

# Epid 804 – Intermediate Epidemiology

2023

## Course Summary

This course focuses on advanced issues in the design, conduct, analysis and interpretation of epidemiologic studies. Material will be presented in lecture and seminar format. The material presented will be augmented by background readings from the current literature, practical applications, and seminar discussions.

## Prerequisites

Course prerequisites are Epid 801(Intro to epidemiology) and Epid 821 (Intro to Biostatistics).

**Instructor:** Will King, kingw@queensu.ca

**TAs:** Rebecca Hansford

## Format

These sessions will be a combination of lecture, interactive discussion and small break out group discussion

Mondays – 9 to 10:30 Carruther’s Hall Rm 102

Wednesdays - Come for 9 to 10:20, **or** for 10:30 to 11:50 (one or the other). This will make for a smaller and more interactive session on Wednesday in Carruther’s Hall Rm 102

## TA Office Hours

TA office hours will be scheduled prior to the due dates for assignments and exams.

## Readings

Readings will come from journal articles and the following epidemiologic texts:

Szklo and Nieto, Epidemiology: Beyond the Basics

Armstrong, White and Saracci, Principles of Exposure Measurement in Epidemiology.

Rothman, et al. Modern Epidemiology (ebook at Queen’s)

Kelsey, Methods in Observational Epidemiology

The readings will be available on the class website. No text is required for this course. However, you may find it useful to purchase a text that complements the material covered in this course such as Szklo, Epidemiology beyond the Basics.

## Evaluation

<u>Project</u>	<u>Value</u>	<u>Assigned</u>	<u>Due Date</u>
Assignment #1	15%	Jan 25	Feb 3
Assignment #2	15%	Feb 13	Feb 28
Midterm Exam	30%	Mar 15	
Assignment #3	10%	Mar 20	Mar 28
Final paper - Research question	5%	Mar 22	Apr 4
Research Methods	25%	Mar 22	Apr 18

## Expectations of students

- 1) Read the assigned readings prior to class
- 2) Take an active part in class discussions
- 3) Hand in assignments on the due date
- 4) Demonstrate independent work
- 5) Academic Integrity

## Schedule

<b>Introduction</b>	
1. Introduction - Intermediate endpoints, Conceptual models, Confounding, Mediation, Effect modification/interaction	Jan 9
<b>Study Design</b>	
2. Cohort Studies	Jan 11
3. Cross-sectional studies	Jan 16
4. Case-control and nested case-control studies	Jan 18
5. Alternative Designs (Case-crossover, Quasi-experimental, Phase IV trials)	Jan 23
6. Selection and information Bias	Jan 25
7. Randomized Controlled Trials / Intervention Studies <b>(Asynchronous)</b>	Jan 30
8. Ethical issues in epidemiologic research <b>(Rebecca)</b>	Feb 1
9. Ecologic Studies	Feb 6
<b>Exposure Assessment, reliability and validity</b>	
10. Framework for exposure assessment	Feb 8
11. Measurement Error, reliability and validity, effect of misclassification	Feb 13
<b>Study Population, Confounding and Interaction</b>	
12. Selection of study populations and planning sample size, minimal detectable	Feb 15
<b>Reading week 20 and 22</b>	
13. Subject selection, sampling, and recruitment	Feb 27
<b>Epidemiologic issues in analysis and interpretation</b>	
14. Confounding	Mar 1
15. Interaction	Mar 6
16. Mediation	Mar 8
<b>Midterm</b>	
17. Exam review	Mar 13
18. Exam	Mar 15
<i>Exam date will be confirmed after determining schedule in other courses</i>	
19. Population Attributable Risk	Mar 20
<b>Epidemiologic issues in analysis and interpretation ... continued</b>	
20. Analysis and interpretation of case-control data, including modelling	Mar 22
21. Analysis and interpretation of cohort data, including modelling strategies	Mar 27
<b>Knowledge Synthesis, Risk Communication, Ethics, Application</b>	
22. Application of study design material	Mar 29
23. Meta-analysis	Apr 3
24. Final paper discussion	Apr 5