Water, Sanitation, and Hygiene in Global Health

Instructor

Name: Karen C. Kosinski, MSPH, PhD
Office: 574 Boston Avenue, Suite 208
Phone: (617) 627 – 4812
Email: karen.kosinski@tufts.edu
Office Hours: Tuesdays, 12:15 – 1:45pm and by appointment

Course Description

This course covers the basics of water, sanitation, and hygiene (WASH) in the context of public health in low-income countries. With respect to water, we will cover drinking water quality and quantity, appropriate water sources, and water treatment options. With respect to sanitation, we will cover sanitation technologies (various types of latrines, sewers, and septic systems), including construction, use, behavior change, and ethics. With respect to hygiene, we will cover hygiene in a low-income context. This includes essential hygiene practices in rural, urban, and peri-urban settings and under conditions of both water abundance and water stress. Additional topics to be addressed throughout the course include demand creation, assessment of current practices, and behavior change techniques. The course will emphasize appropriate use of the peer-reviewed literature and critical-thinking skills.

Prerequisites

All students should take an introductory course in global health (e.g. CH-56), as well as an introductory course in epidemiology (e.g. CEE/CH-54) prior to enrolling in CH-196. The course is intended for seniors who are Community Health majors, but juniors may also find the course accessible. Students should be comfortable discussing topics such as human waste (toilets, feces, urine), infectious diseases (e.g. intestinal helminths), and other topics that some people might consider taboo or uncomfortable.
Readings

All readings for this course should be completed prior to attending the corresponding class, with the exception of the readings associated with the first class meeting. The required text for this course is the following:


If you choose to buy the 1st edition of the required textbook, please be aware that there may be differences between the editions; you are responsible for material in the second edition. Additional required readings will be posted on the course website or placed on reserve in Tisch library. The following is a recommended reference textbook. The full text of this book can be electronically accessed through Tisch library (i.e. you don’t need to walk to Tisch!).


Additional readings from the peer-reviewed literature will be assigned throughout the semester based on student interests and preexisting background knowledge.

Quizzes

Reading assignments are an important part of this course. Quizzes on assigned readings typically will be closed-book, closed-notes. The format is usually multiple-choice and true/false, but there are sometimes open-ended questions. Students who arrive late to class or miss class and thus miss a quiz will earn a 0 for the missed quiz. When possible, please email me before class if you have a medical excuse for missing class and are concerned about missing a quiz.

Class Participation

Class participation is expected for a senior seminar in the Department of Community Health. CH-196 is a discussion-oriented course, although there is a lecture component. Students are expected to critically engage with the material, to contribute to class discussions, and to listen attentively and respectfully to their classmates. Depending on your comfort level with speaking during class, you may want to choose a grading scheme accordingly (see different weights assigned to class participation). Students in the class who are the most critically engaged will earn a score in the A range. Students who are somewhat less engaged but still attentive will score in the B range. Students who miss class, who use technology inappropriately (e.g. phones, tablets, laptops), who don’t listen to their classmates, or who are unprepared will score in the C range or lower.
Grading

The grading for this course is individualized and tailored to the needs of each student. Please choose one of the grading plans listed below by September 12th, 2017 at 5pm. Please email me (karen.kosinski@tufts.edu) with your choice. If I don’t hear from you, I will choose your grading plan. These plans cannot be changed after September 9th unless there are extenuating circumstances (see below).

I view grading as a way to evaluate how successfully students achieve the course objectives. Students who find that they are not mastering the material and skills should email me to set up an appointment to talk about progress. I will work with them to identify ways to study and how to access resources on campus that might be helpful.

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<th>Plan 1 (%)</th>
<th>Plan 2 (%)</th>
<th>Plan 3 (%)</th>
<th>Plan 4 (%)</th>
<th>Plan 5 (%)</th>
<th>Plan 6 (%)</th>
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<tbody>
<tr>
<td>Class Participation</td>
<td>10</td>
<td>15</td>
<td>10</td>
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<tr>
<td>Quizzes</td>
<td>30</td>
<td>25</td>
<td>22</td>
<td>20</td>
<td>22</td>
<td>20</td>
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<tr>
<td>Meeting for Final Project</td>
<td>0</td>
<td>0</td>
<td>10</td>
<td>8</td>
<td>10</td>
<td>6</td>
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<tr>
<td>Literature Review</td>
<td>25</td>
<td>27</td>
<td>23</td>
<td>26</td>
<td>20</td>
<td>24</td>
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<tr>
<td>Final Paper</td>
<td>35</td>
<td>33</td>
<td>35</td>
<td>31</td>
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<td><strong>Total (%)</strong></td>
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Final Project – Proposed Solutions to a Real WASH Challenge

You will be given a real-world scenario in which a community in a low-income tropical setting is faced with simultaneous water, sanitation, and hygiene challenges. You will be provided with data and background information about the community. You will be asked to propose a solution to the challenges faced by this community.

If you choose the grading plan with the “Meeting for Final Project” component, then towards the middle of the semester, you will be asked to schedule a 30-minute meeting with me about your project. If this applies to you, send me an email with about 5 time slots that are open for you (see syllabus for relevant weeks) and request a meeting. At the meeting, you will need to show that you have (a) outlined all of the major points to be made in your final project and (b) read the relevant peer-reviewed literature you plan to use. During the meeting, you may also ask questions and receive further direction from me.

You will be expected to complete the literature review before submitting the final paper. The scholarly literature should be used to inform your final proposed solution(s). If you are not comfortable with identifying, locating, reading, and summarizing the scholarly literature, please make an appointment to sit down and talk with the reference librarians at Tisch (they are wonderful!) or with me. I am happy to provide additional guidance on an individual basis. You will be asked to present your final project on the last day of class.
Writing Requirements

In this course, there are two long writing assignments. In general, the ability to communicate clearly and concisely in written form is an acquired skill. I hope that this course will be useful to you in terms of developing this skill. If you are not a strong writer and are concerned that you will not do well on the writing assignments, make an appointment to sit down with me at the beginning of the term to discuss your concerns regarding the writing assignments.

I will discuss the literature review with you in person only if you choose the grading scheme with the graded “Meeting for Final Project”. I will not read or discuss drafts via email. Please email me for an appointment to talk through your draft together (see course schedule for good times to do this).

Proofreading for spelling and grammar is essential; it is your responsibility to ensure that your spelling and grammar are perfect. Please pay careful attention to the formatting requirements for each assignment. Assignments that are not formatted correctly may not be accepted or you may lose points. I will not proofread for spelling and grammar unless you have a compelling reason for me to do so.

Miscellaneous

Class Notes
I will post the majority of the course notes on Trunk, but there is no guarantee that a given set of notes will be posted. Students are generally responsible for taking their own notes during class unless they have a compelling reason for someone else to do so (email me). If a student misses a class or two, they should email a classmate to get notes. No student is required to share her or his notes if she/he does not wish to do so. Students who miss 3 or more class sessions are asked not to use notes from other students; doing so constitutes cheating. Keep in mind that even excused absences from class (ex. family events, traveling to visit med schools, an internship obligation, field trip for another class, etc.) may lower your final score on class participation.

Extra Credit
Extra credit opportunities are not provided.

Late Policy
Each day an assignment is late, 5% of the total possible score will be subtracted from the final grade. Late begins at 1 minute past the deadline. In general, computer and printer problems and deadlines for other classes are not acceptable reasons for requesting a no-penalty deadline extension. Save your work regularly, including copying it to somewhere other than your computer. I recommend that you create a folder in Dropbox specifically for this class and that you complete all of your written assignments within that folder. That means that your work is constantly backed up, even if you drop your computer or spill coffee on it, or have some other disaster. Make sure that Dropbox is always synching. If you need extra time on the literature review or final paper and want to take the 5% per day penalty, this is often totally reasonable; there is no need to let me know in advance or to ask permission. It’s entirely your own choice.
Once during the semester, you may use a “24-hour extension freebee”! This means that you can submit any single assignment (e.g. taking a quiz, literature review, final paper, or moving your project meeting date pending schedule availability) up to 24 hours late with no penalty whatsoever. The caveat is that you must email me prior to the due date to tell me that you want to use your one freebee for the semester.

**Plagiarism**
Plagiarism is using someone else’s words, ideas, or phrases in your work and representing them as your own or not properly attributing the work. Please be aware that copying a phrase or sentence and listing a citation at the end without using quotation marks is plagiarism. Plagiarism is more fully discussed on the student life policies website. For this course, you will need to upload your papers to [www.turnitin.com](http://www.turnitin.com). If you plagiarize, you may get a zero on the assignment and you will be reported to the appropriate dean. Do not plagiarize. If you use a source, cite it. This applies to all information either directly quoted or paraphrased. If you copy words directly, they must be in quotation marks (“ ”).

**Students with Disabilities**
Students who require accommodations as a result of a documented disability should register with the Disability Services Office at the beginning of the semester. Students who require accommodations should call the Student Services Desk at 617-2000 to arrange an appointment with Disability Services.

**Questions about Grades**
Feel free to contact me about any concerns you have about your overall grade in CH-196. Do not feel as though you need to wait until your grades are consistently lower than you would like; email me for an appointment to discuss them as soon as you feel concerned. I am always happy to work with students to ensure that they achieve at the highest possible level.

You may have questions about a grade earned on a particular assignment. If questions arise, please wait until 24 hours have passed between receiving the grade and asking questions about it. If you do have questions about a grade, ask for clarification about the grade within two weeks of earning the grade. You must request the clarification in writing via email (NOT before or after class).

**Extenuating Circumstances**
Extenuating circumstances arise and may take a number of different forms; they ARE grounds for special consideration for class participation, quizzes, and projects. Examples of extenuating circumstances are the following: a death in the immediate family; death of a close friend/loved one; illness that is documented by a health care practitioner; ongoing health concerns that will cause a student to miss multiple class sessions (e.g. cancer treatment, sickle-cell anemia treatment, etc.). I will typically ask you to check in with your alpha dean if you are affected by one of these emergencies and that person can help you navigate your options, as well as campus support services.
Technology Policies
In most courses that I teach, I ask that students not use laptops, tablets, phones, or other types of technology during class periods. These tend to be distracting to other students and do not create a positive learning environment. **However,** for my senior seminars, I always **start** the semester by allowing laptops and tablets for note-taking and for looking up visual images of things we are discussing during class (e.g. raccoon dogs, pork tapeworms, etc.). Do not feel that you must bring a technological device, but you may if you wish. If they become distracting or if you are using them for things that are not class-related, then I will change this policy.

Tufts Distribution Requirements Met

1. World Civilizations (Tufts Distribution Credit)
2. Natural Sciences (Tufts Distribution Credit)

Community Health Program Learning Objectives addressed by CH-196

1. “Students can understand how multiple disciplines bring unique perspectives to cross-cutting questions of health and societies.
   a. “Integration of learning disciplinary perspectives
   b. “Understanding cultural differences through use of practice and research
2. “Students can explain and assess social and behavioral interventions to improve the health of populations.
   a. “Oral and written communication skills
   b. “Intercultural skills and abilities
3. “Students can explain the impact of infectious disease on populations
   a. “Oral and communication skills
4. “Students can identify the role that public health plays in improving global health
   a. “Ethical reasoning”
Citations for Reading Materials


MURCOTT, S. (2006) Implementation, critical factors and challenges to scale-up of household drinking water treatment and safe storage systems. Hygiene Improvement Project (HIP) Electronic Conference. USAID / HIP.


### Class Schedule (Subject to Change)


<table>
<thead>
<tr>
<th>No.</th>
<th>Date</th>
<th>Day</th>
<th>Topics</th>
<th>Theme</th>
<th>Written Assignments</th>
<th>Readings</th>
<th>Reference Materials</th>
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<tbody>
<tr>
<td>1</td>
<td>9/5</td>
<td>Tue</td>
<td>Historic importance of WASH Current relationship between WASH and health</td>
<td>WASH</td>
<td>C &amp; F Chapter 1</td>
<td></td>
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<tr>
<td>2</td>
<td>9/12</td>
<td>Tue</td>
<td>Infectious and non-infectious agents of disease Drinking water quality</td>
<td>Water</td>
<td>C &amp; F Chapter 3</td>
<td>MFMPB Chapter 18 Foster 2013 Waterlines 2004 WHO 2011</td>
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<tr>
<td>3</td>
<td>9/19</td>
<td>Tue</td>
<td>Urban water sources and water treatment Rural water provision systems Rural water sources Introduction to water treatment</td>
<td>Water</td>
<td>C &amp; F Chapter 6</td>
<td>MFMPB Chapter 9 Murcott 2006</td>
<td></td>
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<tr>
<td>4</td>
<td>9/26</td>
<td>Tue</td>
<td>Hygiene practices in public vs. domestic domains Domestic hygiene and stool disposal</td>
<td>Hygiene</td>
<td>Cairncross et al. 1996</td>
<td>Skolnik 2011</td>
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<tr>
<td>5</td>
<td>10/3</td>
<td>Tue</td>
<td>Assessing the context of hygiene practices in the field Investigating hygiene practices in the field Handwashing behavior and sustained behavior change</td>
<td>Hygiene</td>
<td>Almedom et al. 1997 Chapter 5 Almedom et al. 1997 Chapter 6 Vindigni et al. 2011</td>
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<tr>
<td>6</td>
<td>10/10</td>
<td>Tue</td>
<td>Types of sanitation facilities</td>
<td>Sanitation</td>
<td>C &amp; F Chapter 7</td>
<td>MFMPB Chapter 20 Carr et al. 2001</td>
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<tr>
<td>7</td>
<td>10/13</td>
<td>Fri</td>
<td><strong><strong><strong><strong><strong>Book Club</strong></strong></strong></strong></strong></td>
<td>Sanitation</td>
<td>OPTIONAL FINAL PAPER MEETINGS: Email for an appointment (10/10-10/19) George, Whole Book</td>
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<td>8</td>
<td>10/17</td>
<td>Tue</td>
<td>Construction of sanitation facilities: engineering materials Construction of sanitation facilities: construction techniques</td>
<td>Sanitation</td>
<td>MFMPB Chapter 6 MFMPB Chapter 7 Dar et al. 2011</td>
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<td>9</td>
<td>10/24</td>
<td>Tue</td>
<td>Planning a sanitation program Community Health Clubs (CHCs) Total Sanitation Campaign</td>
<td>Sanitation</td>
<td>C &amp; F Chapter 9 Literature Review Due by 11:59pm Waterkeyn &amp; Cairncross 2005 Waterkeyn 2006 Thesis</td>
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<td>10</td>
<td>10/31</td>
<td>Tue</td>
<td>Composting and agricultural use of human waste Menstrual Hygiene Management</td>
<td>Sanitation</td>
<td>C &amp; F Chapter 13 C &amp; F Chapter 14</td>
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<td>11</td>
<td>11/7</td>
<td>Tue</td>
<td>NO CLASS - TUFTS FRIDAY SCHEDULE</td>
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<td>12</td>
<td>11/14</td>
<td>Tue</td>
<td>Refuse/rubbish collection and disposal Solid Waste Management</td>
<td>WASH</td>
<td>C &amp; F Chapter 12 MFMPB Chapter 24</td>
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<td>13</td>
<td>11/21</td>
<td>Tue</td>
<td>NO CLASS - Replaced by Book Club Meeting on 10/13</td>
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<td>Work on Final Papers</td>
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<td>14</td>
<td>11/28</td>
<td>Tue</td>
<td>Participatory approaches to WASH (Dr. Tendulkar) Control of arthropod vectors (Pre-recorded)</td>
<td>WASH</td>
<td>MFMPB Chapter 3 C &amp; F Chapter 15</td>
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<td>15</td>
<td>12/5</td>
<td>Tue</td>
<td>Student presentations</td>
<td>WASH</td>
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<tr>
<td>16</td>
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<td>Final Paper Due by 11:59pm</td>
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