

Department of Epidemiology & Biostatistics

Epidemiology 9516T: Analysis of Population Health Data

Time: Wednesday, 8:30 am – 11:30 am

Location: Kresge Building K7

Instructor: Piotr Wilk

Office Hours: By appointment

E-mail: pwilk3@uwo.ca

Phone Extension: 89109

Course Information

This hands-on seminar will introduce and familiarise students with selected methodological and statistical techniques related to the analysis of population-based survey data. Students will learn how to prepare and clean survey data files and how to address some of the methodological challenges of working with these files. Students will further develop their analytical skills by conducting a linear and logistic regression analysis on selected health outcomes, using data from the 2015-2016 Canadian Community Health Survey. Working in small groups, students will complete all stages of the research project, from conducting a literature review to presenting the results. Finally, students will be introduced to multilevel modeling techniques for hierarchical data. All analyses will be conducted with SAS.

Course Syllabus and Learning Objectives

- *Week 1 (February 26): Exploratory analysis.* In this lecture, students will learn how to prepare and clean survey data files for further analysis and how to generate basic descriptive statistics. [Assignment 1]
- *Week 2 (March 4): Applied linear regression.* In this lecture, students will practice and further develop their skills in building and testing linear regression models and how to interpret and present the results. [Assignment 2]
- *Week 3 (March 11): Applied logistic regression.* In this lecture, students will practice and further develop their skills in modeling categorical dependent variables and how to interpret the results. [Assignment 3]
- *Week 4 (March 18): Selected methodological issues.* In this lecture, students will learn how to address some of the methodological challenges of working with survey data such as missing data and bootstrap weights.
- *Week 5 (March 25): Multilevel analysis.* In this lecture, students will be introduced to the basic concepts of multilevel modeling.
- *Week 6 (April 1): Independent work*

Course Materials

There are no mandatory textbooks for this course. The weekly readings will be provided by the instructor.

Prerequisite

There are no prerequisites for this course. However, students are expected to have basic knowledge of multivariate linear and logistic regression analyses. Prior knowledge and experience using the SAS System is beneficial but not a requirement for this course.

Recommended Books

- Young, T. Kue. 2004. *Population Health: Concepts and Methods*. Oxford University Press: Toronto, Ontario.
- Statistics Canada. 2019. *Canadian Community Health Survey, 2015-2016: Annual Component*. Ottawa: Statistics Canada.
- Allison Paul D. 2006. *Logistic Regression Using the SAS System: Theory and Practice*. SAS Institute: Cary, NC.
- Raudenbush, S.W. and A.S. Bryk. 2002. *Hierarchical Linear Models: Applications and Data Analysis Methods*. Sage Publications.

Methods of Evaluation*

- a) Exploratory analysis – 15% (Due March 2)
- b) Linear regression – 15% (Due March 9)
- c) Logistic regression – 15% (Due March 16)
- d) Group Project – 55%
 - Proposal – 15% (Due March 11)
 - Final Draft – 30% (Due TBD)
 - Peer Review – 10% (Due TBD)

* The evaluation components and the grade distribution may change, based on the class size.

If for any reason you are unable to meet one or more of the requirements, it is essential that you inform the instructor in advance or as soon as you are aware of the situation.

Important Policy Information

Policy on Accommodation for Medical and Non-Medical Absences

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 for either medical or non-medical academic accommodation, then such documentation must be submitted by the student to the instructor.

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:

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

All required papers may be subject to submission for textual similarity review to the commercial plagiarism detection software under license to the University for the detection of plagiarism. All papers submitted for such checking will be included as source documents in the reference database for the purpose of detecting plagiarism of papers subsequently submitted to the system. Use of the service is subject to the licensing agreement, currently between The University of Western Ontario and Turnitin.com (<http://www.turnitin.com>).

Computer-marked multiple-choice tests and/or exams may be subject to submission for similarity review by software that will check for unusual coincidences in answer patterns that may indicate cheating.

Policy on Recording Classes

Classes may not be audio-recorded without advance written permission from the instructor and other students, and may not be video-recorded. Permission will not be granted for classes involving unpublished materials from the instructor or others.

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/>

Registrarial Services: <http://www.registrar.uwo.ca>

USC Student Support Services: <http://westernusc.ca/services/>

Student Development Centre: <http://www.sdc.uwo.ca/>

SGPS Life & Community web page: https://grad.uwo.ca/life_community/self/index.html

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.

Students who are in emotional/mental distress should refer to Mental Health@Western <http://www.uwo.ca/uwocom/mentalhealth/> for a complete list of options about how to obtain help.

Student Accessibility Services

Western is committed to achieving barrier-free accessibility for all its members, including graduate students. As part of this commitment, Western provides a variety of services devoted to promoting, advocating, and accommodating persons with disabilities in their respective graduate program.

Graduate students with disabilities (for example, chronic illnesses, mental health conditions, mobility impairments) are encouraged to register with Student Accessibility Services, a confidential service designed to support graduate and undergraduate students through their academic program. With the appropriate documentation, the student will work with both SAS and their graduate programs (normally their Graduate Chair and/or Course instructor) to ensure that appropriate academic accommodations to program requirements are arranged. These accommodations include individual counselling, alternative formatted literature, accessible campus transportation, learning strategy instruction, writing exams and assistive technology instruction.

Department & Faculty Offices

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

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.

Cell Phone and Electronic Device Policy

The Schulich School of Medicine & Dentistry is committed to ensuring that testing and evaluation are undertaken fairly across all our departments and programs. For all tests and exams, it is the policy of the School and the Department of Epidemiology and Biostatistics that any electronic devices, i.e., cell phones, tablets, cameras, or iPod are strictly prohibited. These devices **MUST** be left either at home or with the student's bag/jacket at the front of the room and **MUST NOT** be at the test/exam desk or in the individual's pocket.

Any student found with one of these prohibited devices will receive a grade of zero on the test or exam. Non-programmable calculators are only allowed when indicated by the instructor. The Department of Epidemiology and Biostatistics is not responsible for stolen/lost or broken devices.