

## ENV 341 H1F: ENVIRONMENT AND HUMAN HEALTH

### I. CONTACTS

**Instructor:** Prof. Clare Wiseman

**Office:** Earth Sciences, Rm. 2097

**Virtual Office Hours:** Tuesdays, 11:00 AM-1:00 PM (must pre-register on Quercus)

**Email:** [clare.wiseman@utoronto.ca](mailto:clare.wiseman@utoronto.ca)

**Online Lecture Hours:** Wednesdays, 1:00-3:00 PM

**Tutorial Assistant:** Ariola Visha

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### II. COURSE OVERVIEW

**Course Description:** This course introduces students to primary concepts and issues related to the field of environment and human health. Case studies highlighting important issues and the range of factors involved in modulating environmental exposures and health outcomes in various populations will be explored. As part of this, a primary objective is for students to develop skills in identifying, critically analyzing and reviewing key literature in the environmental and health sciences. Topics to be introduced in lectures and readings will reflect the interdisciplinary nature of the field of environmental health, covering areas from biology, toxicology, environmental science and chemistry, risk assessment to public health and geography.

The course will start by exploring the concepts of “health” and “environment” and how the two are interconnected. This will be followed by an overview of the fields of environmental toxicology and epidemiology, and an examination of related tools and methods to evaluate scientific evidence. Following this, a range of important topics and case studies in environment and health will be examined to highlight the multifaceted ways health and environment are interconnected. Concepts related to vulnerability will be discussed to help us understand how certain populations such as children and the elderly are particularly at risk to exposures and health outcomes.

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

1. have a basic understanding of core concepts central to environment and health,
2. have an understanding of the complex nature of environment and health and how various biological, physiological, developmental and socioeconomic and cultural factors may

impact the health of individuals, communities and populations at all levels, ranging from the local to the global level, and

3. have acquired the skills necessary to research and critically assess available information on topics related to environment and health.

### III. HOW THE COURSE IS ORGANIZED

**Course Delivery:** The course uses the online management system Quercus for the online delivery of lectures, 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.

Students will be provided access to all readings in the form of links provided in the Course Schedule and Readings file made available in the “Course Info” section (in “Modules”) of the course’s website on Quercus. No textbook purchase required. All readings will be accessible using your UTORid and password through UofT’s electronic library system.

To participate in the course, it is expected that students meet minimum technical requirements as per that outlined at: <https://www.viceprovoststudents.utoronto.ca/covid-19/tech-requirements-online-learning/>

General advice for students regarding online learning is available here: <https://onlinelearning.utoronto.ca/getting-ready-for-online/>

Lectures will consist of a formal online lecture (using Bb collaborate in Quercus) that will last 60- 90 minutes, with the remaining class time being devoted to a virtual question and answer period and/or discussion of course materials/readings and topical issues as they arise (e.g. current issues, points of particular interest to students discussed in readings/lectures). Only the lecture portion of classes will be recorded (audio with PPT slide presentation) and made available for asynchronous learning purposes.

For international students with internet restrictions, access to the University’s general purpose virtual private network (VPN) may be needed. For instructions on how to connect see: <https://isea.utoronto.ca/services/vpn/>

### IV. EVALUATION/GRADING SCHEME

#### **Evaluation:**

- Assignment 1: Term paper proposal = 20% (Due Date: Oct. 7, 2020)
- Assignment 2: Mapping and analyzing chemical emissions in your neighborhood = 25% (Due Date: Oct. 28, 2020)

- Assignment 3: Literature Review Paper = 30% (Due Date: Nov. 25, 2020)
- Final assessment = 25% (Date: **To be announced**, (24 hours to complete))

Please note: **This course will be using Turnitin.com for the submission of assignments and the final assessment on the course's website in Quercus.** Written assignments will undergo a review of textual similarity and detection of possible plagiarism using this software. In doing so, students will allow their assignments 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 web site.

If 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.

**ASSIGNMENT 1: Proposal for Literature Review (Due Oct. 7, 2020):**

Students will submit a 2-page (1.5 spacing, 12-point font) proposal in advance of their literature review papers, which will outline the topic chosen for further examination. The proposal is expected to incorporate the following elements:

- A title for proposed topic,
- A brief background (1-2 paragraphs) 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 clear statement of purpose OR goal (may also be phrased as a research question)
- Briefly describe the key elements that were used to help focus the review topic (e.g. using a concept map/table (Please refer to file "ENV341 Tips for Paper Proposals" in the modules section of Quercus)). Commonly used conceptual frameworks in the public health sciences such as PICO (Population, Intervention, Comparison, Outcome) may be adopted for this. Please note writing resources and tips will be provided in the module section of Quercus for student reference (including tips on identifying a topic and a description of different conceptual frameworks used to focus literature reviews), and
- Provide an initial list of keywords and search engines (e.g. Scopus, PubMed, Web of Science) which will be used to conduct the literature search (point form accepted for this).
- References Cited section to be included at the end of your second page (for the initial references used to inform your background).

**THE PROPOSAL MUST INCLUDE REFERENCES FOR SOURCES OF INFORMATION**;

the full citations for which are to be placed in a section at the end of the proposal (using a recognized style of referencing, e.g. APA, MLA). For in-text references, please use (NAME, PUBLICATION YEAR) format. Only the first two pages will be graded if students go over the page limit.

Proposals are to be submitted online to Turnitin.com as a Microsoft Word® (DOC and DOCX) document or PDF via the Quercus-based website for the course (**Deadline: 11:59 PM on Oct. 7, 2020**).

**ASSIGNMENT 2 (REVISIONS MADE ON OCT.4, 2020): Mapping and Analyzing Chemical Emissions in your Neighborhood (Due Oct. 28, 2020)**

The purpose of this exercise is to examine a chemical substance of concern that is emitted in a Toronto neighborhood of interest and describe the potential health impacts for its population. As part of this assignment, you will become familiar with the City of Toronto's online platform ChemTRAC (<https://www.toronto.ca/community-people/health-wellness-care/health-programs-advice/chemtrac-chemical-tracking-in-industry/>), which collects data on the use and emission of priority chemicals by industrial facilities and businesses, as required under the Environmental Reporting and Disclosure Bylaw ([https://www.toronto.ca/legdocs/municode/1184\\_423.pdf](https://www.toronto.ca/legdocs/municode/1184_423.pdf)).

This data is made publicly available to help increase awareness of priority chemicals and encourage businesses to reduce emissions. You will also become familiar with the City's online open data platform to access demographic information for neighborhoods and communities (<https://www.toronto.ca/city-government/data-research-maps/neighbourhoods-communities/>).

ChemTRAC collects and reports data on the use, manufacturing and release for 25 priority substances, including the following: lead, mercury, formaldehyde and PM<sub>2.5</sub>. For this assignment, you will be expected to choose one of the following, which are emitted to the air and are relevance for assessing possible inhalation exposures for your population.

- Chromium, hexavalent and its compounds
- Dichloromethane
- Formaldehyde
- Lead and its compounds
- Manganese and its compounds
- Mercury and its compounds
- Nickel and its compounds
- Nitrogen oxides
- Particulate matter 2.5
- Polycyclic aromatic hydrocarbons
- Tetrachloroethylene (PERC)

- Trichloroethylene (TCE)

For the assignment, click on “ChemTRAC Interactive Map” tool

(<https://www.toronto.ca/community-people/health-wellness-care/health-programs-advice/chemtrac-chemical-tracking-in-industry/chemtrac-interactive-map/>). In the filter, please choose the following:

- Year: latest reporting year (2018)
- Report: choose “facilities that reported chemical data”
- Industry: choose “all” (or a subset if that is your focus)
- Substance: choose one of the following

Click on the “Apply” button to map to plot facilities reporting emissions for your particular substance of interest. If your substance of interest has many reported emissions for the city, you may want to narrow examination further and focus on a neighborhood.

Another option to narrow focus further is to choose an industry of interest and examine the range of emitted substances for a geographical area or neighborhood for Toronto.

Under Facility information at bottom of page, click on “info” for item listed to obtain further information on:

- Industry type
- Releases to air for substance of interest

**Please note: you should explore the map and click on facility reported emissions to air before making a final decision about neighborhood, ward or district, as many facilities may appear on the map when doing a substance search but may not necessarily be emitting to the air or that the amounts are negligible.**

In your assignment, address each of the following:

- Identify your substance(s) and the major sources (types of industries/facilities) of emissions for your substance in district of concern. As part of this, report the total amount of substance being emitted to air (for industrial facilities as a whole or provide a breakdown for individual facilities if considered relevant). Identify the locations of the major emitters on a map of your neighborhood/ward (can do a snapshot of the map of your facilities/emissions provided on ChemTRAC for inclusion in assignment. Images should be no larger than 7x7 cm).
- Identify City of Toronto neighborhood or district (e.g. Annex, Etobicoke, Downtown Toronto) of interest. Access demographic information for your neighborhood at: <https://www.toronto.ca/city-government/data-research-maps/neighbourhoods-communities/>

Click on link provided and access ward or neighborhood profiles: an interactive map will appear and you can click on the wards or neighborhood(s) of interest. Students should access the census profile for 2016 and see how this compares to the numbers for Toronto as a whole (it is in comparing that we get a better idea of how the chosen neighborhood may be more vulnerable relative to others given immigration and identity status, income status, educational status, demographics (e.g. lots of kids or seniors, a higher “dependency ratio”)).

Neighborhood/ward census profile data of interest to include in your description: total population, population density and population age structure. Also, indicators of SES and immigrant and identity status. Don’t feel like you need to cover every aspect of your population in doing your write-up. You are encouraged to focus on one or more specific aspects of the population that are of particular interest or of importance in assessing possible exposures and health impacts (in addition to providing a good overview of the major demographic features of your population). **Please note: you should not cut and paste tables or figures from the PDFs of profiles provided by the city.** Please summarize important information in text form.

- Consider how emissions may affect your resident population Students should look up the following for tox information: ATSDR’s Toxic Substances and Disease Registry at <https://www.atsdr.cdc.gov/toxprofiledocs/index.html> When accessing the website, you will need to scroll through the index of toxic profiles and click on your substance of interest. In accessing the chemical profile, the first chapter for the tox documents will be a “Public Health Statement” or a “Relevance to Public Health”. This will be the first document of interest to look up tox information, as it gives a good overview of what it is, how it may enter the environment, pathways of exposures and possible impacts. For more information, on health effects and vulnerable populations of concern, students will need to scan related health effects chapters to extract this.

You can also access chemical profiles provided by the Canadian Centre for Occupational Health and safety at: [https://www.ccohs.ca/oshanswers/chemicals/chem\\_profiles/](https://www.ccohs.ca/oshanswers/chemicals/chem_profiles/)

To obtain full access to chemical profiles though, you will need to go through the UofT library system at. Here is the link: <https://guides.library.utoronto.ca/ccinfoweb>

Another good resource is the Health Effects Institute at: <https://www.healtheffects.org/>

- Identify 1-2 major limitations involved in using such databases to assess potential population exposures and recommend strategies/methods for improvement.

The final assignment should incorporate a map and a 2 to 3 page (1.5 spacing, 12-point font) written description of the above points. Submissions should not be longer than 3 pages (not including map) and 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**), using the **Turnitin.com** link provided.

**ASSIGNMENT 3: Literature Review Paper (Due Nov. 25, 2020):**

Students will select an environment and health topic of interest which is related to the course as the focus for their term papers. The topic chosen should be sufficiently scoped to allow for an in-depth analysis of the literature and should demonstrate that a systematic, methodological approach was taken in the scoping process of topic and literature of focus. It is expected that students will do a literature review on the proposed topic submitted for the paper proposal in October.

The intent and purpose of the paper is to conduct a literature review of a chosen topic. Papers should include the following sections:

- 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. Details regarding the concept mapping exercise done as part of the paper proposal submitted earlier in the course should not be included.
- 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. NO BIBLIOGRAPHY please.

See criteria for the evaluation of written assignments below.

*Submission of Term Papers*



All written assignments must:

- Include a title, your name and student number
- Have 1.5 spacing, 12-point font and 1” margins
- Include page numbers
- Be between 2,000 and 2,500 words; a word count for main body of paper (excluding references cited section) must be provided on front page or at the end of the paper
- Be properly referenced with in-text citations to sources (see note on Plagiarism below)
- Include a “References Cited” section, containing all references cited in the paper
  - For in-text citations, please use (NAME, YEAR) format
  - For the references cited section, please use only the following recognized formats: APA, CBE/CSE, ASA or Chicago

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**), using the **Turnitin.com** link provided.

**Criteria for evaluation of written assignments:**

The following criteria will be used to grade papers:

- 1) Clarity in writing and referencing: The paper is expected to be free of spelling and grammatical errors. A recognized referencing style must be used in a consistent manner; references are ALWAYS to be cited accurately in the paper. If references appear in the body of the paper but not in the “references cited” list and *vice versa*, this will negatively impact your grade.
- 2) Clarity and logic in structure: The paper should be written in a coherent, logical manner. The logic of the structure is determined by the purpose, which is to test a hypothesis, answer a research question or defend a thesis statement.
- 3) Precision and accuracy. Precision means saying exactly and specifically what you mean, avoiding vague generalities. Accuracy refers to absence of major factual errors.
- 4) Analysis: Student essays are expected to demonstrate originality in thought and to summarize and assess information in a critical, objective manner. The term paper will be evaluated on the defensibility of their analysis in terms of their use of evidence and logical coherence.

**Writing Resources:** Students may wish to visit the “Writing at the University of Toronto” website for useful tips and writing resources at: [www.writing.utoronto.ca](http://www.writing.utoronto.ca). More than 60 Advice files on all aspects of academic writing are available from <http://advice.writing.utoronto.ca>.

See also "How Not to Plagiarize" and related advice on how to properly and effectively integrate sources of information. At: <http://advice.writing.utoronto.ca/using-sources/>



Information about the on campus English Language Learning program (ELL) is available at:  
<http://www.artsci.utoronto.ca/current/advising/ell>

Students can find information about college writing centres at:  
<http://www.writing.utoronto.ca/writing-centres/arts-and-science>.

### **Final Assessment (To Be Announced):**

The Final Assessment will involve an online “take-home” assignment that will expect students to analyze an assigned article (as determined by the course instructor) and link it to contents explored in the course. Students will have 24 hours to complete and submit the assignment to Turnitin.com via the course’s website on Quercus. Assignments must be submitted as the following file types: Microsoft Word® (DOC and DOCX) or PDF. Completed assessments submitted in an unrecognized file format or after the deadline will not be accepted for grading (**a grade of 0% will be awarded**). A further description and details regarding the format and expectations of the assessment will be provided later in the course.

## **V. COURSE POLICIES**

**Email and Communication:** I will hold virtual office hours using Bb Collaborate on Tuesdays from 11:00 AM to 1:00 PM. Students must pre-register using the course calendar in Quercus for an appointment during this time (allocated as 15-minute time slots).

The TA should be considered the first point of contact when it comes to general inquiries about the course and assignments. Please contact the course instructor directly, if requesting an accommodation or an extension or in the event of an emergency.

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.

Students are expected to familiarize themselves with the course syllabus and expectations regarding course assignments. Should you have a question about course assignments or quizzes, it is ALWAYS good practice to read the syllabus first to find the answer, to avoid sending any unnecessary emails. For more substantive questions regarding assignments such as choosing a topic for your literature review, you will be expected to book a time during virtual office hours to discuss directly with the course instructor.

Please do not expect responses to emails on evenings and weekends, just before class or within 24 hours of exams or assignment due dates.

**Online conduct and expectations:** Students are encouraged to post questions and comments using the chat function in Bb collaborate during lectures. Following each lecture, time will be devoted to answering questions that had been posted. During this portion of class, students will

also be encouraged to ask questions directly or provide any comments or insights they may have on the respective topics and related readings. This portion of the class may be recorded and made available for later asynchronous access. Students should note that their voices may be recorded, if they choose to speak at any point during the lecture part of class.

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."*

**Notice of video recording and sharing:** The lecture portions of this course (audio with PPT slides only) will be recorded on video and will be available to students in the course for viewing remotely and after each session. Course videos and materials belong to your instructor, the University, and/or other sources depending on the specific facts of each situation and are protected by copyright. You are permitted to download lecture session videos for your own academic use, but you should not copy, share or use them for any other purpose without the explicit permission of the instructor.

**Student recording of class content:** Students creating unauthorized audio recording of lectures violate an instructor's intellectual property rights and the Canadian Copyright Act. Students violating this agreement will be subject to disciplinary actions under the Code of Student Conduct.

Because recordings will be provided for all lectures, students may not create additional audio or video recordings without written permission from the instructor. Permission for such recordings will not be withheld for students with accommodation needs.

For questions about recording and use of videos in which you may appear please contact your instructor.

**Late Penalties and Deadline Extensions:** Assignments should be handed in on the due date. A late penalty of 5% per day (including weekends) will be deducted from the mark for assignments for up to 7 days following the due date. Extenuating circumstances may arise that impact your ability to complete an assignment on time. 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.

## 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 contact [Accessibility Services](#) as soon as possible.

**Additional Services and Support:** The following are some important links to help you with academic and/or technical service and support:

- General student services and resources at [Student Life](#)
- Full library service through [University of Toronto Libraries](#)
- Resources on conducting online research through [University Libraries Research](#)
- Resources on academic support from the [Academic Success Centre](#)
- Learner support at the [Writing Centre](#)