Department of Epidemiology and Biostatistics

Biostatistics 9651U
Multi-level Modeling

June-July 2018

**Time:** Tuesday and Thursday 9:30-12:30

**Location:** K116

**Lab Time:** Tuesday and Thursday 11:30-12:30 when necessary

**Lab Location:** K7

**Instructor:** Yun-Hee Choi

**Office Hours:** By appointment

**E-mail:** ychoi97@uwo.ca

**Phone Extension:** 86256

**Course Information**

Unless you have either the requisites for this course or written special permission from the Graduate Chair to enroll in it, 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 in the event that you are dropped from a course for failing to have the necessary prerequisites.

**Course Syllabus**

This course covers statistical methods for drawing inferences from multi-level data, including longitudinal data from cohort studies and clinical trials, as well as multilevel data in social epidemiology. Topics include graphical exploration of data, and the use of linear and generalized linear regression models for correlated outcome data. Both marginal and random-effects models will be discussed. The course will have an applied emphasis using statistical software R.

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<th>Week</th>
<th>Date</th>
<th>Topic</th>
<th>Text Chapter</th>
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<tr>
<td>1</td>
<td>June 15</td>
<td>Introduction to linear models</td>
<td>Chapter 1</td>
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<td>Introduction to R</td>
<td>Appendix</td>
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<td>June 19</td>
<td>Introduction to multi-level data structure</td>
<td>Chapter 2</td>
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<td>June 21</td>
<td>Fitting two-level models in R</td>
<td>Chapter 3</td>
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<td>3</td>
<td>June 26</td>
<td>Models of three and more levels</td>
<td>Chapter 4</td>
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<td>June 28</td>
<td>Longitudinal data analysis</td>
<td>Chapter 5</td>
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4 July 3 Graphing multi-level data Chapter 6
Generalized linear models Chapter 7
July 5 Multi-level generalized linear models Chapter 8
5 July 12 Final Project due

Prerequisite: Epidemiology 9553B and Biostatistics 9521B

Course Materials

Methods of Evaluation

• 20% - Attendance
• 30% - Assignments
• 50% - Final project (Due on July 12, 2018)

Note that
1. This course is a Pass/Fail course.
2. To pass the course, students must obtain an overall mark of 75%.

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:
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 webpage [http://www.music.uwo.ca/](http://www.music.uwo.ca/), and our own McIntosh Gallery [http://www.mcintoshgallery.ca/](http://www.mcintoshgallery.ca/). Information regarding health- and wellness-related services available to students may be found at [http://www.health.uwo.ca/](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](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](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 counselling assistance, students will need to speak with the Bachelor of Medical Sciences Office: [http://www.schulich.uwo.ca/bmsc/general-counselling](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.