

## Department of Epidemiology and Biostatistics

### Epidemiology 9516S Analysis of Population Health Data Winter 2023

**Lecture/Lab:**

Monday, 2:00 pm – 5:00 pm  
PHFM 3015

**Instructor:** Piotr Wilk

**Office Hours:** By appointment

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**Teaching Assistant:** Jared Wootten

**Office Hours:** TBD

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### Course Description

This hands-on graduate course will introduce and familiarise students with selected theoretical, methodological, and statistical topics related to the epidemiological observational studies with a particular focus on analysis of general population survey data. In addition to weekly assignments, students will work in small groups to complete all stages of a research project, from formulating a research question to presenting the results. By the end of this course, students will be able to produce prevalence estimates and to assess the role of demographic, socio-economic, and behavioural determinants of major chronic conditions. In terms of analytical skills, students will learn how to prepare and clean secondary 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 regression analyses for continuous and categorical variables, using data from the 2015-2016 and 2017-2018 cycles of the Canadian Community Health Survey. All class examples and assignments will be conducted in SAS, accessible through myVLab. In addition to weekly lectures and labs, students will participate in group sessions to complete their assignments and research projects.

### Course Information

**Prerequisites:** Enrollment in this course is restricted to graduate students in the Department of Epidemiology and Biostatistics, as well as students who have obtained special permission to enroll in this course from the course instructor and the Graduate Chair (or equivalent) from the student's home program.

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.

## Course Learning Outcomes/Objectives

Upon successful completion of this course, students will be able to:

- formulate testable research questions
- prepare and clean survey data files for further analysis
- generate basic descriptive statistics
- build and test linear regression models
- build and test models for categorical variables
- address some of the methodological challenges of working with survey data
- interpret and present the results
- run statistical models using SAS software

## Course Materials

There are no mandatory textbooks for this course. The weekly mandatory and optional readings will be provided by the instructor on the course's OWL site.

## Methods of Evaluation

The evaluation components and the grade distribution may change, based on the class size; any deviations will be communicated. If for any reason students are unable to meet any of the course requirements, it is essential that they inform the instructor in advance or as soon as they are aware of the situation.

- 15% - Assignment 1: Exploratory data analysis (due January 20)
- 15% - Assignment 2: Linear regression (due January 27)
- 15% - Assignment 3: Logistic regression (due February 3)
- 10% - Research Project – Project outline (due January 20)
- 20% - Research Project – Presentation (due February 13)
- 10% - Research Project – Manuscript (due February 15)
- 10% - Research Project – Peer review (due February 17)
- 5% - Participation

## Course Timeline and Format

Week	Date	Lecture Topic	Readings
1	January 9	Formulation of research questions	See OWL
2	January 16	Preparation of analytical data files	See OWL
3	January 23	Applications of linear regression	See OWL
4	January 30	Applications of logistic regression	See OWL
5	February 6	Addressing selected methodological issues	See OWL
6	February 13	Project presentations	See OWL

## Western Academic Policies and Statements

### Absence from Course Commitments

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](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.

### Copyright and Audio/Video Recording Statement

Course material produced by faculty is copyrighted and to reproduce this material for any purposes other than your own educational use contravenes Canadian Copyright Laws. You must always ask permission to record another individual and you should never share or distribute recordings.

### 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/>.

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

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

Academic Support and Engagement: <http://academicsupport.uwo.ca/>

SGPS Life & Community web page: [https://grad.uwo.ca/life\\_community/self/index.html](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 Chair), or other relevant administrators in their unit. Health and Wellness-related information and services are available at <https://www.uwo.ca/health/>.

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

## Accessible Education Western (AEW)

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 strongly encouraged to register with Accessible Education Western (AEW), a confidential service designed to support graduate and undergraduate students through their academic program. With the appropriate documentation, the student will work with both AEW 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. More information and access to services is available on the AEW website: [http://academicsupport.uwo.ca/accessible\\_education/index.html](http://academicsupport.uwo.ca/accessible_education/index.html)

## Department & Faculty Offices

The Department of Epidemiology and Biostatistics is located on the third floor of the Western Centre for Public Health & Family Medicine (PHFM) on Western University's 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.