ENV4001H: Graduate Seminars in Environment and Health Winter 2024

I. CONTACTS

Instructor: Prof. Clare Wiseman Email: clare.wiseman@utoronto.ca

Co-Instructor (First two weeks of class): Dr. Sourav Das

Email: sourav.das@utoronto.ca

Virtual Office Hours: Scheduled as needed Student Seminars: Wednesdays, 4:00-7:00 PM Public Seminars: Wednesdays, 4:00-5:30 PM

II. COURSE OVERVIEW

Course Description: There is a pressing need to study the relationships between environment and human health, especially as we are increasingly challenged by related issues in terms of scale, urgency and complexity. This course introduces students to various issues related to environment and health in providing an academic environment of inquiry and dialogue where graduate students from various disciplines can exchange ideas, information and insights. Through participation in the affiliated public environment and health seminar series and student-led seminars, the aim is to expose the students to the many ways that issues related to the environment and health are framed, examined, discussed and addressed. The course will stimulate students to reflect on this diverse discussion and to integrate their work into a broader context and perspective. Students will have the opportunity to explore linkages between environmental factors and health issues as these intersect with environmental and health policy, toxicological impacts, psychosocial factors, economic factors and ethical and legal issues.

Educational Objectives: Upon course completion, students will be expected to:

- Have an understanding of the complex, interdisciplinary nature of environment and health issues.
- Have an understanding of the importance of cross-disciplinary dialogue to fully comprehend how human health and the environment are interconnected and to develop effective interventions, and
- Have acquired the skills necessary to research and critically assess scholarly information on topics related to environment and health and to communicate them in a manner that fosters interdisciplinary dialogue and engagement.

III. HOW THE COURSE IS ORGANIZED

Course Delivery:

This course will be using a mixed in-person and online format for seminars. For student seminars, we will be meeting in person (SS 581). The public seminars will be held online using Zoom (links to be provided). Please refer to schedule at the end of syllabus for dates and seminars.

Please note: We will be meeting in SS 581 at 4:10 on the first day of class (January 10, 2024).

The course uses Quercus for the provision of course materials, submission and completion of assignments and important communications between instructor and students. To access the Quercus-based course website, go to the UofT portal login page at http://portal.utoronto.ca and log in using your UTORid and password.

The course content changes from year to year, as it is based on environment and health topics presented by invited experts (see the course schedule at the end of the syllabus for topics and dates). Speakers are chosen in a manner to ensure a breadth of topics of importance are presented from a range of disciplinary and interdisciplinary-based perspectives, spanning the natural sciences, social sciences and humanities. These talks are also open to the public and take place every two weeks, once the seminar series begins. Students enrolled in the course will choose one of the scheduled topics of interest to facilitate an in-class seminar (students and instructor only), which typically take place one week in advance of each respective public talk. **Please note:**Students will need to choose a topic/seminar to facilitate an in-class discussion on the first day of class, as student-led seminars start already in the second week (January 17th).

These seminars will provide students the opportunity to more fully engage with various issues associated with the topical areas of focus in the public seminar series. As part of the student-led facilitation, students will be expected to identify readings for the respective topics for the rest of the class (to be approved by course instructor prior to the electronic links being posted on the course's website in Quercus). Students are encouraged to introduce or highlight related ideas, concepts, methodological/conceptual frameworks, etc. from their own respective disciplinary backgrounds to provide a forum of interdisciplinary exchange and discussion.

Depending on course enrollment numbers, students may need to be grouped together in groups of 2 or more to organize and lead a seminar. Student-led seminars are held one week in advance of each respective public talk.

Please note that this is a seminar course. <u>Students will be expected to attend all seminars and actively participate in classes</u>. Students will be expected to be prepared for seminars (assigned readings have been completed and demonstrated thought has been given to the respective topics).

Prerequisites: None

Enrolment Restrictions: Enrolment preference will be given to students who are enrolled in the

Graduate Collaborative Specialization in Environment and Health, since ENV4001 serves as the core course for this specialization. Nevertheless, students from other graduate programs who have an interest in environment and health issues, and who are willing to share a collaborative learning experience, are also invited to enroll. For a description of the Environment and Health Specialization, please see: https://environment.utoronto.ca/graduate/collaborative-specializations/

Evaluation: Students are required to attend all of the public environment and health seminars scheduled between January and April, 2024. The evaluation break-down is as follows:

- Seminar participation (ongoing): 20%
- Literature review proposal (Due: Feb. 7, 2024): 15%
- Seminar presentation/facilitation (Date: TBD): 20%
- Oral presentation of research paper (Date: April 3, 2024): 15%
- Literature review paper (Due: April 3, 2024): 30%

Literature Review Proposal (Due: February 7, 2024): Students will identify an environment and health-related topic of interest that will be the focus of their literature review papers due at the end of the course. Students will prepare an initial literature search for their topics and submit a research paper proposal (electronically via Quercus) on or before February 7, 2024. Students are not restricted to topics addressed in the course, but they must be related to environment and health. The proposal will be approximately 3-4 pages in length (1.5 spacing) and will include the following information:

- A brief background to the topic of focus,
 - Provide a summary, including a description of main concepts of topic, which is detailed enough to inform reader about topic to be explored. This should include a description of topic's significance in an environmental health context (with reference to sources of information/peer reviewed literature)
- A succinct statement of purpose or goal or research question of focus;
- A description of the research strategy that was employed in the literature search, as follows
 - o Identification of the keywords or parameters used in the search
 - Description of any limits applied such as year of publication, language, sources, as well as the rationale for these limits
 - Identification of the search engine(s) used/databases explored (e.g. Scopus, Medline, Web of Science)
 - o A description of how the search was refined and narrowed;
- A summary of the results, including a description of the number of "hits" obtained and how this may have changed with the placement of additional search limits; and
- A list of the "top ten" articles or other scholarly sources chosen from the literature search as an initial starting point.

Commonly used conceptual frameworks in the public health sciences such as PEO (Population, Exposure, Outcome) may be adopted for your literature research strategy. You may also find that a concept map/table is helpful, too. Please refer to the module Writing Resources in the modules section of Quercus for further assistance.

An instruction librarian from the Gerstein Library, Vincci Lui, will attend class on January 17th to do a 50-minute library search workshop on how to best navigate the electronic resources at UofT to perform a literature search in line with expectations for proposals and final papers. Valuable tips for searching high quality, peer reviewed literature, using appropriate environment and health related databases, scoping for topics, applying helpful tools such as Boolean terms and operators, etc., will be demonstrated as part of this. This has been scheduled for the first hour of class (from 4:10 to 5:00 PM).

Seminar Facilitation: The student-facilitated seminars (held each week in advance of the scheduled public talks listed at the end of this syllabus) provide an opportunity for the class to more fully explore the topics to be addressed (Dates: in accordance with choice of seminar topic). In consultation with the course instructor, student facilitators will choose relevant articles of interest to be read by the rest of class prior to the student seminars. Articles must be peer-reviewed and accessible via our electronic library system. Full article citations and links to readings (which should not exceed 30-40 pages in total) are to be made available a minimum of one week in advance of the student-led seminars to be posted on the course's website on Quercus. For the seminar facilitation, students are expected to:

- Choose quality and relevant articles for background reading (peer-reviewed);
- Make an attempt to identify important concepts or issues related to the topic presented by the speaker, and perhaps reflecting the position/approach of the disciplinary background of the respective students, to provide the focus of readings and discussion,
- Inform the course instructor of the chosen readings far enough in advance that they can be made accessible at least one week prior to the seminar;
- Make a brief informal presentation at the beginning of the student-led seminars;
- Suggest questions to stimulate and focus the discussion;
- Fully participate and help moderate in-class discussion, as well as helping to moderate break out groups that will be done as part of the public seminar talks (further details to be provided when the course begins).

PLEASE NOTE: The first student-led seminar will take place on January 17, 2024 (following the library session noted above), focusing on the topic of the public seminar scheduled for the week thereafter (i.e. Jan. 24th). Given the short timeline for students to prepare for this, topics for student-led seminars will need to be decided on in the first class on January 10, 2024.

Oral Presentation of Literature Review Topic (Date: April 3, 2024): For the last class, students will each present a 10-minute synopsis of their literature review paper topic and its importance. The presentation will be followed by 1-2 questions from the students and the course

instructor. Students should adopt the same professionalism and discipline that they would follow if they were making a presentation at a scholarly conference. Each student will be evaluated on the following criteria:

- Timing how well the student adhered to the limitations set for the presentation
- Clarity and organization of content presented (aimed at a non-specialist audience)
- Quality of the slide
- Quality of the responses to questions
- Speaker's demeanor i.e., clarity of articulation, professionalism, confidence with material

Literature Review Paper (Date: April 3, 2024): The lit review paper, due on the date of the last class, will focus on an environment and health-related question or issue that relates to the student's area of research and/or academic interests. Papers should be 4,000-5,000 words (not including references) and include the following:

- <u>Introduction</u> to the topic, including a description of its importance in an environment and health context. For this, it is expected that students provide a more detailed and rigorous discussion (including more references to literature) than that outlined in the initial proposal. The introduction should also include a clear statement regarding the paper's purpose, goal, or research question. This may be the same as that used in the proposal. However, in most cases, it is expected that the original stated the purpose, goal or research question has undergone refinement during the information gathering and analysis phase.
- Methods: Similar to that expected in the public health sciences, papers should include a
 method section that details the methods used to identify scholarly, literature sources for
 review, including a description of the keywords and databases which were used (e.g.
 Medline) and the inclusion/exclusion criteria employed to choose articles. The methods
 should be kept very brief and are expected to be more refined relative to those documented
 in the proposals submitted earlier in the course.
- <u>Discussion</u>: This section is expected to comprise the bulk of the paper; involving an indepth examination, analysis and discussion of current (peer-reviewed) literature on the topic. Students are expected to not only assess the available evidence but also the current state of knowledge and scientific rigor on the chosen topic in a systematic, objective manner. Issues that may be addressed as part of the discussion include identified gaps in knowledge, strengths/limitation in policy/regulations, an identification of needs in terms of future research and political action, etc., as they relate to the specific topic areas.
- References Cited: Students must list the references cited in the paper in a separate section at the end, using a recognized format (see below for further details). This should ONLY include those references cited in the paper.

Papers are to be submitted electronically as a Microsoft Word (.doc and .docx) file or as a PDF via the course's website on Quercus on (or before) the due date (Deadline: 11:59 PM).

Please note: This course will be using **Ouriginal** for the submission of assignments on the course's

website in Quercus. Normally, students will be required to submit their course essays to the University's plagiarism detection tool for a review of textual similarity and detection of possible plagiarism. In doing so, students will allow their essays to be included as source documents in the tool's reference database, where they will be used solely for the purpose of detecting plagiarism. The terms that apply to the University's use of this tool are described on the Centre for Teaching Support & Innovation web site (https://uoft.me/pdt-faq). If you object to using Ouriginal, please see the course instructor to establish appropriate alternative arrangements for submission of your written assignments prior to the submission deadline.

V. COURSE POLICIES

It is recommended that students pay attention to the announcements posted on the course's website on Quercus, as this will be the primary way the instructor will communicate important messages, including ones of an urgent matter should unexpected events occur.

Generative artificial intelligence (AI): The use of generative artificial intelligence tools and apps is strictly prohibited in all course assignments, unless explicitly stated otherwise by the course instructor. This includes ChatGPT and other AI writing and coding assistants. Use of generative AI in this course may be considered use of an unauthorized aid, which is a form of academic misconduct and will be dealt with accordingly.

This policy is intended to promote your learning and intellectual development and to help you achieve the learning outcomes, especially those relating to the use of public health approaches to conduct research.

Late Penalties and Deadline Extensions: Late papers will be reduced by 3% of the assignment grade per day (including weekends). Extenuating circumstances may arise that impact your ability to complete an assignment on time. Please discuss these issues with your instructor to make alternative arrangements for submission. Students are expected to discuss these issues with your instructor before or on the assignment due date to make alternative arrangements for submission. Students who are absent from class for any reason (e.g., COVID, other illness or injury, family situation) and who require consideration for missed academic work should report their absence through the online Absence Declaration Tool on ACORN (in the Profile and Settings menu). The decision to waive the penalty for late assignments for students that contact the instructor AFTER the deadline will be made at the instructor's discretion.

Please note UofT's policy regarding online conduct and supporting a positive learning environment: "The University of Toronto is committed to equity, human rights and respect for diversity. All members of the learning environment in this course should strive to create an atmosphere of mutual respect where all members of our community can express themselves, engage with each other, and respect one another's differences. UofT does not condone discrimination or harassment against any persons or communities."

VI. INSTITUTIONAL POLICIES AND SUPPORT

Academic Integrity: Academic integrity is essential to the pursuit of learning and scholarship in a university, and to ensuring that a degree from the University of Toronto is a strong signal of each student's individual academic achievement. As a result, the University treats cases of cheating and plagiarism very seriously. The University of Toronto's Code of Behaviour on Academic Matters (https://governingcouncil.utoronto.ca/secretariat/policies/code-behaviour-academic-matters-july-1-2019) outlines the behaviours that constitute academic dishonesty and the processes for addressing academic offences. Potential offences include, but are not limited to:

In papers and assignments:

- 1. Using someone else's ideas or words without appropriate acknowledgement (including the use of phrases verbatim without quotation marks, even if you provide the appropriate reference in brackets or as a footnote).
- 2. Submitting your own work in more than one course without the permission of the instructor.
- 3. Making up sources or facts.
- 4. Obtaining or providing unauthorized assistance on any assignment.

All suspected cases of academic dishonesty will be investigated following procedures outlined in the Code of Behaviour on Academic Matters. If you have questions or concerns about what constitutes appropriate academic behaviour or appropriate research and citation methods, you are expected to seek out additional information on academic integrity from your instructor or from other institutional resources (see https://www.academicintegrity.utoronto.ca/).

Accessibility Needs: Students with diverse learning styles and needs are welcome in this course. The University of Toronto is committed to accessibility: if you require accommodations for a disability, or have any other accessibility concerns about the course, please register with Accessibility Services as soon as possible (https://studentlife.utoronto.ca/task/register-with-accessibility-services/).

Contact information: Accessibility Services Reception: 416-978-8060; Email: accessibility.services@utoronto.ca

Additional Services and Support: The School of Graduate Studies has a range of resources and supports for graduate students (see: https://www.sgs.utoronto.ca/gradhub/resources-supports/)
Some of the following may be of particular interest:

- General student services and resources at Student Life
- Health and wellness services at https://studentlife.utoronto.ca/department/health-wellness/
- Full library service through <u>University of Toronto Libraries</u>
- Resources on conducting online research through University Libraries Research
- Graduate writing groups at https://studentlife.utoronto.ca/program/graduate-writing-groups/

Course Schedule 2024 (Subject to Change)

Dates	Seminar type/location	Topic/Seminar Title	
Jan 10	Student Seminar (SS 581)	Course Introduction	
Jan 17	Student seminar (SS 581)	Student-led discussion of topic to be presented by public speaker on Jan 24: Per- and polyfluoroalkyl substances (PFAS) in cosmetics and personal care products (preliminary title)	
Jan 24	Public seminar (Zoom link to be provided in Quercus)	Title: Per- and polyfluoroalkyl substances (PFAS) in cosmetics and personal care products (preliminary title) Speaker: Prof. Amy Rand (See following table for speaker information and seminar abstract)	
Jan 31	Student seminar (SS 581)	Student-led discussion of topic to be presented by public speaker on Feb 7: Health Equity in Environmental Health	
Feb 7	Public seminar (Zoom link to be provided in Quercus)	Title: Health Equity in Environmental Health Speaker: Dr. Dolon Chakravarrty (See following table for speaker information and seminar abstract)	
Feb 14	Student seminar (SS 581)	Student-led discussion of topic to be presented by public speaker on Feb 28: Wildfire Smoke and Public Health: Learn to live with a smoky reality	
Feb 21	Reading week		
Feb 28	Public seminar	Title: Wildfire Smoke and Public Health: Learn to live with a smoky reality Speaker: Dr. Angela Yao (See following table for speaker information and seminar abstract)	
March 6	Student seminar (SS 581)	Student-led discussion of topic to be presented by public speaker on March 13: Indigenous Planetary Health: The Path We Walk	
March 13	Public seminar	Title: Indigenous Planetary Health: The Path We Walk Speaker: Dr. Nicole Redvers	

March 20	Student seminar (SS 581)	Student-led discussion of topic to be presented by public speaker on March 27: The Impacts of Climate Change on Mental Health and Well-being
March 27	Public seminar	Title: The Impacts of Climate Change on Mental Health and Well-being Speaker: Dr. Katie Hayes
April 3	Student seminar (SS 581)	Student presentations of final papers

Scheduled Speakers and Related Information

Public Speakers	Biographies	Titles & Abstracts of Public Seminars
Dr. Amy Rand Assistant Professor Environmental Chemistry and Toxicology Carleton University	Amy Rand is an Assistant Professor in the Department of Chemistry and Institute of Biochemistry at Carleton University. Prior to joining the faculty at Carleton, she was a postdoctoral fellow within the Comprehensive Cancer Centre at UC Davis and has a Ph.D. in Environmental Chemistry from the University of Toronto. Her primary research interests are studying human exposure sources of environmental contaminants and understanding the mechanisms by which they transform to more active toxicants. She is also interested in how contaminant exposure effects oxidized lipid signaling, and the interaction between different kinds of environmental stressors (e.g., diet) that may alter relationships between contaminant exposure and their toxic response.	Title: PFAS in cosmetics and personal care products Abstract: Per- and polyfluoroalkyl substances (PFAS) are a diverse group of anthropogenic chemicals used in commercial products and industrial processes. Previous studies have demonstrated their presence in cosmetic and personal care products as ingredients, impurities in the raw material manufacturing process, or degradation products. This presentation highlights our recent study, which attempted to delineate the contributions of these varying PFAS sources to cosmetics and personal care products. We purchased thirty-eight cosmetic and personal care products and analyzed for several PFAS: polyfluoroalkyl phosphate esters (PAPs), perfluorocarboxylic acids (PFCAs), fluorotelomer sulfonic acids (FTSAs), and perfluoroalkyl sulfonic acids (PFSAs) using targeted liquid chromatography tandem mass spectrometry (LC-MS/MS). A subset of these samples was also subjected to non-targeted high-resolution mass spectrometry (LC-HRMS) to measure distinct classes of emerging PFAS. Results from both instruments indicated a predominant presence of PAPs, followed by the persistent and regulated PFCAs. These PFAS were present in almost all cosmetic and personal care products regardless of whether they contained a PFAS-specific ingredient. Furthermore, there were significant correlations between PAP congeners and their corresponding biotransformation products, the FTCAs, FTUCAs, and PFCAs, suggesting that these products arise from PAP transformation at some time during product development. Low levels of other PFAS classes were detected, including compounds previously associated with aqueous film-forming foams (e.g., pentafluorosulfide perfluorooctane

		sulfonate) or detected in wastewater and human blood (e.g., hydrido-PFCAs). In summary, cosmetics and personal care products can contain a wide breadth of PFAS at extremely high levels, leading to human and environmental exposure.
Dr. Dolon Chakravartty Senior Policy Analyst Equity Analysis Policy Research Team Strategic Policy Branch Public Health Agency of Canada	Dolon Chakravartty is a Senior Policy Analyst with the Equity Analysis Policy Research team within the Strategic Policy Branch at the Public Health Agency of Canada. Dolon works on the Health Inequalities Reporting Initiative (HIRI) and is currently working on a project on mental health inequalities in Canada. Dolon's research interests span from environmental health and health equity.	Title: Environmental Health Inequalities and the Health Inequalities Reporting Initiative Abstract: In Canada, many inequalities in health continue to persist and grow over time. Many of these inequalities are the result of individuals' and groups' relative social, political, and economic disadvantages. Such inequalities affect peoples' chances of achieving and maintaining good health over their lifetimes. Where inequalities in health outcomes or in access to the resources that support health are systematic and can plausibly be avoided or ameliorated by collective action, they may be deemed unjust and inequitable. These inequities in health disproportionately burden people of lower socio-economic status, racial, ethnic and religious minorities and migrants. There is widespread agreement that environmental hazards are not evenly distributed, resulting in differential exposures that are consistent with systemic inequities. Factors that contribute to differential exposure and response interact in complex ways and involve states of health and nutrition, hazardous occupations, and behaviours. They also involve disparities in access to health information and health care; delayed recognition of exposure, diagnosis, and treatment; and, hence, increased risk for developing health-related outcomes. Structural racism and inadequate and/or discriminatory policies that tend to exist across multiple sectors, such as public health, urban planning, and environmental management, among others, contribute to settings that increase vulnerability to environmental exposures. Policies related to housing, transportation, employment, and environmental health promotion can contribute to and reinforce health disparities and reduce access to environmental benefits for subpopulation groups. This talk will outline the ways in which systems and structures contribute to inequalities in environmental health in Canada and will provide an overview of the Public Health Agency of Canada's Health Inequalities Reporting Initiative.

Dr Angela Yao Senior Scientist, Environmental Health Services, BC Centre for Disease Control	Dr Angela Yao is a Senior Scientist at the Environmental Health Services at the BC Centre for Disease Control. She is also an Adjunct Professor at the School of Population and Public Health at the University of British Columbia. Dr Yao leads the Climate Preparedness and Adaptation Program, supporting regional and provincial public health partners in climate adaptation with data and scientific evidence. She has been working on research, surveillance and knowledge translation on the population health impacts of wildfire smoke for over 10 years.	Title: Wildfire Smoke and Public Health: Learn to live with a smoky reality Abstract: Wildfire has become more frequent and intense in Canada as climate continues to change. Exposure to wildfire smoke can have a wide range of population health impacts. In this talk, Dr Yao will provide an overview of recent researches on these health impacts, and have a discussion on the implications for public health strategies to mitigate these impacts.
Dr. Nicole Redvers	Dr. Nicole Redvers, ND, MPH, DPhilc, is a member of the Deninu K'ue First Nation (Northwest Territories, Canada) and has worked with Indigenous patients, scholars, and communities around the globe her entire career. She is an Associate Professor, Western Research Chair, and Director of Indigenous Planetary Health at the Schulich School of Medicine & Dentistry at Western University. She has been actively involved at regional, national, and international levels promoting the inclusion of Indigenous perspectives in both human and planetary health research and practice. Dr. Redvers is the author of the trade paperback book titled, 'The Science of the Sacred: Bridging Global Indigenous Medicine Systems and Modern Scientific Principles'.	Title: Indigenous Planetary Health: The Path We Walk Abstract: Indigenous Peoples are resilient peoples who have honorably carried deep ecological knowledge over thousands of years. With wider planetary health movements taking hold, Dr. Redvers emphasizes the importance of ensuring a grounding in the stewardship practices, the relation building, and the innate sense of reciprocity embodied in traditional Indigenous knowledges around the globe. This presentation will discuss Indigenous perspectives on planetary health and greater sustainability movements.

Dr. Katie Hayes
Senior Policy Analyst
Climate Change and
Innovation
Health Canada

Katie Hayes is senior policy analyst at Health Canada's Climate Change and Innovation Bureau where she leads the international file. She is also the lead author for the mental health and climate change chapter for the National Climate Change and Health Assessment report led by Health Canada. She completed her PhD at the Dalla Lana School of Public Health at the University of Toronto (UofT) where she explored the mental health consequences of climate change, with a specific focus on addressing the inequitable risks and impacts on marginalized groups.

Title: The Impacts of Climate Change on Mental Health and Wellbeing

Abstract: In this session, the audience will have an opportunity to learn from the latest findings on the impacts of climate change to mental health in Canada. Dr. Hayes will be present research published in the 2022 Health of Canadians in a Changing Climate Report. In this session, Dr. Hayes will: • Summarize how disasters resulting from climate change impact the mental health of a population. • Give examples of the inequitable burden of climate related mental health disorders. • Outline approaches to surveillance and monitoring of the mental health effects of climate change. • Comment on the mental health effects of climate-related displacement. • Explain how to navigate new climate and mental health terminology. • Outline some of the targeted interventions to support mental health and well-being. Join us for this interactive session where the audience will have an opportunity to engage in a lively discussion on climate change impacts to mental health and how to support psychosocial resilience.