Department of Population Medicine
POPM*6200: Epidemiology I
Fall 2017

Course Coordinator / Instructor:

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Weekly Review Labs: Weekly labs are held to review material, practice assignments, work through problem sets, have questions answered, etc. Most labs are optional but strongly recommended; two labs are mandatory for the purpose of quizzes (see Evaluation and Schedule). Labs are held on Mondays from 8:30am to 9:50am in Room 2500, starting on September 25th.

Sessions

Mondays and Wednesdays from 10:00am to 11:30am. Pathobiology Room 1810.

Calendar Description

This course covers concepts, principles and methods of basic and applied epidemiology, including the following topics: sampling, measuring disease frequency, clinical epidemiology, descriptive epidemiology, causal reasoning and design, interpretation and critical appraisal of surveys, observational studies, field trials and critical appraisal. [0.5 credits]
Course Objectives

The overall objective of this course is to provide students with a basic knowledge of a wide range of epidemiological concepts and methods. The role of epidemiology as a basic discipline for population research and disease control activities in both animals and humans will be stressed. Areas covered include: concepts of causation, measures of disease frequency, measures of association, sampling methods, selection and interpretation of diagnostic tests, design features for observational studies and field trials, and critical appraisal of scientific literature.

By the end of the course, students are expected to be able to:

1. Explain epidemiology, and factors that contribute to disease transmission in populations;
2. Calculate and explain diagnostic and screening test characteristics, including sensitivity, specificity, and predictive values, at both the individual and herd/group levels;
3. Analyze quantitative data to calculate and explain common measures of disease frequency, measures of association, and measures of effect for factor-outcome relationships;
4. Apply several models of causation to assess the potential causal effect of a factor on an outcome;
5. Design an observational study to answer a given research question, including: the creation of a causal diagram, the selection and justification of study design, sampling strategy and sample size, and outline a data analysis plan;
6. Design an experimental study to answer a given research question, including the creation of a causal diagram, the selection and justification of study design, sampling strategy and sample size, and outline a data analysis plan;
7. Critically appraise epidemiological literature to assess strengths and weaknesses of studies and the validity of their findings;
8. Use and explain appropriate epidemiological terminology.

Teaching/Learning Strategy

This course will employ both traditional lectures and “flipped classroom” techniques. For the latter, completion of assigned pre-class preparation will be essential to student learning. With both strategies, cooperative learning and group discussion will be emphasized. Readings from the required textbook and journal articles will often be assigned, and students will be expected to have read them and be prepared to discuss them in the following class.

Students will be introduced to a variety of software packages used for epidemiological research including STATA, EpiInfo, and OpenEpi. These packages will be available through the OVC Network and/or the Internet. Students will be expected to use and/or be able to interpret output from these software packages for assignments and examinations.

Practice assignments with answer keys will be provided regularly throughout the course. Students are expected to complete and review these assignments on their own. The teaching assistants will review assignments during weekly labs and/or office hours to assist with working through any difficulties.

A note regarding Class Participation: Active student participation is an important part of the pedagogy for this class and will help to solidify course material (read: decrease time required for your studying later on!). In-class participation includes asking questions, responding to questions asked by the instructor(s) and other students, and being actively involved in the in-class and small group review exercises.

Note: You may find it helpful to bring a calculator to each class.
Required Course Text

The following textbooks are available for purchase in the University Bookstore; copies are also on reserve in the University Library. Students can choose their preferred book.

Veterinary Epidemiologic Research ("VER"), 2nd edition, by Dohoo IR, Martin SW and Stryhn H. AVC. Inc., 2009

Methods of Epidemiologic Research ("MER"), by Dohoo IR, Martin SW and Stryhn H. AVC. Inc., 2012
  • This has almost exactly the same text as VER above, but uses human health examples

Other Suggested References (on Reserve in University Library)


Course Presentations, Digital Audio Recordings, Assignments and Answer Keys

PowerPoint presentations (for traditional lectures) and PowerPoint slides with audio voiceover or MP4 video files (for flipped classes) will be made available through the course site accessed through CourseLink (https://courselink.uoguelph.ca/shared/login/login.html) before class sessions.

Optional and required course assignments and answer keys will also be accessible from this site.

Students are welcome to make their own audio recordings of the lectures with permission of the presenter (whether instructor, classmate or guest lecturer).

All materials are for personal use only, and not to be re-broadcast publicly, posted on other online sites, or stored on other online forums without the written permission of the course coordinators and instructors.
Evaluation

Quiz 1 (~10 minutes)  5%
Midterm Exam (2-hour)  30%
Quiz 2 (~10 minutes)  5%
Final Exam (3-hour)  40%
Group Assignment  20%

Examinations:

The midterm and final exams will be open-book exams, meaning you may use your notes and textbooks during the exam. **No computers or other digital devices will be allowed during the midterm or final exams.** If you keep your notes on a computer, and want them for the exams, be sure to bring hard copies with you. The midterm exam covers material from Sessions 1-9, inclusive. The final exam is cumulative, and may cover material from the whole course.

Quizzes:

Two, short (~10 minute) closed-book quizzes will be held, during lab (see Schedule), to examine very basic epidemiological concepts. Quiz #1 will cover Sessions 1-6, and Quiz #2 will cover Sessions 7-15.

Group Assignment:

The group assignment will be take-home, and you will work with 3 class partners. The assignment is to be done independently (you may not consult anyone other than your partners).

Further details regarding the examinations, quizzes, and group assignment will be given in class.

If you cannot meet a course requirement

If you find yourself unable to meet an in-course requirement because of illness or compassionate reasons, please advise the course coordinator in writing, with your name, Student ID#, and e-mail contact. See the graduate calendar for information on regulations and procedures for Academic Consideration:

https://www.uoguelph.ca/registrar/calendars/graduate/current/genreg/sec_d0e2228.shtml

Drop date

The last date to drop one-semester courses, without academic penalty, is November 3, 2017. Refer to the Graduate Calendar for the complete schedule of dates:

https://www.uoguelph.ca/registrar/calendars/graduate/current/sched/sched-dates-f10.shtml

E-mail communication

As per university regulations, all students are required to check their University of Guelph <uoguelph.ca> e-mail account regularly. E-mail is the official route of communication between the University and its students.

Students with Special Needs/Learning Disabilities

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

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. The Academic Misconduct Policy is detailed in the Graduate Calendar: [https://www.uoguelph.ca/registrar/calendars/graduate/2015-2016/genreg/sec_d0e2716.shtml](https://www.uoguelph.ca/registrar/calendars/graduate/2015-2016/genreg/sec_d0e2716.shtml)

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.uoguelph.ca/](http://www.academicintegrity.uoguelph.ca/)

Resources

The Graduate Calendar is the source of information about the University of Guelph’s procedures, policies and regulations that apply to graduate programs: [http://www.uoguelph.ca/registrar/calendars/graduate/current/](http://www.uoguelph.ca/registrar/calendars/graduate/current/)

Accessing the OVC Network and Software:

A. If you are registered in the course and an OVC student, you do not have to do any additional work to access the OVC network.

B. If you are a registered student, but not an OVC student, follow these instructions from OVC ITS:

- Before attempting to use a computer in OVC, go to [https://www.uoguelph.ca/ccs/apps/password/change/](https://www.uoguelph.ca/ccs/apps/password/change/) and change your (e-mail) password. This changes your OVC password at the same time. If you do not actually want to change your e-mail password at this time, then just re-enter the old one.
- This can be done from any computer, but if you forget to do so before arriving at OVC, you will need to ask someone to log in for you and do the above before you can use OVC computers.

C. If you are not an OVC student and you have not yet registered for the course, please send OVC ITS your email address, full name, and student number to arrange for access to the OVC network.

Once you are on the system, you may access STATA by using the following pathway from the start menu:

All Programs → OVC Menu → Statistics → Stata,
Or
Computer → V: drive → Applications → Stata

Please note that you can order your own personal copy of STATA via University of Guelph Central Computing Services ([https://www.uoguelph.ca/ccs/](https://www.uoguelph.ca/ccs/)), or from STATA directly ([www.stata.com/order/new/edu/gradplans/student-pricing/](http://www.stata.com/order/new/edu/gradplans/student-pricing/)).

If you wish to access STATA remotely, please contact OVC ITS staff for assistance.
# Session Schedule – Fall 2017 (may be subject to change)

**PAHL: Pathobiology Building**

<table>
<thead>
<tr>
<th>Session</th>
<th>Date</th>
<th>Room</th>
<th>Instructor</th>
<th>Subject</th>
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<tr>
<td>1</td>
<td>** Sept. 11</td>
<td>1810 PAHL</td>
<td>Jones-Bitton</td>
<td>** Introduction to Graduate School &amp; Epidemiology</td>
</tr>
<tr>
<td>2</td>
<td>** Sept. 13</td>
<td>1810 PAHL</td>
<td>Jones-Bitton</td>
<td>** Foundational Concepts Epidemiology &amp; Disease Transmission</td>
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<td>Sept. 18</td>
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<td>Jones-Bitton</td>
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<td>** Standardization</td>
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<td>** Causation</td>
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<td>Oct. 2</td>
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<td>Jones-Bitton</td>
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<td>** QUIZ #1, at start of Lab (8:30am, Room 2500)**</td>
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<td>Oct. 4</td>
<td>1810 PAHL</td>
<td>Jones-Bitton</td>
<td>Screening and Diagnostic Tests</td>
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<td>** THANKSGIVING – NO CLASS **</td>
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<td>9</td>
<td>Oct. 11</td>
<td>1810 PAHL</td>
<td>Jones-Bitton</td>
<td>Screening and Diagnostic Tests</td>
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<td>10</td>
<td>Oct. 16</td>
<td>1810 PAHL</td>
<td>Jones-Bitton</td>
<td>Disease Detection in Herds / Groups</td>
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<td>MIDTERM EXAM (TBA)</td>
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<td>** Measures of Association &amp; Effect</td>
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<td>** Measures of Association &amp; Effect</td>
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<td>18</td>
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<td>Winder</td>
<td>** Controlled Trials</td>
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<td>** FRIDAY Dec. 1†</td>
<td>1810 PAHL</td>
<td>Jones-Bitton</td>
<td>** Critical Appraisal</td>
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<td>Dec. 5</td>
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<td>GROUP ASSIGNMENT DUE (23:59) – (Not a class)</td>
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<tr>
<td>--</td>
<td>Dec. 11</td>
<td>TBA</td>
<td>--</td>
<td>FINAL EXAM (time &amp; place TBA)</td>
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</tbody>
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** Flipped class – be sure to complete pre-class work
† Friday December 1st is a University-scheduled make-up day for class missed on Oct. 9th (Thanksgiving).