

**POPM*3240 - Epidemiology
Fall 2013
Department of Population Medicine**

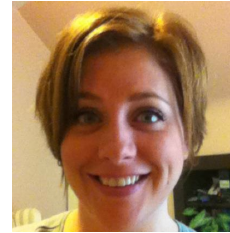
Course Coordinators/Instructors:



Warren Dodd



Nathan Lachowsky

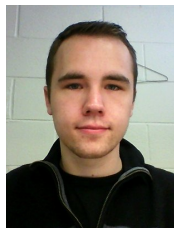


Dr. A. Jones-Bitton

Course Graduate Teaching Assistants:



Kate Bishop-Williams



MacKenzie Slifierz



Melissa Cummings

Contact Information:

Email: teachepi@uoguelph.ca

Twitter: @POPM3240 (if you use Twitter, please follow us!)

Office Hours (in Stewart Building, OVC – www.uoguelph.ca/campus/map/stewart/):

Monday	2:30pm – 4:00pm	MacKenzie Slifierz (Room 2527)
Tuesday	11:00am – 12:30pm	Nathan Lachowsky (Room 2527)
	1:30pm – 3:00pm	Kate Bishop-Williams (Room 2527)
Wednesday	10:30am – 12:00pm	Warren Dodd (Room 2527)
Thursday	3:00pm – 4:30pm	Dr. A. Jones-Bitton (starting Nov 14 th , Room 2525)

Class Schedule: Mondays, Wednesdays and Fridays, 1:30 to 2:20pm
Rozanski Hall, Room 101

Calendar Description:

This course presents the basic concepts of health and disease in populations. Methods used in descriptive and analytic epidemiological studies, including the design, analysis and interpretation of results for observational studies and field trials are presented.

Course Goals:

The goals of this course are to present the epidemiological principles and concepts required for the collection, analysis, and interpretation of health data at the population level.

Course Coordinators' Goals:

To help foster excitement and interest in epidemiology, in a classroom environment that is positive, engaging and intellectually challenging.

Course Objectives:

At the end of this course, the learner should be able to:

1. Define and correctly use the vocabulary of epidemiology.
2. Explain and give examples of factors that influence the occurrence of disease in populations, and be able, when appropriate, to quantify their effects and understand host-environment-time interrelationships.
3. Calculate, interpret and explain measures of disease frequency and cite their strengths and limitations.
4. Describe how to select samples from populations for surveys and observational studies.
5. Discuss disease causation, statistical associations and causal inference.
6. Discuss the use of screening tests and demonstrate the ability to conduct appropriate analyses. Identify the criteria used to evaluate tests and demonstrate thorough understanding of epidemiological sensitivity, specificity, predictive values and agreement.
7. Identify, define and calculate the common measures of association used in epidemiological research (risk difference, attributable risk exposed, population attributable risk, relative risk, odds ratios).
8. Discuss the design, methodology and strengths/limitations of each of the observational study types, identify their associated measures of risk, and conduct and interpret the appropriate analyses.
9. Discuss the design, methodology and strengths/limitations of epidemiological experimental studies, and be able to conduct the analysis and interpret the results.
10. Identify, demonstrate understanding of, and discuss the potential effects of common biases observed in epidemiological research, including various selection biases, misclassification and confounding.
11. Identify the criteria for establishing causality, explain how they are applied to epidemiological research, and rank common study designs by their ability to establish causality.
12. Demonstrate understanding of benefit/cost analysis as it is used in health economics.
13. Discuss, from an epidemiological perspective, the role and application of measures used in disease control.
14. Critically assess and appraise peer-reviewed epidemiologic literature in terms of study design, sampling and research methods
15. Demonstrate an understanding of the application of epidemiology to current public health issues and health research

Academic Misconduct:

The university has a policy on academic misconduct that we support and will absolutely enforce.

The University of Guelph is committed to upholding the highest standards of academic integrity and it is the responsibility of all members of the University community – faculty, staff, and students – to be aware of what constitutes academic misconduct and to do as much as possible to prevent academic offences from occurring. University of Guelph students have the responsibility of abiding by the University's policy on academic misconduct regardless of their location of study; faculty, staff and students have the responsibility of supporting an environment that discourages misconduct. Students need to remain aware that instructors have access to and the right to use electronic and other means of detection.

Please note: Whether or not a student intended to commit academic misconduct is not relevant for a finding of guilt. Hurried or careless submission of assignments does not excuse students from responsibility for verifying the academic integrity of their work before submitting it. Students who are in any doubt as to whether an action on their part could be construed as an academic offence should consult with a faculty member or faculty advisor.

The Academic Misconduct Policy is detailed in the Undergraduate Calendar:
<http://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-amisconduct.shtml>

Students with disabilities:

If you suspect you may have a disability that will affect your learning in this course, you are strongly encouraged to consult the Centre for Students with Disabilities (CSD) (<http://www.uoguelph.ca/csd/>). Students who require academic accommodation due to a disability must first contact the CSD. The Centre will review the student's documentation concerning the disability and assist the student in making the appropriate arrangements with the instructors.

Course i-Clickers (required):

i-Clickers will be used in this course for grading purposes. One of the following options must be used:

- **Register** an i-Clicker device that you already own
- Purchase one at the University Bookstore (\$49.95 + tax)
- Used i-Clickers may also be available on www.thecannon.ca or at the Co-op Bookstore (www.guelphcampus.coop)

All students must register their i-Clicker here at the beginning of the semester:
<https://www.uoguelph.ca/courselink/widgets/clickers/>

Ensure to check the batteries in your i-Clicker to make sure they are charged!

Course Textbook (strongly recommended):

Epidemiology 4th edition: Gordis L. W.B. Saunders Company, Philadelphia: 2008.

- Available in University Bookstore (\$76.25 + tax). Note: Purchase also allows online access & interactive extras.
- Also on Reserve in University of Guelph library

Other Recommended References (on reserve in University Library):

Medical Epidemiology, 4th edition; Greenberg RS, Daniels SR, Flanders WD, Eley JW, Boring JR. Lange Medical Books/McGraw-Hill, New York, NY: 2005

Veterinary Epidemiology: Principles and Methods: Martin SW, Meek AH, Willeberg P. Iowa State University Press, Ames, IW: 1987

Veterinary Epidemiological Research: Dohoo IR, Martin SW, Stryhn H: AVC Inc. Charlottetown, PEI: 2003

Population Health: Concepts and Methods, 2nd edition, by Young, TK. (Oxford University Press, New York, NY: 2005).

A Dictionary of Epidemiology, 4th edition; Last JM editor. (Oxford University Press New York, NY: 2001).

Other Suggested References (for the really keen):

Methods in Epidemiologic Research, 1st edition: Dohoo I, Martin W, Stryhn H. VER, Charlottetown, PEI: 2012

Critical Appraisal of Epidemiological Studies and Clinical Trials, by Elwood M. (Oxford University Press, New York, NY: 2002)

Epidemiology - an introductory text, 2nd edition, by Mausner JS & Kramer S. (WB Saunders: Toronto; 1985).

Epidemiology in Medicine, by Hennekens CH & Buring JE. (Little & Brown, Boston: 1987)

Clinical Epidemiology -The Essentials, 3rd edition, by Fletcher RH, Fletcher SW & Wagner EH (William and Wilkins, Baltimore, 1996)

Epidemiology Kept Simple: an Introduction to Classic and Modern Epidemiology, by Gerstman BB. (Wiley, New York, NY: 1998)

Epidemiology: an Introduction, by Rothman KJ. (Oxford University Press, New York, NY: 2002)

Clinical Epidemiology: a Basic Science for Clinical Medicine, 2nd edition, by Sackett DL, Haynes RB, Guyatt GH, and Tugwell P. (Little & Brown, Toronto: 1991)

PDQ Epidemiology, 2nd edition, by Streiner DL & Norman GR. (Mosby, Toronto: 1996)

Evaluation Methods:

	% of final grade	Date & Location
i-Clicker participation	5%	Throughout course
Midterm I	20%	Monday, October 7 th (in-class) Formula sheet provided, bring your own calculator, pencil and eraser
Midterm II	20%	Friday, November 1 st (in-class) Formula sheet provided, bring your own calculator, pencil and eraser
Group Assignment	15%	Final paper due November 18 th (submitted in-class by 1:30pm)
Final Examination	40%	Tuesday, December 10 th , 2013 11:30am – 1:30pm (Room TBA)

i-Clicker participation (5% of final grade)

A total of 5% of the final course grade is associated with in-class participation via the use of i-Clickers.

i-Clicker questions will be posed in most lectures, and grades will be assigned based upon participation, not correct responses. If you participate using your i-Clickers in at least 90% of the class sessions (i.e. if you happen to miss a class, for example for medical reasons), you will still receive full grades (the full 5%). Otherwise, the proportion of lectures where used your i-Clicker will be used to calculate your grade.

Academic Misconduct: Note that a student should have only one i-Clicker in use at any time. The use of multiple i-Clickers by one student in class will be considered Academic Misconduct and dealt with appropriately.

Midterm Exam 1 (20% of final grade)

This examination will be held in class and covers material from Session 1-12. Be sure to bring your own pen and calculator - sharing of calculators will NOT be permitted and calculators will NOT be provided to you. Also be sure to bring a pencil and eraser for use with the Scantron answer sheets. This exam will consist of multiple choice, short answer, and short calculation questions.

Midterm Exam 2 (20% of final grade)

This examination will be held in class and covers material mainly from Session 13 & 15-23, but previous material may also still be tested. Be sure to bring your own pen and calculator - sharing of calculators will NOT be permitted and calculators will NOT be provided to you. Also be sure to bring a pencil and eraser for use with the Scantron answer sheets. This exam will consist of multiple choice, short answer, and short calculation questions.

Group Assignment: Critical Appraisal of Research (15% of final grade)

The purpose of the group assignment is to apply the theories and concepts taught in class by co-writing a critical appraisal of a published peer-reviewed journal article with three other peers. A guideline for critical appraisal of research will be provided in-class on October 9th, 2013. Between October 9th and October 18th, students will be asked to read and review 10-12 abstracts from published articles reporting on observational studies from a range of public health issues. Students will then select the article they are most interested in reviewing via a survey on Courselink (by October 18th) and be assigned into a group of four by the instructors (on October 21st). Using the guidelines to critical appraisal of research provided by the instructors, each group of four students will be expected to prepare a written paper detailing their critique.

The paper shall include the following sections:

- Title Page (maximum 1 page)
 - Include an appropriate title to your critique (maximum 25 words)
 - Include each group member's name and student ID number
- Main body (maximum 5 pages)
- References (extra pages as necessary)
 - Students are permitted to use any standard referencing format/style (e.g. APA, ICMJE), but please be consistent in the application of your reference style choice

The format of the final paper shall be as follows:

- Double-spaced text
- 12-point Times New Roman font
- 1-inch margins
- Page numbers inserted in footer

October 9th – Introduction to Assignment: Objectives & Expectations

- Overview of guide for critical appraisal of research & grading rubric
- Peer-review journal article abstract will be available on Courselink for students to read

October 18th – Deadline for selection of preferred paper

- Students must complete the online survey on Courselink to indicate their preference of paper to be reviewed. If students do not complete the survey, they will be randomly assigned to a paper.

October 21st – Groups will be assigned on Courselink

- Students will be randomly assigned to a group of four students based on their preferred paper. This group will be created in Courselink with a special section in the Discussion Board and Locker for each group.

November 18th – Deadline for submission of final paper (in-class by 1:30pm)

- One hard copy of the group's final paper should be submitted by the beginning of class for grading.

November 28th (tentative) – Final graded papers returned via email

- Students from each group will be emailed a scanned copy of their final paper with comments from the instructors along with a completed grading rubric. Grades will be posted on Courselink. As the Instructors grade this assignment, there will be no re-grade requests permitted.

Final Exam (40% of final grade)

This examination will cover material spanning all sessions of the course.

Be sure to bring your own pen and calculator - sharing of calculators will NOT be permitted and calculators will NOT be provided to you. Also be sure to bring a pencil and eraser for use with the Scantron answer sheets. This exam will consist of multiple choice, short answer and short calculation questions.

Make-up Examinations:

Make-up Examinations will be permitted for documented medical, psychological and/or compassionate reasons, in accordance with the Undergraduate Calendar:

<http://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-ac.shtml>

Midterm Examination Re-Grading Policy:

The following policy is in place for ALL requests for remarking of midterm examinations (no exceptions):

A marking scheme will be made available on Courselink for all midterm exams. Consult the marking scheme provided and carefully review your answers and marks received.

All re-grade requests must be submitted through "Dropbox" on Courselink. Students will have one-week after the midterms are returned in-class to submit a re-grade request online. If you believe an error was made, upload a scanned copy of your midterm and write a short and specific statement indicating why you think there is an error (i.e. you must clearly justify the re-grading) in the "Comments" box of the Dropbox submission page on Courselink.

Note: all re-grading will be done by Warren Dodd or Nathan Lachowsky; materials will be re-graded in entirety and all appropriate adjustments made. Student will be notified through Courselink on the status of their re-grade request.

POPM*3240 – Epidemiology
Fall 2013 Lecture Schedule
(May be subject to change)

Session	Date	Topic & Notes	Lecturer
1	Sept 6	Introduction & Historical Approaches	Dodd & Lachowsky
2	Sept 9	Concepts of Health and Disease	Dodd
3	Sept 11	Disease Transmission & Epi Strategies	Dodd
4	Sept 13	Screening & Diagnostics Tests I	Lachowsky
5	Sept 16	Screening & Diagnostics Tests II	Lachowsky
6	Sept 18	Statistical Analysis of Epidemiologic Data	Dodd
7	Sept 20	Bias & Causation I	Lachowsky
8	Sept 23	Bias & Causation II	Lachowsky
9	Sept 25	Sampling I	Slifierz
10	Sept 27	Sampling II	Slifierz
11	Sept 30	Global Health & Epidemiology	Little & Dodd
12	Oct 2	Introduction to Observational Studies	Cummings
13	Oct 4	Infection Control in Hospitals	Beckner
14	Oct 7	MIDTERM 1 (IN-CLASS)	
15	Oct 9	Critical Appraisal of Research & Introduction of Group Assignment	Dodd & Lachowsky
16	Oct 11	Measures of Disease Frequency I	Lachowsky
--	Oct 14	<i>THANKSGIVING – NO CLASS*</i>	
17	Oct 16	Measures of Disease Frequency II	Lachowsky
18	Oct 18	Measures of Association	Dodd
19	Oct 21	Cross-Section Studies	Dodd
20	Oct 23	Case-Control Studies I	Bishop
21	Oct 25	Case-Control Studies II	Bishop
22	Oct 28	Cohort Studies I	Dodd
23	Oct 30	Cohort Studies II	Dodd
--	Oct 31	<i>40th Class Day – Last Day to drop F13 courses</i>	
24	Nov 1	MIDTERM 2 (IN-CLASS)	
25	Nov 4	Disease Surveillance	Lachowsky
26	Nov 6	Intervention Studies: RCTs I	Dr. Kelton
27	Nov 8	Intervention Studies: RCTs II	Dr. Kelton
28	Nov 11	Systematic Reviews & Meta-Analyses	Pham
29	Nov 13	Disease Modeling	Dr. Poljak
30	Nov 15	Qualitative Approaches & Research in Epi	Weijjs & Roche
--	Nov 18	GROUP ASSIGNMENT DUE (IN-CLASS @ 1:30pm)	
31	Nov 18	Epidemiology in Public Health	Dr. Victoria Edge
32	Nov 20	Outbreak Investigation I	Dr. Jones-Bitton
33	Nov 22	Outbreak Investigation II	Dr. Jones-Bitton
34	Nov 25	Health Economics I	Dr. Shock
35	Nov 27	Health Economics II	Dr. Shock
36	Nov 28	Review: Question & Answer Period	Instructors & TAs
--	Dec 10	FINAL EXAM 11:30am – 1:30 pm (Room TBA)	

Note: Thursday, November 28th is a University-scheduled make-up day for class missed on Oct. 14th (Thanksgiving).

Textbook Reading Assignments

A note regarding Textbook Readings: “need to know” topics (i.e. those that will be included in examinations) are those covered in class. The textbook readings are meant to help solidify your learning and enable application of that material. As such, they are strongly recommended. Topics that are covered in the textbook readings that were not touched upon in lecture will not be considered "testable" material.

Session	Date	Topic & Notes	Readings
1	Sept 6	Introduction & Historical Approaches	Chapter 1
2	Sept 9	Concepts of Health and Disease	Chapter 2
3	Sept 11	Disease Transmission & Epi Strategies	
4	Sept 13	Screening & Diagnostics Tests I	
5	Sept 16	Screening & Diagnostics Tests II	Chapter 5
6	Sept 18	Statistical Analysis of Epidemiologic Data	Review previous STAT*2040 notes
7	Sept 20	Bias & Causation I	Chapter 14 & 15 (up to page 256)
8	Sept 23	Bias & Causation II	
9	Sept 25	Sampling I	Chapter 8 (up to p.152)
10	Sept 27	Sampling II	
11	Sept 30	Global Health & Epidemiology	(None)
12	Oct 2	Introduction to Observational Studies	(None)
13	Oct 4	Infection Control in Hospitals	(None)
14	Oct 7	MIDTERM 1 (IN-CLASS)	
15	Oct 9	Critical Appraisal of Research & Introduction of Group Assignment	(None)
16	Oct 11	Measures of Disease Frequency I	(Chapter 3 (up to page 54))
17	Oct 16	Measures of Disease Frequency II	
18	Oct 18	Measures of Association	Chapters 11 & 12
19	Oct 21	Cross-Section Studies	p. 195 to 198
20	Oct 23	Case-Control Studies I	Chapter 10 (to end of p.190) & Chapter 13
21	Oct 25	Case-Control Studies II	
22	Oct 28	Cohort Studies I	Chapter 9
23	Oct 30	Cohort Studies II	
24	Nov 1	MIDTERM 2 (IN-CLASS)	
25	Nov 4	Disease Surveillance	(None)
26	Nov 6	Intervention Studies: RCTs I	Chapter 7
27	Nov 8	Intervention Studies: RCTs II	
28	Nov 11	Systematic Reviews & Meta-Analyses	(None)
29	Nov 13	Disease Modeling	(None)
30	Nov 15	Qualitative Approaches & Research in Epi	(None)
31	Nov 18	Epidemiology in Public Health	(None)
32	Nov 20	Outbreak Investigations I	Reingold paper (on Courselink)
33	Nov 22	Outbreak Investigations II	
34	Nov 25	Health Economics I	(None)
35	Nov 27	Health Economics II	
36	Nov 28	Review: Question & Answer Period	Review notes