



## **ENV H 311: Introduction to Environmental Health**

### **Fall Quarter 2018**

### **Course Syllabus**

#### **Course Description**

This course explores the relationship people have with their environment, the risk management choices made, and the resulting associations that affect health and physical well-being for the individual, communities and susceptible populations. The field of Environmental Public Health is a professional, interdisciplinary field focused on the science and practice of preventing injury and illness from exposures to hazards in our environments.

ENVH 311 is designed as a survey course and is intended to introduce students to foundational and technical concepts in the field of Environmental Public Health (EPH). Primarily, students will learn how a variety of environmental factors impact health outcomes, the control measures currently used to prevent or minimize the health effects from these negative impacts, and where to access additional information to make a difference at the individual, community or higher level. The course is designed to acquaint the student with the scientific and technical foundations of the field, and examines both practice and research contributions to understanding and controlling environmental hazards. This course is also intended to be a survey course, meaning that everyone is touched by EPH principles and topical areas of concern every day; we all eat, drink, produce waste, and breathe air each day. This course delivers important information and resources for the students' own health and wellness advocacy as they move out beyond this institution.

#### **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](mailto: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**

Brianne Duncan  
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Office: E-179F Health Sciences Center  
Office Hours: By appointment only

Annie Doubleday  
E-mail: [doubleda@uw.edu](mailto:doubleda@uw.edu)  
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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 second at the end of the quarter. The second 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 (continuous, no stop-restart option). 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, November 2<sup>nd</sup> (11:30 am)** – Closes **Sunday, November 4<sup>th</sup> (11:59 pm)**
- Progress Assessment Test #2: Available **Friday, December 7<sup>th</sup> (11:30 am)** – Closes **Sunday, December 9<sup>th</sup> (11:59 pm)**

3. **Group Project/Final Examination:** During the second 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. Besides learning about a particular environmental health issue, another purpose of the group project is to gain experience working together effectively as a part of a team. While group work can be frustrating, it has become increasingly important in both private organizations and public agencies that employees develop and maintain team-building and group communication skills. Additional details are contained on the [Projects](#) page of the course web site.

The grade from your group project will be comprised of 5 different components totaling 100 points:

1. Individual contributions to group discussions on Canvas (10 pts)
2. Individual outline (15 pts)
3. Individual paper (15 pts)
4. Group paper (30 pts)
5. Group presentation (30 pts)

Your grade may also be adjusted based on peer evaluations. See the **Group Course Project/Final Examination**, below, for more detail.

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

PollEverywhere: During the lecture we will use polleverywhere to answer questions relevant to the day's class or prep reading. To receive extra credit points (10 max.) you will need to use PollEverywhere during each class lesson. One point will be awarded for participating in 60% (or 18 sessions) of the 30 possible lectures; two points will be awarded for participating in 64% (or 19 sessions), and so on to a max of 10 extra credit points for participating in class lecture activities.

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

## Course Materials

### 1. Textbooks:

- Nadakavukaren, Anne, *Our Global Environment: A Health Perspective*, 7th Ed., Waveland Press, Prospect Heights, Illinois, 2011. (Relevant sections 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 an example that illustrates the principles covered in the text and lectures. All of these readings are available as PDF files that can be viewed 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 government or private 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 instructor, faculty advisor, the program director, and/or anonymous comments in course evaluation forms.
4. **Written Assignments:** All written assignments, including the group project written report, must be typed 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 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	≥ 92.5 = 3.6	≥ 86.9 = 3.1
≥ 97.0 = 4.0	≥ 91.4 = 3.5	≥ 85.8 = 3.0
≥ 95.9 = 3.9	≥ 90.3 = 3.4	≥ 84.7 = 2.9
≥ 94.8 = 3.8	≥ 89.2 = 3.3	≥ 83.5 = 2.8
≥ 93.6 = 3.7	≥ 88.0 = 3.2	≥ 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

## Group Course Project/Final Examination

At the end of the second week, 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  
**5:00 pm on Friday, December 7<sup>th</sup>, 2018**
  - Each group will present their poster to the entire class on  
**Monday, December 10<sup>th</sup>, 2018 (8:30 – 10:20 am HSB T-435)**
- An accompanying written report is due via Canvas by  
**12:00 pm on Monday, December 10<sup>th</sup>, 2018.**

### 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 group members should inform the following summary (1&10) and learning objectives (2-9):

1. 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);
2. Describe the hazard;
3. Describe the health outcome(s) or endpoint(s);
4. Describe the exposure in a population;
5. Describe susceptible populations and factors that mitigate their susceptibility;
6. Consider the topic through an environmental justice and equity lens. How is susceptibility influenced by racial/social injustice;
7. 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;
8. Present examples of control strategies either currently being used or that could be used (within your geographical focus area);
9. 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

10. Provide a critical summary including recommendations from the group about how to prevent or minimize negative health impacts.

**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 10th** and include the content information listed above and additionally:

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

The final group paper and poster will be comprised of content written both individually and collectively. Each group member will be responsible for researching one learning objective from the list (2-9) above, while information for 1 & 10 will be a group summary effort. For the individual research component, each student will submit for their learning objective:

- An outline describing one of the content points, reputable academic sources about that content point, and the importance of the information learned for the group's broader topic; and
- A short summary paper (min. 2 pages, 1.5 spacing) that covers the learning objective's research.

**Important Note:** The UW Odegaard Writing and Research Center is a good resource for help with writing, finding good sources for academic papers, proper citation, and avoiding plagiarism. If students are not confident in writing academic papers, please schedule an appointment with the Writing Center to discuss your individual paper. The class instructor and TAs are also available to answer questions. For more information about the Writing Center and writing resources, visit <http://depts.washington.edu/owrc/>.

**Electronic Poster Requirements:** The posters will be presented to the class during the finals examination time slot 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 **5:00 pm on Friday, December 7th** 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.

**Group Project Grade Adjustment Note:** A single grade will be assigned to each group. However, the grade for each member of the group may 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.

An individual's final grade on the group project may be adjusted as follows:

<b>Average peer-review score</b>	<b>Points deducted from <u>final group grade</u> (combined paper and presentation)</b>
3.0 – 4.0	0% deduction
2.5 – 2.9	2% deduction
2.0 – 2.4	5% deduction
1.5 – 1.9	10% deduction
1.0 – 1.4	15% deduction
0.5 – 0.9	25% deduction
< 0.5	NO points for the group project

## ENVH 311 – Fall Quarter 2018

### 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	9/26/18	Course Introduction	Tania Busch Isaksen, DEOHS
2	Fri	9/28/18	EH/Risk Framework	Tania Busch Isaksen, DEOHS
			<b>Case 1: Flint, MI</b>	
3	Mon	10/01/18	Toxicology	Tania Busch Isaksen, DEOHS
4	Wed	10/03/18	Epidemiology	Tania Busch Isaksen, DEOHS
5	Fri	10/05/18	Exposure Assess. & Control	Tania Busch Isaksen, DEOHS
6	Mon	10/08/18	Group Report Topic Assignment	Instructor & TAs
7	Wed	10/10/18	Water Resources	Brianne Duncan, DEOHS
8	Fri	10/12/18	Drinking Water Quality	Tania Busch Isaksen, DEOHS
9	Mon	10/15/18	Case Wrap Up	Tania Busch Isaksen, DEOHS
			<b>Case 2: Foodborne Illness: <i>Norovirus</i></b>	
10	Wed	10/17/18	Disease Transmission & Control	Tania Busch Isaksen, DEOHS
11	Fri	10/19/18	Foodborne Illness Risks	Emily Hovis, WA State Health Department
12	Mon	10/22/18	Food Protection & Policy	Tania Busch Isaksen, DEOHS
			<b>Case 3: Duwamish River Cleanup</b>	
13	Wed	10/24/18	Historical Overview / Legacy Waste	Tania Busch Isaksen, DEOHS
14	Fri	10/26/18	Solid Waste disposal	Tania Busch Isaksen, DEOHS
15	Mon	10/29/18	Alternatives to Landfilling Group Project Check-in	Tania Busch Isaksen, DEOHS
16	Wed	10/31/18	Sustainability & Green Chemistry	Nancy Simcox, DEOHS
17	Fri	11/01/18	Wastewater treatment – centralized	Tania Busch Isaksen, DEOHS
18	Mon	11/05/18	Wastewater treatment – decentralized	Meagan Jackson, Public Health Seattle & King County
19	Wed	11/07/18	Environmental Justice & Community Action	Andrew Schiffer, Just Health Action

<b>Global Climate Change</b>				
20	Fri	11/09/18	Climate Basics	Tania Busch Isaksen, DEOHS
	<b>Mon</b>	<b>11/12/18</b>	<b>HOLIDAY Veterans Day</b>	
21	Wed	11/14/18	CC Community Health Risks	Tania Busch Isaksen, DEOHS
22	Fri	11/16/18	CC Occupational Health Risks	Tania Busch Isaksen, DEOHS
23	Mon	11/19/18	Air Pollution & Health	Annie Doubleday, DEOHS
24	Wed	11/21/18	Indoor Air Quality & the Housing Connection	TBD
	<b>Fri</b>	<b>11/23/18</b>	<b>HOLIDAY Thanksgiving</b>	
25	Mon	11/26/18	Climate Change and Food Security	Yona Sipos, DEOHS
26	Wed	11/28/18	Vector-borne & Zoonotic Disease Transmission & Control	Tania Busch Isaksen, DEOHS
27	Fri	11/30/18	Climate Change Storytelling / Wrap Up	Tania Busch Isaksen, DEOHS
<b>Occupational Health &amp; Safety</b>				
28	Mon	12/03/18	Occupational Health & Safety Overview	Marissa Baker, DEOHS
29	Wed	12/05/18	Radiation Health & Safety	Kevin Makinson, UW EH&S
30	Fri	12/07/18	Future of Occupational Health & Course Wrap Up	Tania Busch Isaksen, DEOHS
<b>FW</b>	<b>Mon</b>	<b>12/10/18</b>	<b>Group Presentations 8:30 am - 10:20 am</b>	<b>MANDATORY ATTENDANCE</b>

- CC - climate change
- DEOHS - UW Department of Environmental and Occupational Health Sciences
- EH - environmental health
- UW EH&S - UW Environmental Health & Safety