ENV 4001H: GRADUATE SEMINARS IN ENVIRONMENT AND HEALTH

Winter 2021

I. CONTACTS

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Online Student and Public Seminars: Wednesdays, 4:00-7:00 PM

II. COURSE OVERVIEW

Course Description: There is a pressing need to study the complex relationships between the environment and human health, especially as we are increasingly challenged by environmental health issues. 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: The course uses Quercus for the provision of course materials, submission and completion of assignments and important communications between instructor and students. Seminars will be held using a combination of Zoom and Blackboard (Bb) collaborate. 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. 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 3-5 individuals to organize and lead a seminar. While student-led seminars are typically held one week in advance of each respective public talk, they may need to take place in the week following a public presentation to accommodate speakers' schedules.

Please note that this is a seminar course. Students will be expected to attend all seminars and actively participate in classes. 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 programmes who have an interest in environment and health issues, and who are willing to share a collaborative learning experience, are also invited to enrol. 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, 2021. The evaluation break-down is as follows:

- Seminar participation (ongoing): 20%
- Literature review proposal (Due: Feb. 10, 2021): 15%
- Seminar presentation/facilitation (Date: TBD): 20%
- Oral presentation of research paper (Date: April 7, 2021): 15%
- Literature review paper (Due: April 7, 2021): 30%

Literature Review Proposal (Due: February 10, 2021): Students will identify a research question/hypothesis that will provide the focus of their research/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 10, 2021. Students are not restricted to topics addressed in the course but 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
    - 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)
    - 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 PIE (Population/Problem, Intervention/Issue, Evaluation/Effect) or PICO (Population, Intervention, Comparison, Outcome or an adapted version thereof that may be more fitting for your topic) 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.

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 circa 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 20, 2021**, focusing on the topic of the public seminar scheduled for the week thereafter. 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 13, 2021.

Oral Presentation of Literature Review Topic (Date: April 7, 2021): For the last class, students will each present a 3-minute synopsis of their literature review paper topic and its importance (akin to a 3MT presentation), with one PowerPoint slide. 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 demeanour – i.e., clarity of articulation, professionalism, confidence with material

Literature Review Paper (Date: April 7, 2021): The research 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:

- Introduction 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.

- Discussion: This section is expected to comprise the bulk of the paper; involving an in-depth 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).

Papers will be uploaded to **Turnitin.com** upon submission to the course's website on Quercus 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 Turnitin.com reference database, where they will be used solely for the purpose of detecting plagiarism. The terms that apply to the University's use of the Turnitin.com service are described on the Turnitin.com website. If, as a student, you object to using Turnitin.com, 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.

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.

Online conduct and expectations: Students will be expected to have their cameras on during seminars. Microphones should be turned off unless you are presenting, or it is your turn to speak during seminars (we will rely on using the available icons to indicate when we want to ask a question or add to discussion). The public talks will not be recorded for later viewing, so students will be expected to attend in real time.

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 University of Toronto Libraries
- Resources on conducting online research through University Libraries Research
- Graduate writing groups at https://studentlife.utoronto.ca/program/graduate-writing-groups/

Seminar Schedule 2021 (Subject to Change)

Dates	Speakers and Affiliations	Seminar Title	Abstract
20-Jan	Student seminar	*Topic: See seminar Scheduled for Jan. 27 (Environmental injustice in Nunavik: Temporal trends in perfuoroalkyl acids concentrations and association with country foods consumption during pregnancy)*	
27-Jan	Public Seminar: Élyse Caron-Beaudoin, Assistant Professor, Dept. of Health and Society, UofT (Scarborough)	*Environmental injustice in Nunavik: Temporal trends in perfuoroalkyl acids concentrations and association with country foods consumption during pregnancy*	Currently used fluorotelomer alcohols (FTOHs) are transported to the Arctic and degraded in a number of perfluoroalkyl acids (PFAAs) which biomagnify in Arctic wildlife. Using data from 279 pregnant Inuit women recruited as part of biomonitoring projects in Nunavik from 2004 to 2017, our objectives were to evaluate: (i) time-trends in plasma/serum PFAAs levels in pregnant Nunavimmiut women; and (ii) the associations of PFAAs levels with the consumption of country foods during pregnancy in 2016-2017. Individual blood sample were collected for PFAAs (PFOS, PFOA, PFBA, PFHxA, PFBS, PFHxS, PFNA, PFDA, PFUdA) analyses. Omega-3 and -6 polyunsaturated fatty acids (PUFA) were measured in red blood cell membranes. Their ratio was used as a biomarker of marine country foods consumption. Time-trends in PFAAs levels were evaluated using ANCOVA models. The associations between concentrations of PFAAs and country foods consumption were examined using multivariate regression models. PFOS, PFOA and PFHxS concentrations significantly declined between 2004 and 2017. Since 2011, PFNA, PFDA and PFUdA maternal serum concentrations increased by 19, 13 and 21% respectively. Finally, PFHxS, PFOS, PFNA, PFDA and PFUdA levels in 2016-2017 were strongly associated with the omega-3/omega-6 PUFA ratio, indicating a positive association between marine country foods consumption and exposure to PFAAs. The exposure of pregnant women to long-chain PFAAs increased from 2004 to 2017 in Nunavik. Associations between the omega-3/omega-6 ratio and PFAAs concentrations highlights the importance of implementing additional strict regulations on PFAAs and their precursors to protect the high nutritional quality and cultural importance of country foods.

3-Feb	Student seminar	*Topic: See seminar Scheduled for Feb. 10 (Environmental factors affecting stress in children: interrelationships between traffic-related noise, air pollution, and the built environment)*	
10-Feb	Public Seminar: Meredith Franklin, Associate Professor, University of Southern California	*Environmental factors affecting stress in children: interrelationships between traffic-related noise, air pollution, and the built environment*	A growing body of research suggests that stressors such as traffic-related noise, air pollution and artificial light at night may be directly and indirectly associated with decrements in children's mental health. On the other hand, living near greenspace can reduce stress and provide other health benefits for children. When aged 13-14 and 15-16 years, participants in the Southern California Children's Health Study cohort participants residing in eight densely populated urban communities responded to detailed questionnaires regarding perceived stress. Exposures of artificial light at night (ALAN) derived from satellite observations, near-roadway air pollution (NRP) from a dispersion model, noise from the U.S. Traffic Noise Model, and greenspace from satellite observations of Enhanced Vegetation Index (EVI) were linked to each participant's geocoded residence. Among the 2290 children in this study, girls (50% [n=1149]) had significantly higher perceived stress measured by PSS-4 (mean [SD]) (5.7 [3.34) than boys (4.9 [3.2]). With increasing age (13.5 [0.6] to 15.3 [0.6] years), stress rose from 5.6 [3.3] to 6.0 ([3.4]) in girls but decreased for boys from 5.0 [3.2] to 4.7 ([3.1]). Multivariate mixed effects models examining multiple exposures indicated that exposure to secondhand smoke in the home was associated with a 0.85 (95% CI 0.46, 1.24) increase in PSS-4, and of factors related to the physical environment, an interquartile range (IQR) increase in ALAN was associated with a 0.57 (95% CI 0.05, 1.09) unit increase in PSS-4, together with a 0.16 increase (95% CI 0.02, 0.30) and a -0.24 decrease (95% CI -0.45, -0.04) per IQR of NRP and EVI, respectively. Income modified the ALAN effect estimate; participants in households earning <$48,000 had significantly greater stress per IQR increase in ALAN. Sleep duration partially mediated the associations between stress and both EVI and ALAN by 17% and 18%, respectively. Perceived stress increased most with exposure to smoke at home in addition to residential exposure to artificial light at night and near-roadway air pollution. These associations were partially dampened by more residential greenspace. Our findings support the

			promotion of increased residential green spaces in order to reduce pollution associated with the built environment as it could have significant mental health benefits for children.
17-Feb	***Reading week***		
Feb. 24	Student seminar	*Topic: See seminar Scheduled for March 3 (The Evolving Science of Fluoride Neurotoxicity)*	
3-Mar	Christine Till, Associate Professor, Dept. of Psychology, York University, Adjunct Scientist, Neurosciences and Mental Health Program at SickKids	*The Evolving Science of Fluoride Neurotoxicity*	Science advances by continuously challenging old ideas and adjusting our way of thinking as new knowledge emerges, even if this means that new evidence conflicts with conventional wisdom. In the past few years, emerging evidence has linked exposure to fluoride during pregnancy and early infancy with lower IQ in children. These findings, which have reignited the debate about the safety of fluoridation, have been met with both support and resistance from the scientific community. The presentation will examine why many questions about the safety of fluoridation are still not settled after 75 years of promoting this public health practice. We will then discuss recent research related to the potential for adverse health outcomes associated with fluoride exposure. The presentation will provide responses to the reactions that the research has elicited and will share experiences about the challenges researchers face when evidence counters conventional beliefs.
10-Mar	Student seminar	*Topic: See seminar scheduled for March 17 (Bats and coronaviruses: Using One Health to prevent pandemics)*	
17-Mar	Dr. Arinjay Banerjee, Virologist (formerly McMaster University), Director, Vaccine and Infectious Disease Organization, University of	*Bats and coronaviruses: Using One Health to prevent pandemics*	TBA

	Saskatchewan		
24-Mar	James Orbinski, Professor & Director, Dahdaleh Institute for Global Health Research, York University	*Tentative title: Climate Change and Health*	TBA
31-Mar	Student seminar	*Topic: See seminar scheduled for March 24 (Climate Change and Health)*	
7-Apr	Student Presentations		