

Department of Population Medicine

POPM*3240 - Epidemiology

Fall 2011

Course Coordinators/Instructors:

Dr. D. Kelton

Department of Population Medicine
Stewart Building, Room 2537

Email: **Use D2L - for questions related to course, please CC the TA's**

Dr. A. Jones (after Nov 9th)

Department of Population Medicine
Stewart Building, Room 2505A

Email: **Use D2L - for questions related to course, please CC the TA's**

Course Graduate Teaching Assistants:

Name: Tara Pearson

Department of Population Medicine
Email: **Use D2L**

Office hours: Tuesdays 1:00 to 2:30pm; Room 2527 - OVC Stewart Building

Name: Steven Roche

Department of Population Medicine
Email: **Use D2L**

Office hours: Mondays, 10:30 to noon; Room 2527 – OVC Stewart Building

Name: Cathy Bauman

Department of Population Medicine

Class Schedule: Mondays, Wednesdays and Fridays, 1:30-2:20pm

Class Location: Albert A. Thornbrough Building, Room 1200

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. A Guest Lecture Series, "The World of Epidemiology", will also aid in presentation of the career opportunities and projects available to epidemiologists.

Course Coordinator 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.

Academic Misconduct:

The university has a policy on academic misconduct that *I support and will enforce* (<http://www.uoquelf.ca/registrar/calendars/undergraduate/current/c08/c08-amisconduct.shtml>)

Academic misconduct takes many forms and includes, but is not limited to: copying, plagiarism, submitting a product prepared in whole or by another person, buying or selling academic work, and submitting the same piece of work twice for academic credit. Also note that aiding/abetting academic misconduct is itself academic misconduct.

For more details, you are strongly encouraged to consult the University's Academic Integrity tutorial, a short but highly useful online tutorial to help inform and clear common misconceptions regarding academic misconduct: <http://www.academicintegrity.uoquelf.ca/>

If you need further clarification, make an appointment with someone in the Learning Commons.

(A friendly warning from the Course Coordinator: I seem to have a knack for identifying academic misconduct and without a doubt, will enforce University policy.)

Students with special needs/learning disabilities:

If you have a documented disability and require accommodations to obtain equal access to this course, please meet with Dr. Kelton at the beginning of the course (or as soon as possible thereafter).

If you suspect you may have a learning disability, you are strongly encouraged to consult the Centre for Students with Disabilities (<http://www.slcs.uouelph.ca/csd/docforLD.cfm>).

Course Textbook: (Strongly recommended)

Epidemiology 4th edition: Gordis L. W.B. Saunders Company, Philadelphia: 2008. Available in University Bookstore (approx. \$60). Note: Purchase also allows online access & interactive extras.

Other Recommended References

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)

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:

	Percent of final grade	Date & Location
Midterm Exam 1	25	Wed. Oct. 12 th (in-class)
Midterm Exam 2	25	Fri. Nov. 4 th (in class)
Final exam	50	Sat. Dec 10th, 11:30am-1:30pm (Room TBA)

▪ **Midterm Exam 1 (25% of total grade)**

This examination will be held in class. Be sure to bring your own calculator - sharing of calculators will NOT be permitted and calculators will NOT be provided to you.

This exam will consist of multiple choice, (very) short answer, and short calculation questions.

▪ **Midterm Exam 2 (25% of total grade)**

This examination will be held in class. Be sure to bring your own calculator - sharing of calculators will NOT be permitted and calculators will NOT be provided to you.

This exam will consist of multiple choice, (very) short answer, and short calculation questions.

▪ **Final Exam (50% of total grade)**

This exam will consist of multiple choice, short answer and short calculation questions.

Be sure to bring your own calculator - sharing of calculators will NOT be permitted and calculators will NOT be provided to you.

Late Penalties:

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>

Re-Grading Policy:

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

A marking scheme will be made available for all evaluations. Consult the marking scheme provided and carefully review your answer and mark received.

If you believe an error was made, write a short and specific statement indicating why you think there is an error (i.e. you must clearly justify the re-grading).

Attach the statement to the original assignment/exam and re-submit this to the course coordinator for marking by delivering it to their mailbox before the assigned deadline (which will be posted on D2L). (Course coordinator: Dr. Kelton or Dr. Jones upon her return from parental leave).

Note: all re-grading will be done by Dr. Jones or Dr. Kelton; materials will be re-graded in entirety and all appropriate adjustments made.

POPM*3240 Lecture Schedule Fall 2011

(Classes are Monday, Wednesday & Friday from 1:30 to 2:20)

Session	Date	Topic & Notes	Lecturer
1	Sept. 9	Introduction to Course	D. Kelton
2	Sept. 12	Definition/Historical Approaches	D. Kelton
3	Sept. 14	Concepts of Health and Disease	D. Kelton
4	Sept. 16	Disease Transmission & Epidemiologic Strategies	D. Kelton
5	Sept. 19	<i>Guest Lecture Series - Epidemiologists in Public Health</i>	V. Edge
6	Sept. 21	Statistical Analysis of Epidemiological Data	D. Kelton
7	Sept. 23	Sampling I	TBA
8	Sept. 26	Sampling II	TBA
9	Sept. 28	Screening & Diagnostic Tests I	D. Kelton
10	Sept. 30	Screening & Diagnostic Tests II	D. Kelton
11	Oct. 3	Bias & Causation I	D. Kelton
12	Oct. 5	Bias & Causation II	D. Kelton
13	Oct. 7	Introduction to Observational Studies	D. Kelton
--	Oct. 10	THANKSGIVING – NO CLASS*	NA
14	Oct. 12	MIDTERM 1 (IN-CLASS)	NA
15	Oct. 14	Measures of Disease Frequency I	TBA
16	Oct. 17	Measures of Disease Frequency II	TBA
17	Oct. 19	<i>Guest Lecture Series – Epidemiology & Welfare</i>	J. Higginson
18	Oct. 21	Measures of Association	TBA
19	Oct. 24	Cross-Sectional Studies	D. Kelton
20	Oct. 26	Case-Control Studies I	D. Kelton
21	Oct. 28	Case-Control Studies II	D. Kelton
22	Oct. 31	Cohort Studies I	D. Kelton
23	Nov. 2	Cohort Studies II	D. Kelton
24	Nov. 4	MIDTERM 2 (IN-CLASS)	NA
25	Nov. 7	Intervention Studies: Randomized Controlled Trials I	D. Kelton
26	Nov. 9	Intervention Studies: Randomized Controlled Trials II	D. Kelton
27	Nov. 11	Study Quality – <i>CONSORT/ REFLECT</i>	J. Sargeant
28	Nov. 14	Health Economics I	A. Jones
29	Nov. 16	Health Economics II	A. Jones
30	Nov. 18	Disease Surveillance	A. Jones
31	Nov. 21	<i>Guest Lecture Series – Epidemiology & Public Policy</i>	D. Wolfe
32	Nov. 23	Outbreak Investigations I	A. Jones
33	Nov. 25	Outbreak Investigations II	A. Jones
34	Nov. 28	<i>Guest Lecture Series – One World, One Health</i>	K. Morrison
35	Nov. 30	Review Class	A. Jones
36	*Dec. 1*	Drop-In Q&A Session	A. Jones

Note: Thursday December 2nd is a University-scheduled make-up day for class missed on Oct. 10th (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	Reading
1	Sept. 9	Introduction to Course	Chapter 1
2	Sept. 12	Definition/Historical Approaches	Chapter 1
3	Sept. 14	Concepts of Health and Disease	Chapter 2
4	Sept. 16	Disease Transmission & Epidemiologic Strategies	Chapter 2
5	Sept. 19	<i>Guest Lecture Series - Epidemiologists in Public Health</i>	None
6	Sept. 21	Statistical Analysis of Epidemiological Data	Review Previous Stats Course Notes
7	Sept. 23	Sampling I	Chapter 8
8	Sept. 26	Sampling II	Chapter 8
9	Sept. 28	Screening & Diagnostic Tests I	Chapter 5
10	Sept. 30	Screening & Diagnostic Tests II	Chapter 5
11	Oct. 3	Bias & Causation I	Chapters 14 & 15
12	Oct. 5	Bias & Causation II	Chapters 14 & 15
13	Oct. 7	Introduction to Observational Studies	None
--	Oct. 10	THANKSGIVING – NO CLASS*	None
14	Oct. 12	MIDTERM 1 (IN-CLASS)	None
15	Oct. 14	Measures of Disease Frequency I	Chapter 3
16	Oct. 17	Measures of Disease Frequency II	Chapter 3
17	Oct. 19	<i>Guest Lecture Series – Epidemiology & Welfare</i>	None
18	Oct. 21	Measures of Association	Chapters 11 & 12
19	Oct. 24	Cross-Sectional Studies	Chapter 10
20	Oct. 26	Case-Control Studies I	Chapter 10
21	Oct. 28	Case-Control Studies II	Chapter 10
22	Oct. 31	Cohort Studies I	Chapter 9
23	Nov. 2	Cohort Studies II	Chapter 9
24	Nov. 4	MIDTERM 2 (IN-CLASS)	None
25	Nov. 7	Intervention Studies: Randomized Controlled Trials I	Chapter 7
26	Nov. 9	Intervention Studies: Randomized Controlled Trials II	Chapter 7
27	Nov. 11	Study Quality – <i>CONSORT/ REFLECT</i>	None
28	Nov. 14	Health Economics I	None
29	Nov. 16	Health Economics II	None
30	Nov. 18	Disease Surveillance	Chapter 3
31	Nov. 21	<i>Guest Lecture Series – Epidemiology & Public Policy</i>	None
32	Nov. 23	Outbreak Investigations I	Reingold Paper (posted on D2L)
33	Nov. 25	Outbreak Investigations II	Reingold Paper (posted on D2L)
34	Nov. 28	<i>Guest Lecture Series – One World, One Health</i>	None
35	Nov. 30	Review Class	Review Notes Prior to Class
36	*Dec. 1*	Drop-In Q&A Session	Review Notes Prior to Attending