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ENV H 311: Introduction to Environmental Health

Fall Quarter 2017

Course Syllabus

Course Description

This course explores the relationship between people and their environment -- how it affects their health and physical well-being, what they can do to protect and enhance their health, and how to influence the quality of the environment.

The course is a survey course intended to give students a basic understanding of how environmental factors impact the health of people and the community, and of the efforts made to prevent or minimize the effects of negative impacts. The course is designed to acquaint the student with the scientific and technical foundations of the field, and examines both the practice of environmental health and the problems that are addressed by the practitioners in this career discipline. Course content emphasizes a general understanding of how environmental factors are involved in the transmission of communicable diseases and on some of the health hazards resulting from exposure to chemical and physical materials in our environment.

Course Meeting Times and Location

10:30 - 11:20 a.m.

Monday, Wednesday & Friday

Room T-435 Health Sciences Building

Course Instructor

Tania Busch Isaksen, Lecturer

Department of Environmental & Occupational Health Sciences (DEOHS)

Office: F-561B Health Sciences Center

Phone: (206) 685-4919 -- during office hours only

E-Mail: tania@uw.edu (Best way to contact)

Office Hours: 11:30 a.m.-12:30 p.m., Mon., Wed., and Fri.; other times by appointment.

Graduate Teaching Assistants

Meagan Jackson

E-mail: meaganja@uw.edu

Office: E-179F Health Sciences Center

Office Hours: By appointment only

Brianne Duncan

E-mail: duncanb@uw.edu

Office: E-179F Health Sciences Center

Office Hours: By appointment only

Learning Objectives

It is intended that at the completion of this course, each student should be able to:

1. Describe, and illustrate through case example(s), ways in which environmental factors in community, occupational and residential settings impact health;
2. List the major agencies and organizations involved in environmental health protection and explain their basic responsibilities, programs and problems;
3. Explain the pertinent scientific principles associated with the major environmental health program areas;
4. Explain, and illustrate through case example(s), how factors, such as community perceptions, public health law, traditions, socioeconomic conditions, politics and interpersonal communications, may influence the practice of environmental health;
5. Describe the benefits and limitations of the various methodologies (such as regulation, education, impact statements and public funding) through which society attempts to minimize negative environmental health impacts;
6. Examine personal contributions to environmental degradation and their potential health consequences; and
7. Analyze at least one environmental health topic for its impact on health and propose solutions based on what is known about the challenges/barriers.

Course Requirements

1. **Individual Assignments/Participation:** Students are expected to come to class having read and prepared for the day. Questions and comments on the subject matter are encouraged. Most class sessions will include two reading-related questions (1 pt each) using Canvas quiz function (~50 pts).

Additionally, throughout the quarter, several self-assessment and module synthesis assignments will be used to supplement the student's self-awareness on a particular topic AND to assess comprehension at the end of a module/case. These assignments will be listed on the canvas website in each applicable module/case, as well as introduced and discussed during class (~50 pts).

2. **Examinations:** There will be two progress assessment tests (100 pts each) -- one at approximately the halfway mark, and the other at the end of the regular class lectures. The test will be cumulative only in the sense that the basic principles and concepts learned in the early portions of the course are applicable to the problems examined in the later portions.

Both exams will consist of 50 multiple-choice questions (2 pts each). They will be delivered online through Canvas. They will open after class on their respective Friday and close at 11:59 pm, Sunday. Each exam can only be taken once, and will be time-limited to 60 minutes. Just like in a classroom, once you start the exam, you must finish

it in its entirety within the next 60 minutes. Make sure you start your exam before 10:58 pm on Sunday, as the exam window-of-opportunity will close at 11:59 pm.

- Progress Assessment Test #1: Available Friday, October 27 (11:30 am) – Closes Sunday, October 29 (11:59 pm)
- Progress Assessment Test #2: Available Friday, December 8th (11:30 am) – Closes Sunday, December 10th (11:59 pm)

3. **Group Course Project/Final Examination:** During the third week of the course, the class will be divided into groups. Each group will analyze an environmental health issue or problem that is currently topical and/or controversial. The group course project has two components:

- An electronic poster due to the instructor by 5 pm on Friday, December 8th, 2017 and which will be presented to the entire class on Monday, December 11th (8:30 – 10:20 am HSB T-435)
- An accompanying written report due via Canvas on Monday, December 11th (12:00 pm).

Overall Group Course Project Requirements

Sources: Information gathered by the group should come from peer-reviewed literature; government, NGO and other websites; or the mainstream news media/press. A visit to a federal, state or local government agency (or attendance of a city or county council meeting, a regional planning council meeting, or a public hearing) that deals with your environmental health program or issue would also be helpful and is encouraged, but is not required.

Content: Information gathered by the group should:

- Provide a concise abstract defining: What is the problem, Where is it a problem (geographical boundaries), and Why is it a problem (you may use specific examples to illustrate your problem statement);
- Describe the hazard;
- Describe the health outcome(s) or endpoint(s);
- Describe the exposure in a population;
- Describe vulnerable populations and factors that mitigate their vulnerability;
- Consider the topic through an environmental justice and equity lens. How is vulnerability influenced by racial/social injustice;
- Describe the responsible environmental health management agencies/ organizations (federal, state and local) AND their regulatory authority. Describe non-profits or other organizations that assist or play a significant role;
- Present examples of control strategies either currently being used or that could be used (within your geographical focus area);

- Discuss the political and legal ramifications of existing or proposed control strategies (present examples; think about who is “for” and who is “against” and what their positions/arguments are; often will include stakeholder groups that are not responsible for management of the proposed strategies); and
- Provide a critical summary including recommendations from the group about how to prevent or minimize negative health impacts.

Electronic Poster Requirements: The posters will be presented to the class during the finals examination timeslot for the course. In order to reduce waste, conserve resources, and save the students’ money, the poster presentation will consist of a single PowerPoint slide submitted electronically to the instructor by **5 pm on Friday, December 8th** and include the following:

- The project title and date;
- The names of each of the group members;
- A concise statement of the problem or issue being investigated;
- A description of what is known about the hazard and health outcomes/endpoints;
- A description of the population and vulnerable sub-populations at risk (including any environmental justice/equity findings);
- A list of responsible regulatory agencies and an example of a control/intervention program;
- A discussion of the legal, political and social issues affecting the problem; and
- The results found and conclusions drawn by the group, including any recommendations.

A PowerPoint template will be available on the Canvas website for use in constructing group electronic posters.

Written Report Requirements: The approximately 10 pages (excluding references) written report (1.5-spaced with 1” margins, 12 pt. font) should be submitted via Canvas **by noon on Monday, December 11th, 2017** and include the content information listed above, but additionally:

- Information on any field visits, any desired additional information or discussion; and
- Appropriate in-text citations (APA style) as well as a complete reference section or bibliography.

Note: A single grade will be assigned to each group. However, the grade for each member of the group will be adjusted based on a peer evaluation performed by each member of the group (assigned at the end of the quarter via Canvas). It is critically important to your grade that everyone (including yourself) complete the peer evaluation form -- failure to do so could negatively affect your grade in the course as your final grade for the project will be adjusted according to the grades submitted by your peers. A major purpose of the group

project is for each member of the class to gain experience working together as a group to analyze a current issue or problem. This is a skill, which has become increasingly important in both private and public agencies and organizations. Additional details are contained on the Projects page of the course web site.

4. **Extra Credit Points:** There may be a couple of opportunities for students to earn extra credit points.

Extra credit #1: After the first lecture, the course title slide (not the lesson title slide) shown before the start of each lecture session will depict a scene relevant to the lecture. To receive extra credit points (10 max.) you will need to use PollEverywhere to correctly identify the title slide for each class lesson. One point will be awarded for correctly identifying 60% (or 18 sessions) of the 30 possible title slide pictures; two points will be awarded for correctly identifying 64% (or 19 sessions), and so on to 10 points for correctly identifying all 30 title slide pictures.

Other: There may be additional extra credit opportunities made available during the quarter.

Course Materials

1. Textbooks:

- Nadakavukaren, Anne, Our Global Environment: A Health Perspective, 7th Ed., Waveland Press, Prospect Heights, Illinois, 2011. (Relevant pieces will be posted on Canvas, while the full text is also available via Amazon as an e-book for a variety of different digital devices [here](#).)
- Frumkin, H. (2016). Environmental health: From global to local (Third ed.). San Francisco, CA: Jossey-Bass, A Wiley Brand. [This text is found online through UW libraries. **It is an E-book and is found FREE** [here](#) OR look it up via UW online libraries system.]

2. **Required Readings:** The materials in the above textbooks will be supplemented by a series of readings. These readings are designed to enrich your learning experience by providing increased depth in a topic or by presenting a sample or case that illustrates the principles covered in the text and lectures. All of these readings are available as PDF files that can be read on Canvas or downloaded to your computer by following the links provided on the class' Canvas website for each lesson module.

3. **Supplementary (Optional) Readings:** The course modules also list a number of journal articles, reports and other materials that expand upon or illuminate specific aspects of the topics covered in this course. Most of these are also available online. In some cases, the suggested readings may be links to a governmental or other websites. These links provide you with additional information on the topic of the lesson and an opportunity to explore the type and scope of information available from these various sources.

There are a number of journals related to environmental health currently available. People wishing to stay abreast of this fast changing field should at least scan the journals most related to their interests every month. Some of the best of them (or at least the ones most directly related to this course) include:

- *Environmental Health Perspectives*
- *Journal of Environmental Health*
- *American Journal of Public Health*
- *Emerging Infectious Disease Journal*
- *Environment*
- *EPA Journal*

In addition, there are a number of general textbooks in ecology, environmental engineering and environmental health which are recommended for students desiring to obtain greater technical information in the practice of environmental health.

Friis RH. *Essentials of Environmental Health*, 2d Edition, Jones & Bartlett Learning, Burlington, MA, 2012.

Nemerow NL, Agardy FJ, Sullivan, Salvato JA. *Environmental Engineering* [6th Ed.], John Wiley & Sons. 2009. [This is the most recent edition of Joe Salvato's classical work on environmental engineering, which has been the best, up-to-date, comprehensive environmental health textbook available, however, it is technical and somewhat tedious to read, and unfortunately it has been carved up into three separate book, each of which are expensive.]

Course Policies

1. **Academic Integrity:** 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.

Notice: The University has a license agreement with VeriCite, an educational tool that helps prevent or identify plagiarism from Internet resources. Your instructor may use the service in this class by requiring that assignments are submitted electronically to be checked by VeriCite. The VeriCite Report will indicate the amount of original text in your work and whether all material that you quoted, paraphrased, summarized, or used from another source is appropriately referenced.

2. **Access and Accommodation:** Your experience in this class is important to me. If you have already established accommodations with Disability Resources for Students (DRS), please communicate your approved accommodations to me at your earliest convenience so we can discuss your needs in this course.

If you have not yet established services through DRS, but have a temporary health condition or permanent disability that requires accommodations (conditions 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. 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. It is the policy and practice of the University of Washington to create inclusive and accessible learning environments consistent with federal and state law.

3. **Anti-Racism Commitment:** The faculty of the School of Public Health commit to facilitating student learning that occurs in an inclusive, anti-racist environment. We view our courses and co-curricular activities as opportunities to demonstrate program-wide efforts to challenge systemic racism within a caring community. We also seek alliances with other individuals and organizations involved in combating all forms of social oppression. We acknowledge that programmatic transformation requires sustained effort and periodic self-reflection, thus, our movement forward on a continuum of anti-racism is a work in progress that requires feedback from all community members. We invite all members of our community to identify opportunities to improve our performance in this regard, including classroom interactions, faculty facilitation, and the institutional environment. You may offer feedback through your course facilitator, faculty advisor, the program director, and/or anonymous comments in course evaluation forms.
4. **Written Assignments:** All written assignments, including the group course project's written report, must be typewritten and submitted electronically through Canvas or instructor's email (specific to the assignment). Your written assignments will be graded on the substance of your report and on the effectiveness of its organization and presentation. Groups should see the instructor or one of the TAs if they have questions about making their PowerPoint slide, including graphics.
5. **Tests:** There will be no make-up examinations unless approved by the instructor in advance. If a test is missed because of an unexcused absence, it will not be rescheduled.
6. **Grading:** Your final grade will be calculated from the two course exams (200 pts), your group course project (100 pts), individual assignments/participation points and any extra credit points (100+pts). A 4.0 scale will be calculated using the following conversion:

% = GPA	≥ 94.8 = 3.9	≥ 91.4 = 3.5
≥ 97.0 = 4.0	≥ 93.6 = 3.7	≥ 90.3 = 3.4
≥ 95.9 = 3.9	≥ 92.5 = 3.6	≥ 89.2 = 3.3

≥ 88.0 = 3.2
≥ 86.9 = 3.1
≥ 85.8 = 3.0
≥ 84.7 = 2.9
≥ 83.5 = 2.8
≥ 82.4 = 2.7
≥ 81.3 = 2.6
≥ 80.2 = 2.5
≥ 79.1 = 2.4

≥ 77.9 = 2.3
≥ 76.8 = 2.2
≥ 75.7 = 2.1
≥ 74.6 = 2.0
≥ 73.5 = 1.9
≥ 72.3 = 1.8
≥ 71.2 = 1.7
≥ 70.1 = 1.6
≥ 69.0 = 1.5

≥ 67.8 = 1.4
≥ 66.7 = 1.3
≥ 65.6 = 1.2
≥ 64.5 = 1.1
≥ 63.4 = 1.0
≥ 62.2 = 0.9
≥ 61.1 = 0.8
≥ 60.0 = 0.7

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Tentative Course Schedule

(NOTE: This schedule is still under construction and the list of lectures and assignments is subject to change.)

IMPORTANT: The reading assignments for each class session are listed on the course Canvas website in the module for each class day. Be sure that you have read the reading assignment before coming to class.

No.	Day	Date	Lesson Topic	Lecturer
1	Wed.	9/27/17	Course Introduction	Tania Busch Isaksen, DEOHS
2	Fri.	9/29/17	EH/Risk Framework	Tania Busch Isaksen, DEOHS
			Case 1: Flint, MI	
3	Mon.	10/02/17	Toxicology	Tania Busch Isaksen, DEOHS
4	Wed.	10/4/17	Epidemiology	Tania Busch Isaksen, DEOHS
5	Fri.	10/6/17	Exposure Assess. & Control	Tania Busch Isaksen, DEOHS
6	Mon.	10/9/17	Group Report Topic Assignment	Instructor & TAs
7	Wed.	10/11/17	Water Resources	Brianne Duncan, DEOHS
8	Fri.	10/13/17	Drinking Water Quality	Tania Busch Isaksen, DEOHS
9	Mon.	10/16/17	Case Wrap Up	Tania Busch Isaksen, DEOHS
			Case 2: Food-borne Illness: <i>Vibrio parahaemolyticus</i>	
10	Wed.	10/18/17	Disease Transmission & Control	Meagan Jackson, DEOHS
11	Fri.	10/20/17	Food-borne Illness Risks	Joe Graham, WA State Health Department
12	Mon.	10/23/17	Food Protection & Policy	Tania Busch Isaksen, DEOHS
			Case 3: Duwamish River Cleanup	
13	Wed.	10/25/17	Historical Overview / Legacy Waste	Brianne Duncan, DEOHS
14	Fri.	10/27/17	Solid Waste disposal	Tania Busch Isaksen, DEOHS
15	Mon.	10/30/17	Alternatives to Landfilling Group Project Check-in	Tania Busch Isaksen, DEOHS
16	Wed.	11/1/17	Sustainability & Green Chemistry	Nancy Simcox, DEOHS
17	Fri.	11/3/17	Wastewater treatment – centralized	Tania Busch Isaksen, DEOHS
18	Mon.	11/6/17	Wastewater treatment – decentralized	Meagan Jackson, DEOHS
19	Wed.	11/8/17	Environmental Justice & Community Action	Andrew Schiffer, Just Health Action
			Global Climate Change	

	Fri.	11/10/17	No class - Veterans Day	
20	Mon.	11/13/17	Climate Basics	Tania Busch Isaksen, DEOHS
21	Wed.	11/15/17	CC Community Health Risks	Tania Busch Isaksen, DEOHS
22	Fri.	11/17/17	Occupational Heat-health Risks	Miriam Calkins, DEOHS
23	Mon.	11/20/17	Air Pollution & Health	Tania Busch Isaksen, DEOHS
24	Wed.	11/22/17	Indoor Air Quality & the Housing Connection	Aileen Gagney, Consultant
	Fri.	11/24/17	No class - Thanksgiving Day	
25	Mon.	11/27/17	Vector-borne Disease Transmission & Control	Tania Busch Isaksen, DEOHS
26	Wed	11/29/17	Zoonotic Disease Transmission & Control	Tania Busch Isaksen, DEOHS
27	Fri.	12/1/17	Climate Change Storytelling / Wrap Up	Tania Busch Isaksen, DEOHS
			Occupational Health & Safety	
28	Mon.	12/4/17	Occ. Health & Safety Overview	Marissa Baker, DEOHS
29	Wed.	12/6/17	Radiation Health & Safety	Philip Campbell, UW EH&S
30	Fri.	12/8/17	Future of Occupational Health & Course Wrap Up	Tania Busch Isaksen, DEOHS
FW	Mon.	12/11/17	Group Presentations 8:30 am - 10:20 am	MANDATORY ATTENDANCE

DEOHS = [UW Department of Environmental and Occupational Health Sciences](#)