Department of Epidemiology and Biostatistics

Epidemiology 3200/9551A
Foundations of Epidemiology
Fall 2017

Class: Wednesdays 8:30 to 10:30 am
Fridays 9:30 to 10:30 am
Location: Kresge Building, K103
TA: TBD

Instructor: Dr. Kelly Anderson
Office Hours: After class or by appointment
E-mail: kelly.anderson@schulich.uwo.ca
Phone Extension: 81001

Course Information

Prerequisite Information

Undergraduate Students: One of Biology 2244A/B or Statistical Sciences 2244A/B, AND Epidemiology 2200A/B, with a grade of at least 75% in both courses.

Graduate Students: Enrollment in the graduate program in Epidemiology & Biostatistics, or permission of the course instructor.

Unless you have the requisites for this course or written special permission from the Undergraduate or Graduate Chair to enrol, you may be removed from this course and it will be deleted from your record. This decision may not be appealed. You will receive no adjustment to your fees if you are dropped from a course for failing to have the necessary prerequisites.

Course Syllabus

This course aims to provide a comprehensive introduction to fundamental concepts, principles, and terminology of epidemiologic research and study design. Topics include measures of disease frequency and effect, key study designs, causation, bias, and confounding.

In addition to lectures, students will participate in tutorial sessions (schedule below) where they will engage in case studies, group discussions, and problem sets.
Learning Outcomes:
By the end of this course, students will be able to:

- Use epidemiological concepts to describe the distribution and determinants of disease, with consideration of person, place, and time
- Apply measures of disease frequency to describe the extent of disease in a population;
- Compute estimates of disease effect to examine exposure-disease associations
- Distinguish between and understand the limitations of various research designs
- Address threats to the validity of study design, including bias, misclassification, confounding, and effect modification.

Weekly Topics:

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topic</th>
<th>Readings</th>
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<tbody>
<tr>
<td>1</td>
<td>September 8</td>
<td>What is Epidemiology?</td>
<td>R-1, KG-1</td>
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<td>2</td>
<td>September 12*</td>
<td>Populations &amp; Population Health</td>
<td>KG-2</td>
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<td></td>
<td>September 15</td>
<td>Overview of Study Design</td>
<td>KG-3</td>
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<td>3</td>
<td>September 20</td>
<td>Measures of Disease Frequency</td>
<td>R-4 (pg.38-56), KG-5</td>
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<td></td>
<td>September 22</td>
<td>Tutorial 1: Study Designs</td>
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<tr>
<td>4</td>
<td>September 27</td>
<td>Measures of Effect &amp; Population Impact</td>
<td>R-4 (pg.57-68), KG-6</td>
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<td></td>
<td>September 29</td>
<td>Tutorial 2: Measures of Disease Frequency &amp; Effect</td>
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<td>5</td>
<td>October 4</td>
<td>Causation</td>
<td>R-3, KG-7</td>
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<td></td>
<td>October 6</td>
<td>Bias &amp; Measurement Error I</td>
<td>R-7, KG-8</td>
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<td>October 11</td>
<td>Fall Study Break - NO CLASS</td>
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<td></td>
<td>October 13</td>
<td>Fall Study Break - NO CLASS</td>
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<td>6</td>
<td>October 18</td>
<td>Bias &amp; Measurement Error II</td>
<td>R-8, KG-9, KG-12</td>
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<td>October 19*</td>
<td>Tutorial 3: Bias &amp; Measurement Error</td>
<td>N/A</td>
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<td>7</td>
<td>October 25</td>
<td>Midterm Exam</td>
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<td>October 27</td>
<td>Confounding: Definition and Conceptual Issues</td>
<td>OWL</td>
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<td>8</td>
<td>November 1</td>
<td>Confounding: Adjustment and Control</td>
<td>R-10, KG-10</td>
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<td>November 3</td>
<td>Interaction &amp; Effect Measure Modification</td>
<td>R-11, KG-11</td>
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<td>9</td>
<td>November 8</td>
<td>Cohort Studies</td>
<td>R-5 (pg.69-87)</td>
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<td>November 10</td>
<td>Tutorial 4: Confounding &amp; Interaction</td>
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<td>10</td>
<td>November 15</td>
<td>Case-Control Studies</td>
<td>R-5 (pg.87-109)</td>
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<td>November 17</td>
<td>Tutorial 5: Cohort &amp; Case-Control Studies</td>
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<td>11</td>
<td>November 22</td>
<td>Cross-Sectional &amp; Ecologic Studies</td>
<td>OWL</td>
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<td>November 24</td>
<td>Tutorial 6: Cross-Sectional &amp; Ecological Studies</td>
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<td>12</td>
<td>November 29</td>
<td>Screening</td>
<td>R-13, KG-13</td>
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<td>December 1</td>
<td>Tutorial 7: Screening</td>
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<td>13</td>
<td>December 8</td>
<td>Final Exam Review Session</td>
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*R = Rothman Text; KG = Keyes & Galea Text; Additional Readings to be posted to OWL

*NOTE: The dates of these classes have been changed due to schedule conflicts – time remains the same, location TBD.
Course Materials

Required:

Optional:

All books are available in the campus bookstore, and will be placed on reserve in the library. Additional readings and other course materials will be posted to OWL. Students are expected to read all assigned chapters and articles before class.

Methods of Evaluation

A. Participation (10% of grade)
   - Students are expected to actively participate, either during in-class discussions or on the online discussion board on OWL.
   - A rubric for evaluating participation is available on the course OWL page.

B. Tutorial Assignments (30% of grade)
   - Each tutorial session will have an associated assignment that will be handed in at the beginning of class.
   - Each assignment will be worth 5%, and the top 6 of 7 marks will be used to compute the final grade.
   - Assignments will be posted to OWL at least one week before the deadline.
   - Tutorial Assignment Due Dates:
     1. September 22
     2. September 29
     3. October 19
     4. November 10
     5. November 17
     6. November 24
     7. December 1
C. Midterm Exam (20% of grade)
- The midterm exam will consist of a combination of multiple choice and short answer questions, and will include material from lectures, readings, and tutorials for the first half of the term (weeks 1 to 6, inclusive).
- Date: October 25 in class

D. Final Exam (40% of grade)
- The final exam will consist of a combination of multiple choice and short answer questions, and will include material from all lectures, readings, and tutorials over the course of the semester. Although the exam will be cumulative, there will be a greater emphasis placed on material covered after the midterm.
- The exam will be scheduled by the registrar’s office during the final exam period.

Late Assignment Policy
Please negotiate an alternative deadline with the instructor in advance if you foresee difficulties meeting the assigned due dates.

Marking Reassessments
Should you have concerns about a mark you have received on an assignment, you are welcome to request a reassessment from the instructor. In order to request a reassessment, please write one paragraph explaining why you believe you deserve a different mark from the one that you received. This will be read in conjunction with your original submission. The instructor will reassess your assignment based on this information. Requests for changes in marking made in any other manner will not be considered.

Policy on Accommodation for Medical and Non-Medical Absences

For assignments worth 10% or more, refer to Western University’s Policy on Accommodation for Medical Illness: https://studentservices.uwo.ca/secure/index.cfm.

All non-medical absences must be approved in advance. In the case of an unexpected absence on compassionate grounds, documentation may be requested. If documentation is required by the instructor for either medical or non-medical academic accommodation, then such documentation must be submitted by the student directly to the appropriate Faculty Dean’s office and not to the instructor. It will be the Dean`s office that will determine if accommodation is warranted.
Statement on Academic Offences

Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence:

Undergraduate:
https://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf

Graduate:
https://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_grad.pdf

Support Services

As part of a successful student experience at Western, we encourage students to make their health and wellness a priority. Western provides several on campus health-related services to help you achieve optimum health and engage in healthy living while pursuing your degree. For example, to support physical activity, all students, as part of their registration, receive membership in Western’s Campus Recreation Centre. Numerous cultural events are offered throughout the year. Please check out the Faculty of Music web page http://www.music.uwo.ca/, and our own McIntosh Gallery http://www.mcintoshgallery.ca/. Information regarding health- and wellness-related services available to students may be found at http://www.health.uwo.ca/

Students seeking help regarding mental health concerns are advised to speak to someone they feel comfortable confiding in, such as their faculty supervisor, their program director (graduate or undergraduate chair), or other relevant administrators in their unit. Campus mental health resources may be found at http://www.health.uwo.ca/mental_health/resources.html

To help you learn more about mental health, Western has developed an interactive mental health learning module, found here: http://www.health.uwo.ca/mental_health/module.html. This module is 30 minutes in length and provides participants with a basic understanding of mental health issues and of available campus and community resources. Topics include stress, anxiety, depression, suicide and eating disorders. After successful completion of the module, participants receive a certificate confirming their participation.
Department & Faculty Offices

The Epidemiology & Biostatistics main office is located in K201 in the Kresge Building on main campus.

For undergraduate academic counseling assistance, students will need to speak with the Bachelor of Medical Sciences Office: http://www.schulich.uwo.ca/bmsc/general-counselling.

Technology Requirements

You are responsible for all required course materials and announcements posted to the course’s OWL website. Please ensure after the first class that when you log in you are able to access the course site. A copy of the course outline will be available on both OWL and the departmental website.

The course OWL site will have an active discussion page that will be moderated by the TAs and course instructor. Please post all questions and inquiries to OWL to ensure that others have the opportunity to benefit from responses. Active and meaningful participation in the online discussion will be counted towards your participation grade.