Mel and Enid Zuckerman College of Public Health
University of Arizona

SYLLABUS
EHS 525- Spring 2019
Global to Local: Environmental Change and Human Health

Time: Wednesdays 1:00-3:50pm

Location: Drachmann Hall A122

Instructor(s):
Name: Mona Arora, MSPH, ABD
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Course email: ehs525@email.arizona.edu (Please use this email to contact the instructor for course related questions.)

Instructor Availability: By appointment only as scheduled via e-mail (Note: Please allow up to 24 hours response time during weekdays and 48 hours during weekends.)

Catalog Description: How does a changing environment affect human health? What is the public health role in mitigating and addressing these implications? Students in this course will directly interact with these questions and explore the fundamentals of global environmental change with a focus on climate change. Students will develop a better understanding of the direct and indirect pathways through which climate and the environment influence human health; the mechanisms and strategies employed to manage and address these impacts; and the challenges and opportunities facing public health researchers and practitioners alike.

Course Description: This course is designed to expose students to the various, complex mechanisms through which anthropogenic changes influence the health of the environment and subsequently human health. During this course, students will be introduced to key concepts including health risks associated with climate change and other human-mediated global environmental changes; local, regional, and national efforts underway to understand and manage the adverse impacts, and the factors influencing progress on this issue. Students will have the opportunity to engage with researchers and practitioners to learn about the current science as well as challenges and opportunities associated with identifying, managing, and addressing the health implications of climate change and other anthropogenic changes.

Course Prerequisites: This is an introductory course open to students without specific training in the areas of climate change, environmental sciences, and/or public health.

Course Learning Objectives:

1. Describe the role of the public health enterprise in managing and addressing the health impacts of climate change.
2. Determine how to weigh the evidence for impacts on a specific health outcome.
3. Demonstrate knowledge of the health implications of climate change via group activities and projects.
4. Compare and contrast the role of adaptation and mitigation actions and explain importance of developing programs and policies with co-benefits for public health.
5. Understand the methods and tools utilized to quantify the health impacts of climate change and the associated exposure pathways.
6. Demonstrate knowledge of the interconnectedness of environment and health.
7. Illustrate understanding of the climate drivers of human health and the exposure pathways through which impacts occur.
8. Describe the research needs and priorities for enhancing the public health response to climate change.
9. Evaluate public health and policy responses.

MPH/Program Competencies Covered:
Course Learning Outcomes: By the end of the course, students will be able to:

1. Assess population needs, assets and capacities that affect communities' health.
2. Compare the organization, structure, and function of health care, public health, and regulatory systems across national and international settings.
3. Select methods to evaluate public health programs.
4. Propose strategies to identify stakeholder and build coalitions and partnerships for influencing public health outcomes.
5. Evaluate policies for their impact on public health and health equity.
6. Communicate audience-appropriate public health content both in writing and through oral presentation.

One Health Program MPH Competencies Covered:
Course Learning Outcomes: By the end of the course, students will be able to:

1. Develop strategies to address One Health challenges by engaging researchers across multiple disciplines and stakeholders with diverse perspectives, motivations, and economic incentives.
2. Identify ecosystem changes and impacts that affect human, animal and planetary health.

Climate and Health Competencies Covered:
Course Learning Outcomes: By the end of the course, students will be able to:

1. Demonstrate an understanding of the complex relationships between climate change and health.
2. Demonstrate competence in recognizing population-based hazards and designing and implementing public health interventions.
3. Demonstrate familiarity with international and domestic policies relevant to climate change and health.
4. Demonstrate competence on how to communicate health and climate information to different audiences.

Course Notes: Online course materials will be available through the Desire 2 Learn (D2L) website.

You are expected to take your own notes in class. Computers, phones, iPads, and other electronic devices use is not allowed during class unless directed for specific class activities. Class lecture material including select readings (e.g., USGCRP Climate & Health Assessment, research articles) will be posted on D2L.

Required Texts or Readings: The literature on climate change and health is rapidly evolving. Therefore, students will be tasked with reviewing research articles, policy briefs, case studies, and/or government reports throughout the course of the semester. Students will also be expected to view assigned online webinars and videos pertaining to the course topics. Additional readings will be assigned from the following:

2018 IPCC Special Report: Global Warming of 1.5°C
Intergovernmental Panel on Climate Change
https://www.ipcc.ch/sr15/

2018 Fourth National Climate Assessment
U.S. Global Change Research Program
https://nca2018.globalchange.gov/

2016 Climate & Health Assessment
U.S. Global Change Research Program
https://health2016.globalchange.gov/

2010 A Human Health Perspective on Climate Change
National Institute of Environmental Health Sciences
https://www.niehs.nih.gov/research/programs/geh/climatechange/health_impacts/index.cfm

Protecting Health from Climate Change: Vulnerability and Adaptation Assessment
World Health Organization
https://www.who.int/globalchange/publications/vulnerability-adaptation/en/

Concept mapping software: (Optional)
We will be using concept maps as a tool for evaluating and assessing our learning. Although many free online softwares are available to aid in developing concept maps, you are not required to utilize a particular format.

The instructor will be using Cmap, a free program to develop concepts maps for this course.
https://cmap.ihmc.us/

Alternatively, students may develop their concept maps by hand or using any other software and scanning/uploading the resulting diagram onto D2L.

Course Requirements: In addition to class attendance, students are expected to complete required readings prior to lecture, participate in class discussions, and submit assignments on time on the specified dates. Students will be required to collaborate with peers to lead a class session on an instructor-approved topic of interest. Additional details will be provided in class and on D2L. Students will be asked to provide a University of Arizona e-mail address unless they have permission from the instructor. Changes and other information about the class will be posted on the D2L course page. It is your responsibility to check course announcements online.

Expectations:
Students who are enrolled in this course are expected to:

- Attend all lecture sessions.
- Complete review of required readings ***prior*** to the lecture.

- Come to class prepared to ask questions and participate in discussions.
- Prepare to lead in-class discussions.
- Work collaboratively with peers on assigned group projects.
- Communicate questions and concerns to the instructor promptly.

Grading Scale/Student Evaluation

The grading system for this course is as follows:

Evaluation Component	Potential Points
Class Attendance & Participation	100
Class Session Lead Presentation	100
Assignments Portfolio	200
Term Project	200
Total	**600**

Final grades will be based on the following relative point system:
A = 90-100%
B = 80-89.9%
C = 70-79.9%
D = 60-69.9%
E = < 59.9%

Course Deliverables

Students will be required to complete all course assignments designated during this course.
Students must demonstrate their ability to understand the material presented in class and assigned readings through in-class discussions. Homework assignments, group presentations, and the term project will all be utilized to evaluate the ability of the student to think critically and apply the information presented via lectures. Students will also be asked to work in groups to lead specific class sessions on designated topic areas.

Class Attendance & Participation (100 pts)
Class attendance and participation is required. Participation will be graded based on engaging in class discussions, responding to any preparatory discussion prompts and/or surveys, providing feedback to concept maps posts in discussions and contributing to in-class activities.

Any student with more than 2 unexcused absences will lose 3 points for each subsequent absence (i.e., for 3 unexcused absences you lose 3 points total, for 4 unexcused absences you lose 6 points total, etc.). All holidays or special events observed organized religions will be honored for those students who show affiliation with that particular religion. Absences related to professional improvement including conferences, presentations with community partners, will be excused with prior request. Absences pre-approved by the UA Dean of Students (or Dean's designee) will be honored. Students ***must*** notify the course instructor prior to their absence.

Assignments Portfolio (200 pts):
Students will be required to complete the following portfolio assignments:

Assignment 1 (100 pts): DUE Date Varied
Students will be **required** to maintain an Environmental Change Journal reflecting on the topics discussed in class, online webinars, and other class activities. The journal will include:

- Online webinar reviews: 1-page reflections of 5 chosen climate-health related topic webinars of interest. (5 pts each) **DUE March 13th, 2019**
- Concept maps: for 12 of the 15 in-class session topics. (5 points each) **Drafts DUE every Tuesday by midnight and final concept maps due Fridays by midnight.**
- Class reflections: on Weeks 1, 9 and 16 of class discussing your knowledge and perceptions of climate change, what you hoped to learn or learned in class; facets, topics, or sessions that resonated most with you. (5 points each) **DUE May 1st, 2019**

Assignment 2 (15 pts): DUE February 6th, 2019
Students will be tasked with creating a visual model depicting the exposure pathway for a chosen climate driven health impact aimed at educating members of the public health enterprise (e.g., local/state/tribal public health workforce, hospitals, urban planners, emergency managers). The visual model must include: climate driver, exposure pathway (including environmental condition & hazard), human health impacts, and vulnerable populations being impacted. In addition, the visual model should also illustrate the relationship of the climate-health to the particular sector or workforce members. As a part of their submission, students will be required to work in groups of 2 and develop a short, 5-7-minute video explaining their visual model to their peers.

Assignment 3 (15 pts): DUE February 13th, 2019
Students will be required to submit a video critical review of one of the group videos that were created as a part of Assignment 2. Review assignments will be designated by the instructor.

Assignment 4 (25 pts): DUE March 27th, 2019
Develop a research agenda informing key priorities, research needs, opportunities for collaboration, and model practice aimed at the understanding and addressing the health associated impacts of climate change on Agriculture, food production, and security. Students will work in groups of 2 to conduct a literature review and propose a research agenda that identifying key priorities for enhancing our knowledge of this topic, informing decision-making, and contributing to the development of interventions and programs to address the challenges associated. Students will be required to present their identified research priority areas and opportunities for collaboration

Assignment 5 (15 pts): DUE April 3rd, 2019
Boundary Organizations in Public Health
Details to be provided later in the semester.

Assignment 6 (15 pts): DUE April 10th, 2019
Health Department Adaptation Plan Evaluation
Details to be provided later in the semester.

Assignment 7 (15 pts): DUE April 17th, 2019
Students will be tasked with comparing and contrasting two climate change position statements: one developed by a public health organization such as the National Association of City & County Health

Officials (NACCHO), American Public Health Association (APHA), Council of State and Territorial Epidemiologists (CSTE) and another developed by a non-public health sector organization. The organizations can be any private, professional, or non-profit group outside of the public health sector. The assignment will involve students assessing the content and perspectives provided by these statements to illustrate their understanding of the relevance and value of such policy documents. The assignment deliverable will be in the form of a formal letter to the organizational body provide recommendations for future revisions.

Class Session Lead Presentation (100 pts):

All students will be required to individually lead a one-hour class session on a selected health impact *(not covered in class)* with a climate or environmental driver. A list of possible topics will be provided to students on D2L. Leading the class sessions will involve a 1-hour presentation and activity critically discussing the chosen topic including current research, nature of impact (e.g., spatial, temporal scales, across sectors), methodologies limitations/challenges, research needs, and policy impacts and needs. Additional details regarding the grading rubric and expectations will be available in class and on D2L.

Term Project & Presentation (200 pts):

Students will be required to collaborate with a public health organization to inform the development of plans and/or interventions aimed at addressing a health impact of climate change. Students will form into groups of 2-3 students and work with one of the following organizations: National Association of City and County Health Officials (NACCHO), Pima County Health Department, and UA College of Agriculture and Life Sciences.

Project deliverables will include:

a) Development of stakeholder and topic specific literature review, implementation framework, and/or assessment tool.
b) Creation of a professional conference quality poster.
c) Presentation of project findings to a college and stakeholder audience.

Additional details regarding the grading rubric and expectations will be available in class and on D2L.

Late Submission Policy

All due dates will be posted in the syllabus and on the D2L course page. It is the student's responsibility to ensure that the assignments are turned in on time. All late assignments will be penalized 10% per day and late submissions will only be accepted within one week of the due date. After this time, the student will be awarded zero points for the assignment.

Course Schedule

Week	Course Topic
January 9th (Week 1)	Introduction & Course Overview
Part I: Mechanisms & Implications	
January 16th (Week 2)	Climate Change, Health and Resilience: Connections, Directives and Challenges Primer on Concept Mapping
January 23rd (Week 3)	Understanding Climate Change: Science & Mechanisms *Guest lecture: Mike Crimmins (UA SGD)*
January 30th (Week 4)	NO CLASS --Stakeholder-Group Meetings--
February 6th (Week 5)	Environmental Drivers of Human Health: Exposure Pathways & Mechanisms/Methods for Quantifying Climate-Health Impacts *Guest lecture: Andrew Comrie (UA SGD)* Group Project Briefs
February 13th (Week 6)	Social Dimensions of Climate Change: Alignment with Public Health Paradigms: Health in All Policies, Social Justice Issue *Guest Lecture: TBD* Student Led Session
Part II: Human Health Impacts	
February 20th (Week 7)	Heat Illness *Guest Lecture: Greg Garfin* Student Led Session Instructor-Group Project Meetings
February 27th (Week 8)	Ecosystem, Animals, and Vector-borne & Zoonotic Diseases *Guest Lecture: Kacey Ernst (UA College of Public Health)* Student Led Session
March 6th (Week 9)	No class - Spring Break
March 13th (Week 10)	Climate Change and Tribal Populations *Guest lecture: TBD* Student Led Session
March 20th (Week 11)	Human Behavior, Psychology and Climate Change *Guest Lecture: Sabrina Helms (UA Consumer Sciences)* Student Led Session
March 27th (Week 12)	Food Safety, Security & Nutrition *Guest Lecture: Julian Reyes (Climate Hub)* Class-led Research Agenda Presentations
Part III: Public Health Response	

April 3rd (Week 13)	Science for Decision-making, Climate Education & Risk Communication (Informing Adaptation Planning) *Guest Lecture: Connie Woodhouse* Student Led Session
April 10th (Week 14)	Co-benefits, Adaptation & Mitigation Planning *Guest Lecture: Matt Roach (ADHS)* *Guest Lecture: Paul Schramm (CDC BRACE)* Student Led Session
April 17th (Week 15)	Healthcare and Climate Change *Guest lecture: TBD* Student Led Session
April 24th (Week 16)	Group Project Presentations
May 1st (Week 17)	Building the Momentum on Climate Change

Course Policies

Communications:
You are responsible for reading emails sent to your UA account from your instructor and the announcements that are placed on the course web site. Information about readings, news events, your grades, assignments and other course related topics will be communicated to you with these electronic methods. The official policy can be found at: https://www.registrar.arizona.edu/personal-information/official-student-email-policy-use-email-official-correspondence-students

Accessibility and Accommodations:
At the University of Arizona, we strive to make learning experiences as accessible as possible. If you anticipate or experience physical or academic barriers based on disability or pregnancy, you are welcome to let me know so that we can discuss options. You are also encouraged to contact Disability Resources (520-621-3268) to explore reasonable accommodation. If our class meets at a campus location: Please be aware that the accessible table and chairs in this room should remain available for students who find that standard classroom seating is not usable. For additional information on Disability Resources and reasonable accommodations, please visit http://drc.arizona.edu/students

Code of Academic Integrity:
Students are encouraged to share intellectual views and discuss freely the principles and applications of course materials. However, graded work/exercise must be the product of independent effort unless otherwise instructed. Students are expected to adhere to the UA Code of Academic Integrity, available through the office of the UA Dean Students: http://deanofstudents.arizona.edu/policies-and-codes/code-academic-integrity

Classroom Behavior: (Statement of expected behavior and respectful exchange of ideas:
Present policies to foster a positive learning environment, including use of cell phones, mobile devices, etc.).

Students are expected to be familiar with the UA Policy on Disruptive Student Behavior in an Instructional Setting found at: http://policy.arizona.edu/education-and-student-affairs/disruptive-behavior-instructional-setting

Threatening Behavior Policy: The UA Threatening Behavior by Students Policy prohibits threats of physical harm to any member of the University community, including to one's self, http://policy.arizona.edu/education-and-student-affairs/threatening-behavior-students

Nondiscrimination and Anti-Harassment Policy:
The University of Arizona is committed to creating and maintaining an environment free of discrimination, http://policy.arizona.edu/human-resources/nondiscrimination-and-anti-harassment-policy

UA Smoking and Tobacco Policy:
The purpose of this Policy is to establish the University of Arizona's (University) commitment to protect the health of University faculty, staff, students, and visitors on its campuses and in its vehicles, http://policy.arizona.edu/ethics-and-conduct/smoking-and-tobacco-policy

Syllabus Changes: Information contained in the course syllabus, other than the grade and absence policies, may be subject to change with reasonable advance notice, as deemed appropriate by the instructor.

Plagiarism: What counts as plagiarism?

- Copying and pasting information from a web site or another source, and then revising it so that it sounds like your original idea.
- Doing an assignment/essay/take home test with a friend and then handing in separate assignments that contain the same ideas, language, phrases, etc.
- Quoting a passage without quotation marks or citations, so that it looks like your own.
- Paraphrasing a passage without citing it, so that it looks like your own.
- Hiring another person to do your work for you, or purchasing a paper through any of the on- or off-line sources.