Planetary Health – Course Syllabus

Introduction
The world is changing fast. Globally, forests are disappearing, oceans are emptying, and droughts and floods are becoming more common, and more severe. Ever more people are moving to cities, many lying in coastal regions expected to be flooded over the next several decades due to rising ocean levels. It is estimated that at least a billion people may become malnourished by 2050 as a result of the desertification and food shortages expected to result from global climate change, mostly in low-income settings. A high-level commission of the Rockefeller Foundation and The Lancet has drawn attention to the fact that the public health community in general is woefully unprepared for tackling the challenges of a dramatically changing environment on human health, including impacts on nutrition, food security, and access to freshwater.[1] Planetary health is about the relationship between the health of the planet, and the health of people, who ultimately depend on the planet for survival of our species.

Course Goal: This 12-week, half credit pilot course will provide students with a big picture perspective of planetary health, research, policy and practice issues related to it, and the implications and opportunities related to planetary health for public and population health globally. A key theme throughout will be consideration of health and social equity issues and the differential impacts of climate and other environmental changes on populations in light of these issues.

Prerequisite/Co-Requisites: It is highly recommended that students have at least one epidemiology course covering the building blocks of an epidemiological study i.e. population, exposure, outcome, covariates +/-intervention, analysis, and different epidemiological designs e.g. cross-sectional survey, cohort study. For DLSPH students, this will likely be CHL5401F Introduction to Epidemiology or something from undergraduate studies if a first year student.

Enrolment: As the course aims to advance competencies in the field of epidemiology, population and public health, it will be of interest to:
- Masters and PhD students in the Dalla Lana School of Public Health or Moi University School of Public Health (who will be given preference).
- MSc and PhD students affiliated with the School of the Environment, the Institute of Medical Sciences, or with backgrounds in environmental sciences and health, or toxicology;
- Masters and PhD students in related areas, fields or disciplines such as geography and planning, engineering, or policy studies with sufficient background to contribute to and benefit from the course.
- If in doubt, please check with the lead instructor. Proposed student complement is 10-20 students.

Registration: Students at the University of Toronto are required to register for the course and pay fees up front (no retroactive registration permitted). Prospective students must complete a proposed School of Graduate Studies reading and research (pilot) course form available from the DLSPH website: http://www.dlsph.utoronto.ca/students/current-students/guidelines-for-reading-and-research-courses/. Planetary Health – Course number CHL8001H F3 – Fall 2018. Students at Moi University are required to register for the course and pay the course fee through Moi University (details on request). Not doing so means that the student cannot receive grades or credit for their work or access the course website. Deadlines are posted on the DLSPH website and on the course webpage.

Instructor & Administrative Support
Course Format
There will be 12 classes of 3 hours each. Each class will break for 15 minutes in the middle. We will use a combination of lectures, videos, reading, reflection, discussion, and small group work. Students are expected to spend approximately one day per week including class time related to the class. The first 2 hours of each class in Toronto will overlap with the second half of the class in Eldoret via videoconferencing. This time will be used for guest and core lectures, student presentations, and will enable cross-fertilization and cross-cultural discussion and perspectives, and the opportunity for collaborative class assignments. Individual site time (first hour for Moi class, last hour for UT class) will be used for discussion about assigned readings (with structured questions for guidance). A course website will host a course blog to encourage and facilitate discussions between classes.

Course Objectives - Relevant competencies to build during course
By the end of this course students will be able to:
- Broadly understand the concept of planetary health, its distinguishing characteristics relative to eco-health, the ecological determinants of health, and OneHealth.
- Articulate the nature of the Anthropocene and discuss current trends in knowledge and thinking about the impacts on human societies.
- Identify key human health effects and indicators across the lifespan related to planetary health and climate change.
- Identify key sources of data on climate change, desertification, human health and development, nationally and globally.
- Identify key sources of data on planetary surveillance systems.
- Understand key methodological challenges and limitations in studying planetary health.
- Start framing research ideas in this field.
- Expand thinking about implications for public health policy and practice in this field.
- Formulate advocacy perspectives from research evidence.

Proposed Schedule and Seminar Topics (subject to change and availability of speakers)

WEEK 1 – What is planetary health?
Session agenda:
- Introductions and course overview
- “Ground Rules”
- What is planetary health? What is its relationship to eco-health, OneHealth, environmental health and how do they all fit together?
- What are the Sustainable Development Goals and what is sustainable development?
Assignment instructions including summary paragraph.

**Guest speaker(s):** Recordings from YouTube -
- “Welcome to the Anthropocene” [https://www.youtube.com/watch?v=fvgG-pxlobk](https://www.youtube.com/watch?v=fvgG-pxlobk);
- Trailer from Naomi Klein’s ‘This Changes Everything’: [https://www.youtube.com/watch?v=IpuSt_ST4_U](https://www.youtube.com/watch?v=IpuSt_ST4_U).

**Required Reading/Viewing:**
- Opening lecture from the Inaugural Planetary Health/GeoHealth Meeting by Howard Frumpkin: [https://vimeo.com/215526390](https://vimeo.com/215526390)

**Recommended Resources:**
- Chapter 1 from Jeff Sachs *Sustainable Development* book
- Affiliated website [http://www.thelancet.com/infographics/planetary-health](http://www.thelancet.com/infographics/planetary-health);
- Millennium Ecosystem Assessment Synthesis
- Chapter Five “History’s Biggest Fraud” of the book Sapiens by Yuval Noah Harari

**Assignment(s):** (1) the readings; (2) Write a 1-page reflection on the meaning of planetary health. Consider the following questions: Are we a parasite/invasive species on the planet? Can we become symbiotic? Is it too late to change? How? Why? Write a summary paragraph you will be willing to share with the class and/or course blog.

**WEEK 2 – Drivers and population health impacts of climate and environmental change (Part 1)**

**Session agenda:**
- Presentations from reflections (30 minutes)
- Discussion of readings (30 minutes)
- Overview lecture on drivers and population health impacts of CEC (e.g. key messages outlined in Lancet paper, including political/governance/economic aspects) (20 min)
- **Guest speaker:** A. Cortinois on human migration in the Anthropocene. (60)
- Assignment instructions for following week

**Required reading:**
- Pages 11-25 of the Lancet Commission paper (up to Charting a course for the future);
- First chapter of Naomi Klein’s book “This Changes Everything”

**Recommended resources:**
- Canadian Public Health Association Discussion Paper “Global Change and Public Health: Addressing the Ecological Determinants of Health”

**Assignment(s):** (1) the readings; (2) group work on context-specific drivers of CEC in Africa and Americas (present to each other next class)

**WEEK 3 – Drivers and population health impacts of climate and environmental change (Part 2)**

**Session agenda:**
- Discussion of readings (30 minutes)
- Group presentations on drivers of CEC in Africa and Americas [75-90 mins: 35-45 mins per site]
- Assignment instructions for following week
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Guest speaker(s): resource persons as panel to provide feedback on presentations.
Required reading:

- “The Lancet Countdown on Climate Change and Health: from 25 years of inaction to a global transformation of public health” October 30, 2017 (Executive summary and Section One)

Assignment(s): (1) the readings; (2) group work on context-specific population health impacts of CEC (present to each other next class)

WEEK 4 – Research paradigms in planetary health
Session agenda:

- Discussion of readings (20 minutes)
- Overview of research methods and approaches in planetary health with specific focus on Big Data, ecological analyses, population health intervention research, implementation science, and qualitative/community-based methods and approaches. Discuss methodologic issues including design and measurement, handling uncertainty and change, data sources related to climate and environmental change and their human health impacts [30-45 mins]
- Group presentations on impacts of CEC in Africa and Americas [75-90 mins: 35-45 mins per site]
- Discussion of final assignment (15 min):


Recommended resources:

- Peters DH, Adam T, Alonge O, Agyepong IA, Tran N. Implementation research: what it is and how to do it. BMJ (Clinical research ed 2013; 347: f6753.

Assignment(s): (1) the readings.

WEEK 5 – Epidemiologic surveillance in the context of planetary health in Canada and Kenya
Session agenda:

- Discussion of readings (30 minutes)

Guest speaker(s): Peter Donnelly from Public Health Ontario, David Fisman from DLSPH Epidemiology, TBN from Centers for Disease Control Kenya [2 hours]

Assignment(s): The reading.

Required reading:


Recommended reading

• American Public Health Association Infographic “How climate change affects your health: Vector-borne diseases”

Assignment(s): (1) the readings.

WEEK 6 – Health policy and knowledge translation
Session agenda:
• Discussion of readings (30 minutes)
• Guest speaker(s): Dr. Lisa Hall, health policy and climate change specialist. [90 mins]
• Individual presentations on final assignment ideas: what and why (60 minutes)

Required reading:

Recommended resources:
• National Geographic September 2017: “The Science of Addiction”

Assignment(s): (1) The readings.

WEEK 7 – Food sovereignty
Session agenda:
• Discussion of readings (30 minutes)
• Guest speaker(s): D. Cole (UT) [90 mins]
• In-class group activity: 24-hour dietary recall with planetary health twist - what did you eat yesterday and where did it come from? [60 mins]

Required Readings:

Recommended Resources:

Assignment(s): (1) The readings; (2) Blog a three-day food diary of what you are eating and where it’s from (not to be graded).

WEEK 8 – Water sovereignty
Session agenda:
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- Discussion of readings (30 min)
- Presentation by: A. Aimone (UT): Importance of water security and sovereignty in the context of planetary health (60 min)
- In-class group activity: 24-hour water-use recall - how much water did you use yesterday for x, y, z (use structured list for guidance)? [60 mins]

**Required Readings:**
- UN Water, World Water Development Report 2015: "Water for a Sustainable World" - Part 1, Chapters 1-3: Water and the 3 dimensions of sustainable development"; and Part 2, Chapter 7: Food and Agriculture

**Recommended Resources:**
- Water Grabbing - An Atlas of Water - peruse the website (http://watergrabbing.com/atlas.html), and read Part 1 from the atlas: "A World of Water"

**Assignment(s):** (1) The readings; (2) Blog a 3-day water diary (1 weekday + 1 weekend day) using structured list for guidance (e.g. water use for drinking, cooking, washing, cleaning, flushing toilet) (not to be graded).

**WEEK 9 – Community resilience**

**Session agenda:**
- Discussion of readings and reflections from food and water diary exercises [60 mins]
- What are the potential responses and opportunities to build resilience and regenerative sustainability, regionally, nationally, and globally. Guest speaker(s): B. Poland (UT) [60 mins]
- Informal presentations from groups on proposed final assignments (60 min)

**Required Readings:**

**Recommended Resources:**

**Assignment(s):** (1) The readings.

**WEEK 10– Sustainability**

**Session agenda:**
- Guest speaker(s): John Robinson [60 mins]
- Class field trip on integration of nature (back) into life/lifestyle in urban settings [120 mins]

**Assignment(s):** (1) The readings.

**Required reading:**

**Recommended reading:**
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- McDonough, W., & Braungart, M. (2010). *Cradle to cradle: Remaking the way we make things*. North Point Press. (one of the first arguments for a net positive approach)


**WEEK 11 – Student presentations (Part 1)**

*Session agenda:*

- 1st Half of class with mixture of presenters from each site
- Other pending issues for review or follow-up

**WEEK 12 – Student presentations (Part 2)**

*Session agenda:*

- 2nd Half of class with mixture of presenters from each site
- Course evaluations

**Format of Instruction**

Sessions will comprise different mixes of interactive discussion, presentations, and review of tasks by faculty, guests and students. A more detailed schedule with specific resources is being provided and will be posted on Blackboard and the course website. It may be updated during the course, depending on changes in guest or instructor availability. We will also provide more detailed outlines for individual sessions, including readings and background preparation, on Blackboard and the course website each week. Students in Toronto will be encouraged to attend selected seminars of the [Environment & Health Seminar Series](#) sponsored by the [School of the Environment, the Environment & Health Collaborative Program](#). Usually from 16:10-18:00 Thursday afternoons, Rm. 1170, 40 St. George Street, Bahen Centre for Information Technology.

**Assessment**

A separate document with detailed instructions on assignments will be available as a handout and on Blackboard and/or Google Collaborate by the first class.

1. Participation in course sessions, as graded by the instructor based on student preparation (news & events, readings), engagement in discussions, and contribution to the learning of all group members – 20% (holistic assessment)

2. 1 page reflection and summary for class blog from Week 1. 15% (holistic assessment)

3. Class project of drivers of climate and environmental change in North America and East Africa, respectively. 10% (analytic assessment: 5% for relevance, 5% for equity considerations)

4. Class project of population health impacts of climate and environmental change in North America and East Africa, respectively. 10% (analytic assessment: 5% for relevance, 5% for equity considerations)
5. One in-class presentation on the last day of students research ideas and proposed methods for final write-up. 15% (analytic assessment: 5% quality of presentation, 10% for completeness, feasibility, approach)

6. Students will prepare a research protocol, public health advocacy framework, intersectoral program or policy proposal on a related topic. The proposal (12-15 pages, double-spaced, 12 point font, not including references and appendices) will focus on the context and problem; research questions or what is not known (i.e. the gap); study design or program/policy approach; sources of data; intended outputs and impacts; monitoring and evaluation framework. Each student will hand in their completed document by December 15. 35% (analytic assessment: 15% for completeness and relevance to course, and 20% for rationale, broad aim, hypothesis, sources of data, primary exposures, primary outcomes, methods, and potential limitations; program or policy proposal to include: problem statement, program or policy proposed, target population, intended impact, limitations, monitoring and evaluation framework).

Related Course Offerings at U Toronto
- Building Community Resilience (GGR434 and CHL5126)
- Environmental Epidemiology (CHL 5416)
- Ecological Public Health Graduate Course CHL5809H –cross-listed with HST407H1F 20179 - Health Studies, University College undergraduate course: Ecological Public Health
- Directed Reading: Population Health Intervention Research (CHL 7001H)
- Directed Reading Course in Planetary/Global Health Ethics (CHL 7001H)

Academic Integrity
Academic integrity is essential to the pursuit of learning and scholarship. Check the UofT code of behavior at http://www.governingcouncil.utoronto.ca/policies/behaviorac.htm. When developing and implementing projects, respect others’ work by citing it, making links, and avoid plagiarism of any kind: http://www.writing.utoronto.ca/advice/using-sources/how-not-to-plagiarize

Assignment of grades will be according to DLSPH and SGS guides (website link http://www.governingcouncil.utoronto.ca/policies/grading.htm Criterion for passing will be a grade of B-. If you are concerned about a grade, submit the nature of your concern in writing to the instructor marker and the lead instructor. We will consider it and get back to you with a response.

Penalties for Late Submission: 5% of the mark will be deducted for each day late for any given assignment.

Accessibility and Accommodation: All reasonable efforts will be made to make the course accessible and to accommodate students as needed in keeping with University of Toronto guidelines. http://www.viceprovoststudents.utoronto.ca/publicationsandpolicies/guidelines/accessibility.htm