

**APS 470**  
**Public Health and Engineering**  
**FALL 2022**

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INSTRUCTOR:	Victoria Arrandale, PhD ROH <a href="mailto:victoria.arrandale@utoronto.ca">victoria.arrandale@utoronto.ca</a>
LOCATION:	In-person – <b>BA2145</b>
TIME:	Thursdays 9:00am – 12:00pm
PREREQUISITES:	None

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### **ACKNOWLEDGMENT OF TERRITORY**

I would like to acknowledge the traditional territories of the Mississauga of the New Credit First Nation, Anishnawbe, Wendat, Huron, and Haudenosaunee Indigenous Peoples on which the Dalla Lana School of Public Health now stands. The territory was the subject of the Dish with One Spoon Wampum Belt Covenant, an agreement between the Iroquois Confederacy and Confederacy of the Ojibwe and allied nations to peaceably share and care for the resources around the Great Lakes. I would also like to pay our respects to all our ancestors and to our present Elders.

Students are encouraged to familiarize themselves with the history of the land on which we are living, teaching and learning, particularly the ways in which the colonial history impacts the health of Indigenous Peoples living in what is now known as Canada.

### **COURSE OVERVIEW**

This course will provide students with an introduction to the disciplines of public health and the connections with engineering. In the first half, the major disciplines of public health will be introduced and the class will learn about the structure and regulation of the public health and health care system; quantitative and qualitative public health methods; study designs and statistical analysis; and the legal, regulatory and ethical frameworks applicable to public health. In the second half of the course, examples of common public health hazards will be used to illustrate the contribution of public health toxicology, exposure measurement and modelling, data analysis and prevention strategies in protecting and promoting public health.

### **OBJECTIVES**

At the end of this course students should be able to:

- Appreciate that public health is a complex system
- Recognize when their work as engineers may intersect with public health

- Describe different disciplines that contribute to public health knowledge
- Locate relevant public, occupational, environmental health regulations
- Recognize how social determinants of health influence the well-being of diverse communities and populations
- Describe the key characteristics of different study designs used in public health and when they might be used
- Identify the types of hazards that people may encounter in the community and in the workplace, including the routes of exposure
- Describe the body systems and common health effects that can result from hazardous exposures in the workplace or the community
- Create a simple strategy for assessing a community or workplace hazard based on scientific, technical, and practical considerations
- Propose prevention measures for common public health scenarios that are both practical and evidence-based

## **COURSE FORMAT**

The plan for this course is to teach in-person in a synchronous format, as permitted by Public Health and University of Toronto COVID-19 policies. Asynchronous activities may be planned. Course time may be extended or changed to accommodate guest speakers and class activities. Please see Quercus for announcements. In addition to class time, students will be required to complete readings, assignments and other tasks outside of class time.

## **EXPECTATIONS**

All people in the classroom, including students, faculty and guests, are expected to<sup>1</sup>:

- Use welcoming and inclusive language
- Be respectful of different viewpoints and experiences
- Gracefully accept constructive criticism
- Focus on what is best for everyone in the classroom
- Show courtesy and respect to others in the classroom

Additionally, students are expected to:

- Check Quercus once per day for announcements
- Stay up to date with coursework
- Join class prepared to participate in discussions.

For any online activities, students are not required to have their cameras turned on during class time, however students are expected to maintain an audio connection during class time and make use of the chat pod as needed.

## **ACCESSIBILITY**

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<sup>1</sup> Modified from: [https://docs.carpentries.org/topic\\_folders/policies/code-of-conduct.html#:~:text=The%20Carpentries%20is%20dedicated%20to,or%20causes%20discomfort%20to%20others](https://docs.carpentries.org/topic_folders/policies/code-of-conduct.html#:~:text=The%20Carpentries%20is%20dedicated%20to,or%20causes%20discomfort%20to%20others)

The University provides academic accommodations for students with disabilities in accordance with the terms of the Ontario Human Rights Code. This occurs through a collaborative process that acknowledges a collective obligation to develop an accessible learning environment that both meets the needs of students and preserves the essential academic requirements of the University's courses and programs. You do not need to disclose to the instructor the reason an accommodation is needed. For more information, or to register with Accessibility Services, please visit: <http://studentlife.utoronto.ca/as>

## STUDENT EVALUATION

Type of Assessment	Proportion of Final Grade
Weekly online quizzes (10 quizzes, 2% each)	20%
Mid-term quiz	20%
Short (5-7 min) recorded presentation on a Public Health topic chosen from a provided list of options	20%
Peer review comments on fellow students' recorded presentations	5%
Final exam	35%

## REQUIRED TEXTS/READINGS

There is no required textbook for this course. Links to required readings will be provided on Quercus. All required readings will be freely available to students on the web or through the University of Toronto library.

## TENTATIVE CLASS SCHEDULE

Week	Date	Topic
1	Sep 8	- Welcome and course description - Introduction to public health and the health care system (Dr. Steini Brown, Dean DLSPH) and the history of Public Health
2	Sep 15	- Public health ethics (Dr. Alison Thompson)
3	Sep 22	- Introduction to epidemiology and biostatistics (Dr. Allison McGeer) including study designs, measurement and analytical approaches
4	Sep 29	- Introduction to social and behavioural sciences and health promotion (Guest TBD)
5	Oct 6	- Introduction to public health policy and practice (Dr. Fiona Miller) in the context of climate change
6	Oct 13	- Introduction to public health toxicology (Dr. Jeremy Scott) and prevention measures in public health
7	Oct 20	<b>Mid-term Quiz</b>  - Introduction to occupational and environmental health and the importance of surveillance

Week	Date	Topic
8	Oct 27	- Traffic-related air pollution and inequities in exposure and impact (Dr. Jeff Brook)
9	Nov 3	- The burden of cancer due to residential radon
-	Nov 10	<i>READING WEEK – no class</i>
10	Nov 17	- Noise hazards and the need for improved prevention measures
11	Nov 24	- COVID-19 response and the role of predictive modelling (Guest TBD)
12	Dec 1	- Challenge of risk communication in public health (Guest TBD)
-	Dec 8	<b>Final Exam</b>

## CLASS POLICIES

### ***Due Dates***

Submissions are due by midnight on due date unless otherwise agreed to. If you require an extension please contact the instructor in advance.

### ***Coursework***

Weekly quizzes and coursework submissions will be completed through Quercus. Links (where needed) and instructions will be provided in Quercus.

Where a file upload is required please keep file names simple including information on the student(s) and assignment being submitted.

Any references included in the assignment should be cited in a consistent format and a reference list provided.

Text spacing and formats should be reasonable and facilitate easy reading.

Please familiarize yourself with the Microsoft suite of programs and their capabilities in terms of formatting, design and calculations. Expert knowledge of these programs will serve you well in your career.

### ***Weekly Quizzes***

Weekly quizzes will be completed through Quercus. Links and instructions will be provided in Quercus.

### ***Mid-term Quiz and Final Exam***

The Midterm Quiz and Final Exam will be written in person. The time and location will be communicated in-class and through Quercus.

## 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 outlines the behaviours that constitute academic dishonesty and the processes for addressing academic offences can be [found online](#).

Similarly, the University of Toronto's policy regarding plagiarism can also be [found online](#). Potential offences include, but are not limited to:

- Using someone else's ideas or words without appropriate acknowledgment.
- Submitting your own work in more than one course without the permission of the instructor.
- Making up sources or facts.
- Obtaining or providing unauthorized assistance on any assignment, test or exam.

### ***Plagiarism Detection***

Normally, students will be required to submit any 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>).