

EPID 801: Introduction to Epidemiology (Graduate Course)

Course Syllabus Fall 2021

Session times: Mondays 10:00-11:25am and Wednesdays 10:00-11:25am (option to ask questions in person until noon)

Location: Carruthers 102

TA Time in Student Lounge, Carruthers: 4-5pm Wednesdays or 4-5 Thursdays

Course management: onQ EPID 801 F21. You will get access on Sept 10; class starts Sept 13.

Instructor: Kristan Aronson

Professor, Dept of Public Health Sciences, and School of Environmental Studies

Office: Division of Cancer Care and Epidemiology, Cancer Research Institute (2nd floor);

<https://phs.queensu.ca/faculty-research/kristan-aronson>

Teaching Assistants: Rebecca Hansford 8rlh3@queensu.ca; Sahej Kaur 20sk23@queensu.ca;

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Time with Kristan: Available in person after every class for half hour. Email with absences, and any concerns re accessibility or accommodations: aronson@queensu.ca

COURSE DESCRIPTION

Evidence for effective public health comes in part from epidemiologic studies. Epidemiology is a science underlying and supporting public health, and as such is a broad and exciting field that “provides logic and structure to the analysis of health problems” (p. 2, Webb et al. text). This course focuses on the determinants of health, data sources, measurement, and design principles that are intended to produce the highest quality evidence for public health issues. Epidemiologic methods and principles are the focus, which can be applied to all substantive health areas. Epidemiologic study designs include ecologic studies, randomized trials, intervention studies, cross-sectional studies, case-control studies, and cohort studies. This course introduces students to the principles and methods of epidemiology, study designs, measures of effect, sources of error, confounding, systematic reviews, and internal and external validity. We also introduce appraisal of the literature, criteria for causality, prevention and screening, ethics, communication/knowledge translation and cite examples of how epidemiology can be applied to a range of health issues.

LEARNING ENVIRONMENT: Values, roles and responsibilities

We look forward to working together in an atmosphere of mutual respect and promotion of diversity. We have made every effort to make this course accessible to all. We encourage active learning and critical thinking through a range of activities designed to engage learners. Acceptance of diversity and principles of equity are the foundations for learning in this course. Students have a wide range of experiences and education that contribute greatly to the richness of this class. We expect to work in a collegial, compassionate, and collaborative environment, not a competitive one. Please help others. This course is required for every Masters program in the Dept of Public Health Sciences; we also welcome graduate students

from other Depts and other students who have been approved to enroll. **If you have any concerns, please contact Kristan as soon as possible.**

LEARNING OUTCOMES

Within a population health framework of evidence to action, this course provides foundational knowledge through the lens of epidemiologic principles on how human evidence is created, assessed and communicated.

Upon successful course completion, students will be able to:

1. Conceptualize and explain how determinants of health (social/cultural, biological and physical) can influence health and well-being
2. Integrate ethics into human health research
3. Calculate and interpret absolute and relative measures of disease frequency and risk, and contrast these across populations
4. Identify the main types of epidemiologic studies, appraise their relative strengths and limitations, and justify study design choices
5. Demonstrate critical thinking in identifying potential sources of bias, confounding and chance in human research evidence, and evaluate their impact while considering potential resource constraints
6. Assess epidemiologic evidence for causal inference and contribution to policies and actions

These learning outcomes have been developed in accordance with the competencies of several graduate programs in PHS: <https://phs.queensu.ca/> and the Public Health Agency of Canada Core competencies: <https://www.canada.ca/en/public-health/services/public-health-practice/skills-online/core-competencies-public-health-canada.html>

COURSE COMMUNICATIONS

All information about the course will be provided through onQ EPID801 F21: **you will get access on Sept 10.** A detailed course schedule with deliverable dates will be available onQ, where you can also track your progress throughout the course. If you have questions about the schedule, please ask during class time, or ask your peers or TA.

COURSE FORMAT

Learning strategies include slides, sessions with instructors and TAs, text and assigned articles, doing all problems in the text, your note taking, group exercises with deliverables, assignments, pop quizzes, videos, reviews and exams. Please study all slides and do the assigned readings **before** class – this is critical for learning and engagement in class.

This is a graduate class where most learning occurs outside of class, with highlights and application of main concepts in synchronous sessions. Expected student learning hours necessary for success in this course in addition to class time are approx 10 to 12 hours/week.

At Queen's, all course materials are the property of the instructor unless otherwise stated: copying or sharing course material can be a copyright violation, and copying or sharing materials from other students can be a privacy violation as well.

COURSE MATERIALS

Required text: Essential Epidemiology: An Introduction for Students and Health Professionals, fourth edition, by Penny Webb, Chris Bain, Andrew Page, Martyn Kirk, Adrian Sleight, 2020.
<https://www.cambridge.org/ca/academic/subjects/medicine/epidemiology-public-health-and-medical-statistics/essential-epidemiology-introduction-students-and-health-professionals-4th-edition?format=DO&isbn=9781108766807>

You can purchase this new or used textbook through the Queen's bookstore. Only the ebook or most recent print version gives you access to student resources on Cambridge Univ Press website – but these are not mandatory.

Additional course readings/materials will be posted onQ prior to class.

Videos supplement the material in your text. Many that are particularly helpful are produced by the Canadian National Collaborating Centre for Methods and Tools (NCCMT) and on their website <http://www.nccmt.ca/resources/multimedia> with others on Youtube such as:

Topic: Epidemiology as Evidence for Public Health

Video: Evidence-informed decision making: a guiding framework for public health

<https://www.youtube.com/watch?v=QtrnT3sFSL0>

Topic: Measures of Association

Video: Relative risk: it's easy to calculate and interpret

<https://www.youtube.com/watch?v=fellAwyaGFM>

Video: How to calculate an odds ratio

https://www.youtube.com/watch?v=5zPSD_e_N04

Topic: The Role of Chance

Video: Understanding a confidence interval

<https://www.youtube.com/watch?v=v0FXSAdYckQ>

Topic: Systematic Reviews

Video: What are Systematic Reviews:

<https://www.youtube.com/watch?v=egJlW4vkb1Y&feature=youtu.be>

Video: Forest plots: understanding a meta-analysis in 5 minutes or less:

<https://www.youtube.com/watch?v=GWLnlGN3POM>

ASSESSMENTS

Pop quizzes (6 quizzes, top 5 scores count; 3% per quiz)	15%
3 Assignments: Due dates Sept 27, Oct 18, Nov 17	20%
Viewing of NCCMT videos:	Yes/no
Mid-term exam: Oct 27	30%
Cumulative final exam: Dec 8	35%

Please note:

1. The minimum passing grade in Graduate School is 70%.
2. Every effort is made to align the assessments with the stated learning outcomes.
3. Pop quizzes are multiple choice and assess progress in understanding and applying the course material. Only the top 5 of 6 quizzes will count; or one absence allowed.

4. Assignments give you an opportunity to apply new concepts, practice new skills, and express yourself in writing. **Check your work for plagiarism prior to submitting.** You can work alone or in groups up to 4 people (hand in ONE version with all names). If you submit the assignment by 5pm on the due date, you will get some feedback from TAs in one week. If you submit the assignment later than 5pm on the due date and prior to one week after the due date, you will get a grade with no feedback. No assignment will be accepted after one week following the due date. Submissions are through onQ.
5. Please note that you are also strongly urged to complete ALL questions in the text and use the student resources on the text's website. Accurate completion of the questions in the text is strongly correlated with getting an A in this course ☺
6. Built into the timing of exams will be a time period for accommodations.
7. Exams assess independent comprehension of the course material: various approaches are used (multiple choice, matching, short answer, calculations etc). The final exam will be cumulative, testing all material covered in the course. Please note that failing both the mid-term and final exams means that you fail the course, regardless of your assessments in other aspects of this course.

Some Resources

Queen's Student Accessibility Services (QSAS)

With other members of the Queen's community, we work to ensure the university and its programs are accessible to students with disabilities. Our goal is to support your successful transition to university and to foster an inclusive and equitable environment at Queen's.

<https://www.queensu.ca/studentwellness/accessibility-services>

School of Graduate Studies Habitat

This brings together resources for living well and staying well in grad school. There is information on: taking care of yourself and managing stress, finding friends and fun, living in Kingston, managing finances, accessibility, building a career and more. <http://www.queensu.ca/sgs/current-students/sgs-habitat>

Student Wellness Services

Student Wellness Services supports the personal, academic, and social development of students at Queen's by providing a range of programs and services including accessibility services, counselling services, and health services. Their mission is to provide a welcoming, confidential, and integrated service that is responsive to the needs of students. A full listing of services including how to make an appointment is here: <http://www.queensu.ca/studentwellness/>

Statement on Academic Integrity

Queen's students, faculty, administrators and staff all have responsibilities for upholding the fundamental values of academic integrity; honesty, trust, fairness, respect, responsibility and courage (see www.academicintegrity.org). These values are central to the building, nurturing and sustaining of an academic community in which all members of the community will thrive. Adherence to the values expressed through academic integrity forms a foundation for the "freedom of inquiry and exchange of ideas" essential to the intellectual life of the University (see the Senate Report on Principles and Priorities <http://www.queensu.ca/secretariat/policies/senate/report-principles-and-priorities>).

Students are responsible for familiarizing themselves with the regulations concerning academic integrity and for ensuring that their assignments and their behaviour conform to the principles of academic integrity. Information on academic integrity is available in the SGS Calendar (<https://www.queensu.ca/sgs/graduate-calendar/academic-integrity-policy>) and from the instructor of this course. Departures from academic integrity include plagiarism, use of unauthorized materials, facilitation, forgery, falsification and unauthorized use of intellectual property, and are antithetical to the development of an academic community at Queen's. Given the seriousness of these matters, actions which contravene the regulation on academic integrity carry sanctions that can range from a warning or the loss of grades on an assignment to the failure of a course to a requirement to withdraw from the university.

- Please visit these helpful websites to help you make sure that you are able to write things in your own words:
 - <https://www.queensu.ca/academicintegrity/students/avoiding-plagiarismcheating>
 - <https://integrity.mit.edu/handbook/academic-writing/avoiding-plagiarism-paraphrasing>
 - http://writing.wisc.edu/Handbook/QPA_paraphrase.html

Statement on Copyright of Course Materials

Course materials created by the course instructor, including all slides, presentations, handouts, tests, exams, and other similar course materials, are the intellectual property of the instructor. It is a departure from academic integrity to distribute, publicly post, sell or otherwise disseminate an instructor's course materials or to provide an instructor's course materials to anyone else for distribution, posting, sale or other means of dissemination, without the instructor's expressed consent. A student who engages in such conduct may be subject to penalty for a departure from academic integrity and may also face adverse legal consequences for infringement of intellectual property rights.

Statement on Academic Accommodations for Students with Disabilities

Queen's University is committed to achieving full accessibility for people with disabilities. Part of this commitment includes arranging academic accommodations for students with disabilities to ensure they have an equitable opportunity to participate in all of their academic activities. The Senate Policy for Accommodations for Students with Disabilities was approved at Senate in November 2016 (see <https://www.queensu.ca/secretariat/sites/webpublish.queensu.ca.uslcwww/files/files/policies/senateandtrustees/ACADACCOMMPOLICY2016.pdf>). If you are a student with a disability and think you may need academic accommodations, you are strongly encouraged to contact the **Queen's Student Accessibility Services (QSAS)** and register as early as possible. For more information, including important deadlines, please visit the QSAS website at: <http://www.queensu.ca/studentwellness/accessibility-services/>

Statement on Academic Consideration for Students with Extenuating Circumstances

Queen's University is committed to providing academic consideration to students experiencing extenuating circumstances that are beyond their control and are interfering with their ability to complete academic requirements related to a course for a short period of time. The Senate Policy on Academic Consideration for Students in Extenuating Circumstances is available at <http://www.queensu.ca/secretariat/sites/webpublish.queensu.ca.uslcwww/files/files/policies/senateandtrustees/Academic%20Considerations%20for%20Extenuating%20Circumstances%20Policy%20Final.pdf>

Each Faculty has developed a protocol to provide a consistent and equitable approach in dealing with requests for academic consideration for students facing extenuating circumstances. SGS students can find the Academic consideration information at: <https://www.queensu.ca/sgs/accommodation-and-academic-consideration>.

Some suggested resources for our times (not required!)

Search healthvidence.org for systematic reviews evaluating public health interventions

“This podcast will kill you” <http://thispodcastwillkillyou.com/>

Indigenous-led health care partnerships in Canada <https://doi.org/10.1503/cmaj.190728>

Environmental Justice in Mi'kmaq & African Nova Scotian Communities TEDxMSVUWomen
<https://www.youtube.com/watch?v=itRiNmo3hq8>

“Epidemiology Now!” <https://podcasts.apple.com/ca/podcast/epidemiology-now/id1549548140>

Film: There’s something in the water. <https://www.youtube.com/watch?v=nKhIYFDnCoY>

Allegories on race and racism: <https://www.youtube.com/watch?v=GNhcY6fTyBM>

How to Be an Antiracist by Ibram X. Kendi

Boston University online learning modules (drop down for Epidemiology):

<https://sphweb.bumc.bu.edu/otlt/MPH-Modules/Menu/index.html>

Public Health Agency of Canada. Skills Online: <http://www.phac-aspc.gc.ca/php-ppsp/ccph-cesp/index-eng.php>

Canadian Public Health Association. <https://www.cpha.ca/>

Public Health Ontario. <https://www.publichealthontario.ca/>

OnCore-EnCours: <https://oncore-encours.ca/>

World Health Organization (WHO): www.who.int/en

Statistics Canada: <http://www.statcan.gc.ca/>

Health Canada: <http://www.hc-sc.gc.ca/>

Statistics without borders <https://swb.wildapricot.org/>

The Public Health Spot <https://phspot.ca/> Also on instragram (@phspot)

Instagram: WHO (@who), Healthy Canadians (@healthycdns), CDC (@cdcglobal)

Sustainable Kingston <https://www.sustainablekingston.com/>

Public health journals: <https://www.springer.com/public+health/journal/41997>;

<http://www.biomedcentral.com/bmcpublichealth/>

Pan American Health Organization (PAHO): <http://www.paho.org/hq/index.php?lang=en>

Centers for Disease Control and Prevention (CDC- USA): www.cdc.gov

The Queen’s Racial Considerations in Epidemiological Research (RaCE) Task Force: Posted on OnQ