

SCHOOL OF COMMUNITY & GLOBAL HEALTH
 **Claremont Graduate University**

CGH 304: Environmental and Occupational Health, 4 units
Course Syllabus, Spring 2019

Schedule

Tuesday 9:00 – 11:50 AM
Location: Burkle 12

Instructor

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Teaching Assistant

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Office hours by appointment

Office Hours

Wednesdays, 2:00-3:00 PM; Or by appointment

The best way to contact me is via email. Please put “CGH 304” in the subject field of your email. I do my best to respond within 24-48 hours.

Required Textbook

Robert H. Friis, Essentials of Environmental Health, Second Edition, 2012. Boston: Jones and Bartlett publishers; ISBN 978-1-284-02633-7; Available at the bookstore or can be ordered on-line.

Additional supplementary readings will be provided by the instructor during the semester.

Prerequisites

CGH 301 (Biostatistics); CGH 302 (Epidemiology) or equivalents

Course description

This course provides a broad overview of the field of environmental and occupational health, developing a public health approach to understanding and preventing disease and disability. An overview of the principles of epidemiology, toxicology, and exposure assessment are provided within the context of specific hazards. A number of exposures and their possible role as carcinogens and in community and occupational settings will have special focus. Air pollution, heavy metals, persistent organic pollutants, pesticides, and radiation are covered. These topics have been selected to illustrate the application of epidemiologic methods to environmental health issues, outbreaks, and assessments. Other topics include environmental justice and the legal and regulatory basis for management of environmental health risks. Students apply principles of biology and epidemiology to environmental and occupational health issues. Students analyze the exposure-disease continuums as applied to disease prevention. Emphasis is placed on learning and using concepts related to the sources and behavioral determinants of exposure, the social-behavioral, physiological and genetic bases of sensitivity, and dose-response relationships. Students evaluate current literature and become familiar with controversies regarding health risks hazard assessments as well as global health issues. The format includes lectures, case studies, student presentations, and discussions.

Learning objectives

After taking this course, students should be able to:

- Discuss the history and definition of environmental health.
- Discuss the association between population growth and dissemination of environmental pollutants.
- Describe methods used in epidemiology and toxicology to assess environmental exposures and hazards.
- Describe policies that have been developed to manage health risks associated with exposures to environmental hazards.
- Identify chemical, physical, and microbial agents that originate in the environment and can impact human health.
- Describe specific applications of environmental health concepts to fields such as water quality control, food safety, and occupational health.

Foundational Knowledge

This course covers the following aspects of MPH foundational knowledge:

FK 1. Explain public health history, philosophy and values

FK 4. List major causes and trends of morbidity and mortality in the US or other community relevant to the program

FK 5. Discuss the science of primary, secondary and tertiary prevention in population health, including health promotion, screening, etc.

FK 6. Explain the critical importance of evidence in advancing public health knowledge

FK 7. Explain effects of environmental factors on a population's health

FK 8. Explain biological and genetic factors that affect a population's health

FK 11. Explain how globalization affects global burdens of disease

FK 12. Explain an ecological perspective on the connections among human health, animal health and ecosystem health (e.g., One Health)

Foundational Competencies

This course addresses the following MPH foundational competencies:

MPH 1. Apply epidemiological methods to the breadth of settings and situations in public health practice.

MPH 4. Interpret results of data analysis for public health research, policy or practice.

MPH 14. Advocate for political, social or economic policies and programs that will improve health in diverse populations.

MPH 18. Select communication strategies for different audiences and sectors.

MPH 22. Apply systems thinking tools to a public health issue.

Class Structure

Classes are comprised of lecture and discussion.

Instruction Schedule

Week	Date	Topic	MPH Foundational Knowledge and Core Competencies Addressed	Friis Text Reading, Supplemental Readings	Assigned	Due
1	1/22/2019	Course overview. Review of syllabus and objectives Introduction: The Environment at Risk	FK1, 4, 7, 11, 12	Chapter 1	Mini-project 1: "Applying Healthy People 2020 EH Objectives"	-
2	1/29/2019	Environmental Epidemiology	FK5, 7, 8; MPH1,4,18	Chapter 2	Quiz 1	Mini-project 1
3	2/5/2019	Environmental Toxicology	FK6, 7, 8; MPH4, 22	Chapter 3; IARC Monograph "Some Organophosphate Insecticides and Herbicides working group March 2015"; published January 2017	Mini-project 2: "What's in your cabinets? A closer look at 'toxic' substances"	Quiz 1 <i>(suggested)</i>
4	2/12/2019	Environmental Policy and Regulation	FK6, 7; MPH1, 4, 14, 18, 22	Chapter 4; Kile & Stephens, 2014 article "Plastics, human health and environmental impacts: The road ahead"	Mini-project 3: "Environmental Advocacy"	Mini-project 2
5	2/19/2019	Zoonotic and Vector-Borne Diseases	FK5, 8, 12; MPH1	Chapter 5; Paull et al. 2017 Proceedings of Royal Society "Drought and immunity determine the intensity of West Nile virus epidemics and climate change impacts"	Quiz 2	Mini-project 3
6	2/26/2019	Toxic Metals and Elements	FK6, 7, 8; MPH1, 4, 18, 22	Chapter 6; Gatto et al. 2010 Cancer Epidemiology "Occupational Exposure to hexavalent chromium and cancers of the gastrointestinal tract: a meta-analysis"	Quiz 3	Quiz 2 <i>(suggested)</i>

7	3/5/2019	Pesticides and Other Organic Chemicals	FK6,7,8,12; MPH1,18, 22	Chapter 7; Rachel Carson, Silent Spring, Chapter 3 "The Obligation to Endure"	-	Quiz 3 [Quizzes 1-3]
8	3/12/2019	Mid-term Exam (covers material from Weeks 1 - 7)			-	-
9	3/19/2019	SPRING BREAK (no class)			-	-
10	3/26/2019	Ionizing and Nonionizing Radiation	FK6, 7;MPH1, 4, 14, 18, 22	Chapter 8	Mini-project 4: "Nuclear Energy Controversies?"	-
11	4/2/2019	Water Quality	FK1, 6, 7, 8; MPH1, 4, 18	Chapter 9; Rosenstock/Markowitz Case Study: "Severe infection due to bacterial water contamination"	Quiz 4	Mini-project 4
12	4/9/2019	Air Quality	FK1; MPH1, 14, 18	Chapter 10; LA Metropolitan Water District Annual Drinking Water Quality Report, Jan – Dec 2017	Mini-project 5: "Public Education on Arsenic Exposure"	Quiz 4 (<i>suggested</i>)
13	4/16/2019	Food Safety	FK1, 7, 8, 11, 12; MPH 1, 4, 22	Chapter 11	Quiz 5	Mini-project 5
14	4/23/2019	Solid and Liquid Wastes	FK1, 7; MPH18, 22	Chapter 12; USEPA, 2016 Advancing Sustainable Materials Management: 2014 Fact Sheet	Quiz 6	Quiz 5 (<i>suggested</i>)
15	4/30/2019	Occupational Health	FK1, 5, 7; MPH1, 4, 14, 18	Chapter 13; Slate 2015 article, "A Toxic Legacy"; Beaumont et al., 1995 AJIM "Historical Cohort Investigation of Spontaneous Abortion in the Semiconductor Health Study"	Mini-project 6: Occupational Health: Electronics Manufacturing	Quiz 6 (<i>suggested</i>)
16	5/7/2019	Injuries with a Focus on Unintentional Injuries and Deaths	FK5, 7; MPH 4, 14	Chapter 14	-	Mini-project 6; [Quizzes 4-6]
17	5/14/2019	Final Exam (cumulative)			-	-

Please note that the instructor reserves the right to make changes to this syllabus as necessary.

Digital classroom

Canvas will be used to post lecture handouts and supplemental readings, for quizzes, submission of assignments and overall class communication. It is the student's responsibility to check the course site periodically for changes to the syllabus or announcements.

On days when lectures are presented in PowerPoint format, lecture slides in note-taking format will be posted to Canvas in advance of class. I try very hard to post lecture slides the evening before lecture, but can't always guarantee their availability during that timeframe or even prior to class. The intention of the notes is to aid in learning, but not to replace note-taking or class attendance. They serve only as a structure for the lectures, and do not contain all the information you will be responsible for in the course.

Class rules/etiquette

Please turn off cell phones and keep them off desks during class. Texting and emailing during class time are prohibited. Please use breaks provided during class accordingly. Laptops should be used for class-related note-taking only. Students who do not abide by these rules are a source of disruption for the entire class and will be excused for the remainder of the class time. Please use class time to ask questions that apply to course material and do not wait until the end of class to approach the instructor with a question. All students benefit from questions and discussion, which also makes for a more interactive class.

Scientific and Professional Ethics; Academic honesty

The work you do in this course must be your own, including exams which must be completed independently. A career in the sciences will undoubtedly involve building on, reacting to, criticizing, and analyzing the work of others. When you do this in this course and elsewhere, make sure to credit those who originated the work. It is critical to explicitly acknowledge when your work builds on someone else's ideas, including ideas of classmates, professors, and authors you read. If you ever have questions about drawing the line between others' work and your own, ask the professor who can provide guidance.

All students at Claremont Graduate University are expected to adhere to the highest standards of academic honesty in the performance of all academic work. A student shall be subject to discipline for any form of academic dishonesty, including (but not limited to) cheating, plagiarism, forgery, and the use of materials prepared by another (whether published or not, including commercially prepared materials) without appropriately crediting the source. Exams must be completed independently and without using cell phones, tablets, or computers to search or retrieve material. Any collaboration on answers to exams, unless expressly permitted by the instructor, may result in an automatic failing grade and possible expulsion from the Program.

Additional information on CGU's Policy on Academic Honesty can be found at:

<https://cgu.policystat.com/policy/2194316/latest/>. In addition, Honnold Mudd Library has a number of resources on academic honesty and integrity, including the following online tutorial:
<http://libraries.claremont.edu/achontutorial/pages/>.

Class Requirements and Assessment

Points from a combination of exams, quizzes, mini-projects, class attendance and participation will be used to determine the course grade.

Requirement (points)	Percent of grade
Mini-projects (6 at 25 points each)	30%
Quizzes (6 at 16.5 points each)	20%
Mid-term exam (100 points)	20%
Final Exam (125 points)	25%
Attendance and participation (25 points)	5%
Total (500 points)	100%

Quizzes

Six quizzes worth 16.5 points each may be self-administered through Canvas. The quizzes provide students an opportunity to practice course material in preparation for exams. Students may take the quizzes as many times as they'd like. I suggest students try taking the quizzes without using notes or texts in order to simulate exam conditions. The grade from the last administration of each quiz will be counted as the final score for that quiz. Quizzes #1-3 should be completed by March 5 at 8:59am and quizzes 4-6 should be completed by May 7 at 8:59am. Quizzes attempted after these dates and make-up quizzes will not be accepted.

Mini-projects

There are six mini-projects which are worth 25 points each. The mini-projects are an opportunity for students to apply concepts covered in weekly lectures to real-world problems relevant to environmental health fields such as water quality control, food safety, and occupational health, and drawing from approaches used in epidemiology, toxicology, policy and regulation. Mini-projects are due prior to the start of class (i.e., at 8:59am) on the week following when they are assigned and should be submitted to Canvas. Mini-projects that are submitted after they are due will be marked down 5 points each day they are late (this includes being submitted after 8:59am the day they are due).

Exams - one Mid-term and one Final Exam

The mid-term and final exams assess students' comprehension of material covered in readings, lectures, assignments, and discussion activities. The exams require students apply what they have learned to a solve problems typically encountered in a range of settings and situations applicable to environmental health. The mid-term exam will cover material presented prior to that exam. The final exam will be cumulative, i.e., cover material from the whole semester. There will be no make-up exams unless a valid reason is provided in advance and approved by the instructor.

Class attendance and participation

Attendance: Students are expected to attend all classes, whether the class is taken for credit or on an audit basis. Students unable to attend a class must seek permission for an excused absence from the instructor prior to the class meeting. Unapproved absences or late attendance for three or more classes may result in a lower grade or being involuntarily withdrawn from the class (with enrollment refunds governed by CGU's published Academic Calendar). If students have to miss a class, they should arrange to get notes from a fellow student and are strongly encouraged to meet with the teaching assistant to obtain the missed material.

Participation: Students are expected to participate in class discussions. Note: you cannot participate if you are absent from class! I take into consideration the quality and frequency of students’ contributions to class discussions in my determination of the participation grade.

Environmental health in the news: Each week students will identify one news story related an environmental health topic. The objective of this activity is to help you connect our course material with broader societal issues by encouraging you to pay attention to and critically evaluate news about environmental health in the media. Instructions:

1. Select an article from a newspaper or news magazine published during the last 3 months that addresses an environmental issue. Topics need not be those we cover in class but I encourage you to try to do so because of their relevance to our discussions. You can find articles in print or online news sources, but please avoid blogs. National newspapers like the *New York Times* and *Washington Post* and international sources like the BBC have reporters who cover the environment, so in addition to local newspapers like the *LA Times*, national and international media are good sources for articles. For example, the *New York Times* publishes a special science section (*Science Times*) every Tuesday.

2. Summarize the main points of article in one paragraph. Be sure to address a) the main issue or problem being addressed, b) the different “sides” of the issues that are presented, and c) the conclusion reached by the author. Also consider how the story is relevant to the community, city, county or state in which you live as well as its global health implications. Please include the story or a link to it with your response when you upload it to Canvas. Approximately two students will share their news story summary each week. Be prepared to present a brief (4-5 sentence) summary to the class on the day you sign up for.

Grading system

Total Number of Points Earned for the Semester	Percentage range	Interpretation	
465 - 500	93 – 100%	A	Excellent performance
450 - 464	90 – 92%	A-	Very good performance
435 - 449	87 – 89%	B+	Good performance
415 - 434	83 – 86%	B	Acceptable performance
400 - 414	80 – 82%	B-	Marginally acceptable performance
385 - 399	77 – 79%	C+	Below marginally acceptable performance
365 - 384	73 – 76%	C	Passing, but below expectations for graduate work
350 - 364	70 – 72%	C-	Below expectations for graduate work

Other Resources

Accommodations for Students with Disabilities

If you would like to request academic accommodations due to temporary or permanent disability, contact the CGU Dean of Students and Coordinator for Student Disability Services at DisabilityServices@cgu.edu or 909-607-9448. Appropriate accommodations are considered after you have conferred with the Office of Disability Services (ODS) and presented the required documentation of your disability to the ODS.

Mental Health Resources

Graduate school is a context where mental health struggles can arise or be exacerbated. If you ever find yourself struggling, please ask for help. If you wish to seek out campus resources, here is some basic information: <https://www.cuc.claremont.edu/mcaps/>

Monsour Counseling and Psychological Services (MCAPS) is committed to promoting psychological wellness for all students at the Claremont Colleges. Professional and well-trained psychologists, psychiatrists, and post-doctoral and intern therapists offer support for a range of psychological issues in a confidential and safe environment. MCAPS is located at the Tranquada Student Services Center, 1st floor, 757 College Way, Claremont, CA 91711; (909) 621-8202. After hours emergency (909) 607-2000.

Title IX

If I learn of any potential violation of CGU's gender-based misconduct policy (e.g., rape, sexual assault, dating violence, domestic violence, or stalking) by any means, I am required to notify the CGU Title IX Coordinator at Deanof.Students@cgu.edu or (909) 607-9448. Students can request confidentiality from the institution, which I will communicate to the Title IX Coordinator. If students want to speak with someone confidentially, the following resources are available on and off campus: EmPOWER Center (909) 607-2689, Monsour Counseling and Psychological Services (909) 621-8202, and The Chaplains of the Claremont Colleges (909) 621-8685. Speaking with a confidential resource does not preclude students from making a formal report to the Title IX Coordinator if and when they are ready. Confidential resources can walk students through all of their reporting options. They can also provide students with information and assistance in accessing academic, medical, and other support services they may need.