational manner. UW students can also report incidents of bias or violations of UW policies for non-discrimination using the Bias Reporting Tool available at:

<http://www.washington.edu/bias/> [\(http://www.washington.edu/bias/\)](http://www.washington.edu/bias/).

Course Organization

The course is organized in weekly modules on [the Modules Page](#) of the Canvas site. After an introductory module, and modules explaining the Environmental and Occupational Health approach to problems, ecosystems and and demographic factors, we will examine a number of major environmental “systems”, including food systems, energy systems, etc. For each system, we will examine representative biological, physical, chemical, and social hazards and human health effects (as well as effects on the health of animal populations and the ecosystem). We will also discuss common mechanisms of exposure, risk and health impact; population vulnerability, including occupational exposures and occupational health vs. community exposures, social determinants of health, inequity; and strategies to control exposure and promote health--favorable change.

Students need to complete assigned preparatory reading, viewing and short tasks before each class session.

Class sessions will be a combination of instructor--led, active lecture format to reinforce the preparatory material and “flipped classroom” approaches requiring students to have already reviewed materials on the Canvas site, including at times prerecorded lectures.

At some class sessions, use of computers, smart phones etc. will not be allowed. Students in general must come to class prepared to answer discussion questions about the assigned material, and also be able to define any of the terms on the module definition list.

Case Study Sessions: there will be 3 cases: Yakima, Minamata, and Duwamish. Background materials about the cases will be provided.

Concept Mapping: For some problem solving, we will use the technique of concept mapping to explore the relevant systems.

For creating concept maps, I recommend trying the Lucid software program which is available for free as an online version. To get the program, sign up using your .edu address at:

<https://www.lucidchart.com/pages/usecase/education>

[\(https://www.lucidchart.com/pages/usecase/education\)](https://www.lucidchart.com/pages/usecase/education) (click on “free account” to get started).

Using this program will allow you to create concept maps about particular systems. There will be a number of concept map assignments. For each assignment, please save your concept map as a pdf file and upload it to the Canvas site. During some class discussions, we will review these concept maps to further our understanding both of the system being discussed as well as the systems thinking approaches that are appropriate. The final policy brief will also require creation of a concept map to help you explain your policy recommendation.

Required Reading and Viewing

Students are required to complete preparatory reading and viewing assignments before each class session. Students need to come to class prepared to discuss in depth the questions on the weekly question list, and be able to define the definitions for the module.

A detailed list of assigned reading and viewing materials for each module will be maintained on the Canvas website.

Typical assigned materials include:

- Short video lectures by the instructor or other faculty speakers (approximately 20 minutes) covering learning objectives, key concepts and definitions for the weekly module.
- Required background reading that may include textbook chapters, journal articles, and policy documents.
- List of questions and definitions (based on the background reading) relevant to each module for discussion in the class sessions.
- Additional background materials: not required but available if you are interested in further exploration of particular topics

Textbook: There is no required textbook.

Lucid Software: Highly recommended for the concept mapping. Available for free at

<https://www.lucidchart.com/pages/usecase/education>

(<https://www.lucidchart.com/pages/usecase/education>) (use your @uw.edu address and click on “free account” to get started).

Assignments

Daily Assignments:

- **Reading or viewing background materials and lectures, and list of questions and definitions for the module:** To be completed before the first module class session, as described above. This preparation is essential for success in the course.
- **Concept maps:** There will be a total of 5 concept mapping assignments. Three of them are in-class assignments, due at the end of class, and marked as Credit/non credit. There will also be 2 graded concept maps that students will do outside of class. For graded concept map assignments, students will post a pdf copy on Canvas before class. Concept mapping is a “systems thinking” exercise to portray ideas about connections between environmental and social causative factors, other influential factors or stakeholder--agents, and impacts on health and well--being. The instructor will provide guidance on concept mapping, including an in class demonstration about how to create a concept map. Students are encouraged to use the free Lucid software to create their maps, although with permission of the instructor they may use other methods. For each graded concept map assignment, I will provide comments through the Canvas site.

Exams: There will be an in-class midterm and final exam. These will be based heavily on the learning objectives outlined in each lecture as well as the terms and definitions presented each week in the recorded lecture.

Group Final Project (Policy Brief supported by a compelling concept map (1)): Each student will collaborate once with a group of approximately 3 students over the course of the term to prepare an in-depth systems analysis of an environmental health problem. This project will include completing a concept map to help illustrate the identified problem and proposed solutions. The group will collaborate to produce a 2-3-page executive summary level policy brief document, outlining the problem being addressed and presenting some policy priorities for addressing the problem. Field visits to sites relevant to the policy brief to gain additional insight are encouraged but not required.

What is a policy brief?

“A policy brief is a concise summary of a particular issue, the policy options to deal with it, and some recommendations on the best option. It is aimed at government policymakers and others who are interested in formulating or influencing policy. Policy briefs can take different formats. A typical format... contain[s] perhaps 700 words. It has an attractive design, and may have one or more photograph[s]”
[source: FAO Food Security Communications Toolkit]

The policy brief for this assignment should be <1000 words, not counting references. Since this is an academic exercise, the policy brief should include line--item reference notations linked to a separate reference list.

Each group will present an oral presentation about the problem, the concept map diagram they have created, and the policy brief during the last week of the class. A written version of the policy brief document as well as the concept map will be due on the same day as the final exam. This write-up must include a description of the roles of each of the group members in creating the document. The write-up should conform to principles of “plain language” as outlined by NIH (see <https://www.nih.gov/institutes-nih/nih-office-director/office-communications-public-liaison/clear-communication/plain-language> (<https://www.nih.gov/institutes-nih/nih-office-director/office-communications-public-liaison/clear-communication/plain-language>)).

Personal Vision/Mission Statement and Goals: Graduate study is a time of intense and rapid professional and personal individual growth. Having a clear sense of your personal values and goals regarding your study and training in environmental and occupational health will help you be a proactive and effective learner and professional. NIH, NSF, and other agencies that provide funding for graduate training are increasingly requiring students and their mentors to complete “individual development plans” that ideally are based on the student’s personal values and sense of mission. In this course, students will work on drafting their personal mission statement related to environmental and occupational health, as well as a set of goals for their graduate study based on their mission statement. The mission statement can be based on the student’s personal statement but can also be completely different! The key idea is to encourage student self-reflection and assist students with goal-setting for their education and training and beyond.

The process of creating a mission statement will begin on the first day of class, and students will do a short writing exercise and use it to introduce themselves to other students. Students are also encouraged to discuss this assignment with potential or actual mentors or advisors. A draft of the mission statement and goals will be due halfway through the course, and a revised statement due at the end of the course. The finished assignment for this class will include:

- 2-3 short statements about your career and personal vision
- 4-5 short statements describing your career and personal mission
- A set of goals (with timelines) for your graduate study at DEOHS
- At least 3 academic goals
- At least 3 career goals
- At least 3 personal goals

A rubric for the mission statement and goals will be on the Canvas site.

Participation

Preparation before class, participation in class discussion, and group collaboration in the group project are essential for successful instruction and learning in this course. While you will not be explicitly graded on attendance, participation in class discussions is an important part of your learning, therefore 15% of your grade will be based on your participations in class discussions and case problem solving sessions.

Communication

One goal of this course is to provide experience with a variety of communication formats, and to cultivate skills in “plain language” communication. See NIH guide to plain language <https://www.nih.gov/institutes-nih/nih-office-director/office-communications-public-liaison/clear-communication/plain-language/training>. (<https://www.nih.gov/institutes-nih/nih-office-director/office-communications-public-liaison/clear-communication/plain-language/training>)

Students usually have a wide range of comfort levels regarding speaking up in class- but this course really encourages students to actively participate in group discussions as well as class-wide discussions.

Use of graphics for communication is also important and will be emphasized in the concept map and policy brief assignments.

Use of Computers or Other Electronic Devices in Class

In sessions where we are doing active discussion, **students are expected not to use electronic devices and computers**, unless the instructor specifically requests that a student use an electronic device for a particular task (such as to display a concept map), or to accommodate an individual student’s disability needs. The rationale for this is to encourage adequate pre-class preparation (including written notes) and in-class interactive discussion and communication. Copies of any slides will always be available on the Canvas site.

During the in-class concept mapping sessions, computers may be used for specific activities such as displaying work on a concept map.

Grading

Course grades are determined on the basis of the following weighting:

Preparation and class participation	10%
Personal mission statement	10%
Concept maps (2 x 10% each for graded maps, 2 x 5% each for C/NC maps)	30%
Midterm Exam	15%
Final Exam	20%
Group concept map diagram and policy brief	15%
TOTAL	100%

Course Summary:

Date	Details	
Thu Jan 11, 2018	 Introduction to Concept Mapping workshop, Week 2 (https://canvas.uw.edu/courses/1263417/assignments/4384969)	due by 8:30am
Thu Jan 18, 2018	 Draft Concept Map #1 Assignment, Week 3 (https://canvas.uw.edu/courses/1263417/assignments/4384956)	due by 8:30am
Thu Jan 25, 2018	 Final Concept Map #1 Assignment, Week 4 (https://canvas.uw.edu/courses/1263417/assignments/4384961)	due by 8:30am
Thu Feb 1, 2018	 Draft Concept Map #2 Assignment & Begin Group Concept Maps, Week 5 (https://canvas.uw.edu/courses/1263417/assignments/4384957)	due by 8:30am
Thu Feb 8, 2018	 Final Concept Map #2 Assignment, Week 6 (https://canvas.uw.edu/courses/1263417/assignments/4384962)	due by 8:30am
Thu Feb 22, 2018	 Draft Concept Map #3 Assignment, Week 8 (https://canvas.uw.edu/courses/1263417/assignments/4384958)	due by 8:30am
Thu Mar 1, 2018	 Final Concept Map #3 Assignment, Week 9 (https://canvas.uw.edu/courses/1263417/assignments/4384963)	due by 8:30am

Date	Details	
Wed Sep 26, 2018	 Materials for Session 1 (Module 1, Introduction) (https://canvas.uw.edu/courses/1263417/assignments/4419706)	due by 3:00pm
Mon Oct 1, 2018	 Preparation for Session 2 (Module 2, EOH Approach) (https://canvas.uw.edu/courses/1263417/assignments/4384980)	due by 3:00pm
Wed Oct 3, 2018	 Preparation for Session 3 (Module 2, EOH Approach) (https://canvas.uw.edu/courses/1263417/assignments/4391253)	due by 3:00pm
	 In-Class Lucid Chart Concept Map 1 - Yakima Basic (https://canvas.uw.edu/courses/1263417/assignments/4448587)	due by 4:50pm
Mon Oct 8, 2018	 Preparation for Session 4 (Module 3, Ecosystems) (https://canvas.uw.edu/courses/1263417/assignments/4391267)	due by 3:00pm
	 Additional Materials for Session 5 (https://canvas.uw.edu/courses/1263417/assignments/4458137)	due by 3:00pm
Wed Oct 10, 2018	 Preparation for Session 5 (Module 3, Ecosystems) (https://canvas.uw.edu/courses/1263417/assignments/4391285)	due by 3:00pm
	 In-Class Lucid Chart Concept Map 2 - Yakima One Health (https://canvas.uw.edu/courses/1263417/assignments/4448588)	due by 4:50pm
Mon Oct 15, 2018	 Preparation for Session 6 (Module 4, Demographics) (https://canvas.uw.edu/courses/1263417/assignments/4391323)	due by 3:00pm
Wed Oct 17, 2018	 Preparation for Session 7 (Module 4, Demographics) (https://canvas.uw.edu/courses/1263417/assignments/4391333)	due by 3:00pm
Mon Oct 22, 2018	 Preparation for Session 8 (Module 5, Animal Food Production) (https://canvas.uw.edu/courses/1263417/assignments/4391379)	due by 3:00pm
Wed Oct 24, 2018	 Graded Food Chain Concept Map (https://canvas.uw.edu/courses/1263417/assignments/4448632)	due by 3:00pm
Mon Oct 29, 2018	 DRAFT Personal Mission Statement (due 10/29) (https://canvas.uw.edu/courses/1263417/assignments/4416969)	due by 3:00pm
	 Preparation for Session 10 (Module 6, Plant Food Production) (https://canvas.uw.edu/courses/1263417/assignments/4391426)	due by 3:00pm
Wed Oct 31, 2018	 Meal Analysis Exercise (https://canvas.uw.edu/courses/1263417/assignments/4448650)	due by 10:00pm
Mon Nov 5, 2018	 MIDTERM Exam (in-class) (https://canvas.uw.edu/courses/1263417/assignments/4384971)	due by 3:00pm

Date	Details	
Wed Nov 7, 2018	 Preparation for Session 13 (Module 2, EOH Approach, cont.) (https://canvas.uw.edu/courses/1263417/assignments/4391526)	due by 3:00pm
	 In-Class Lucid Chart Concept Map 3 - Yakima Intervention (https://canvas.uw.edu/courses/1263417/assignments/4448607)	due by 4:50pm
Wed Nov 14, 2018	 Preparation for Session 14 (Module 7, Energy) (https://canvas.uw.edu/courses/1263417/assignments/4391545)	due by 3:00pm
	 Graded Energy Concept Map (https://canvas.uw.edu/courses/1263417/assignments/4448636)	due by 3:00pm
Mon Nov 19, 2018	 Preparation for Session 15 (Module 8, Manufacturing) (https://canvas.uw.edu/courses/1263417/assignments/4391571)	due by 3:00pm
	 DRAFT Group Causal Diagram and Policy Brief (due 11/21) (https://canvas.uw.edu/courses/1263417/assignments/4384959)	due by 3:00pm
Wed Nov 21, 2018	 Preparation for Session 16 (Module 8, Manufacturing) (https://canvas.uw.edu/courses/1263417/assignments/4391813)	due by 3:00pm
	 Preparation for Session 17 (Module 9, Built Environment & Transportation) (https://canvas.uw.edu/courses/1263417/assignments/4391984)	due by 3:00pm
Mon Nov 26, 2018	 Preparation for Session 18 (Module 9, Built Environment & Transportation) (https://canvas.uw.edu/courses/1263417/assignments/4392184)	due by 3:00pm
	 Final Group Presentations (Session 1, Monday, 12/3) (https://canvas.uw.edu/courses/1263417/assignments/4384965)	due by 3:00pm
Mon Dec 3, 2018	 Personal Mission Statement FINAL Draft (due 12/3) (https://canvas.uw.edu/courses/1263417/assignments/4416903)	due by 3:00pm
	 Final Group Presentations (Session 2, Wednesday, 12/5) (https://canvas.uw.edu/courses/1263417/assignments/4425958)	due by 3:00pm
Wed Dec 5, 2018	 FINAL Exam (in-class) (https://canvas.uw.edu/courses/1263417/assignments/4384964)	due by 2:30pm
	 Group Causal Diagram and Policy Brief (due 12/13) (https://canvas.uw.edu/courses/1263417/assignments/4384968)	due by 2:30pm
Thu Dec 13, 2018	 Group Causal Diagram and Policy Brief (due 12/13) (https://canvas.uw.edu/courses/1263417/assignments/4384968)	due by 2:30pm

Date**Details**

**Overall Participation (not counting meal analysis)**

<https://canvas.uw.edu/courses/1263417/assignments/4448654>

**Roll Call Attendance**

<https://canvas.uw.edu/courses/1263417/assignments/4446171>
