



Western

Health Sciences 2801a — Research Methods in Health Sciences

School of Health Studies, Faculty of Health Sciences

September to December 2018

This is a preliminary course outline. It may be necessary to revise parts of it before classes begin.

Instructor

Christopher Lee, PhD

cjlee@uwo.ca

Room 217, Labatt Health Sciences Building

Office Hours: TBD

Classes – 2 hours

Fridays, 10:30 to 12:20, Room TBD

Labs – 1 hour

Fridays, 9:30 to 10:20, Room TBD

Course Information

This course is an introduction to methods used in health sciences research. Although formulas are given and calculations are presented, the principal orientation of the course is conceptual rather than mathematical. Your grade in this course is based on two online quizzes and a final exam.

Course Materials

There is no textbook to be purchased for this course. A set of PDF readings is posted in OWL to accompany the classes. Each reading provides a short introduction to the topic and includes a series of cases that we will work through in class.

Evaluation

Your grade in this course is based on two online quizzes and a final exam. The first quiz is worth 30 percent of your course grade, the second quiz is worth 30 percent of your course grade, and the final exam is worth 40 percent of your course grade.

The quizzes are one-hour in length, and they are administered online using OWL. The quizzes are scheduled for **Friday October 5** and **Friday November 9**. There is no class nor lab on these two Fridays. Each quiz will be open for a 4-hour period (8:30 am to 12:30 pm). You can login to OWL at any time during this period to complete the quiz. The quizzes are open-book in the sense that you have access to your notes and the readings while completing a quiz. You are expected to complete the quizzes on your own, without collaboration with other students. The final exam will be scheduled during the April examination period. The final exam is not open-book.

If you are unable to complete a quiz during the scheduled time as a result of medical illness or non-medical reasons, you must consult an academic counsellor to obtain academic accommodation. Once academic accommodation is obtained, the percentage associated with the missed quiz will be evenly distributed between the other quiz and the final exam. For example, if you were unable to complete the first quiz because of illness, the second quiz would be worth 45 percent (i.e., 30% + 15%), and the final exam would be worth 55 percent (i.e., 40% + 15%).

If you miss the final exam due to medical illness or non-medical reasons, you must consult an academic counsellor to obtain academic accommodation to write a make-up exam.

Course Schedule

Week	Date	Lab Topic	Lecture Topic
1	Sep 7	No Lab	Course Overview
2	Sep 14	No Lab	Numbers, Measures, and Words (Reading A)
3	Sep 21	Exercises Reading A	Scores (Reading B)
4	Sep 28	Exercises Reading B	Internal Consistency (Reading C)
5	Oct 5	Online Quiz — covers Readings A & B. No Lab. No Lecture.	
	Oct 12	Fall Reading Week	
6	Oct 19	Quiz Follow-Up	Retest Consistency and Agreement (Reading D)
7	Oct 26	Exercises Readings C & D	Simple Regression (Reading E)
8	Nov 2	Exercises Reading E	Simple Regression (Reading E)
9	Nov 9	Online Quiz — covers Readings A to E. No Lab. No Lecture.	
10	Nov 16	Quiz Follow-Up	Repertory Grid (Reading F)
11	Nov 23	Exercises Reading F	Science (Reading G)
12	Nov 30	No Lab	Science (Reading G)
13	Dec 7	No Lab	Question & Answer Exam Preparation

Detailed List of Course Topics

Numbers, Measures, and Words

- number families, distinction between constructs and indicators, multiple indicator instruments, issues of representativeness and relevance, language ambiguity.

Scores

- variation (sum of squares, variance, standard deviation), covariation (sum of products, simple correlation), degrees of freedom, standardized scores.

Internal Consistency

- unsystematic error, item universe, alpha, standard error of measurement, confidence interval, Spearman-Brown formula.

Retest Consistency and Agreement

- systematic error, distinction between consistency and agreement, intraclass correlations, confidence intervals.

Simple Regression

- dependent variable, independent variable, scatterplot, slope, standardized slope, regression sum of squares, residual sum of squares, goodness of fit, standard error, confidence interval.

Repertory Grid

- personal constructs, repertory grid procedure, city block distances, simple cluster analysis.

Science

- Popper's falsification principle; Kuhn's conception of normal science, extraordinary science, paradigm, and scientific revolution; Cleland's two forms of scientific reasoning; Crease's characteristics of a beautiful experiment; null hypothesis significance testing, type one error, type two error, power.

Other Course Information

Prerequisite Checking

Unless you have either the requisites for this course or written special permission from your Dean to enrol 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.

Use of Electronic and Other Powered Devices

Lectures and Tutorials. A computer or tablet may be used during lectures and tutorials for scholastic purposes only. Audio or video recording of lectures or tutorials is not permitted without permission of the instructor.

Final Exam. During the final exam, you may use a standard electronic calculator that provides basic and scientific functions. No other electronic or powered devices are permitted during the final exam.

Scholastic Offences

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

www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf

Accommodation for Illness

www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_illness.pdf

The University recognizes that a student's ability to meet his/her academic responsibilities may, on occasion, be impaired by medical illness. Illness may be acute (short term), or it may be chronic (long term), or chronic with acute episodes. The University further recognizes that medical situations are deeply personal and respects the need for privacy and confidentiality in these matters. However, in order to ensure fairness and consistency for all students, academic accommodation for work representing 10% or more of the student's overall grade in the course shall be granted only in those cases where there is documentation indicating that the student was seriously affected by illness and could not reasonably be expected to meet his/her academic responsibilities.

A UWO Student Medical Certificate (SMC) is required where a student is seeking academic accommodation. This documentation should be obtained at the time of the initial consultation with the physician or walk-in clinic. An SMC can be downloaded under the Medical Documentation heading of the following website:

www.uwo.ca/univsec/pdf/academic_policies/appeals/medicalform.pdf

Documentation is required for non-medical absences where the course work missed is more than 10% of the overall grade. Students may contact their Faculty Academic Counselling Office for what documentation is needed.

Whenever possible, students who require academic accommodation should provide notification and documentation in advance of due dates, examinations, etc. Students must follow up with their professors and their Academic Counselling office in a timely manner. Documentation for any request for accommodation shall be submitted, as soon as possible, to the appropriate Academic Counselling Office of the student's Faculty of registration. Health Studies students should contact the School of Health Studies main office (222 HSB).

Support Services

There are various support services available on campus. These include services offered by the Student Development Centre, Student Health Services, Office of the Registrar, and Office of the Ombudsperson.

Student Development Centre

www.sdc.uwo.ca

Student Health Services

www.uwo.ca/health/services/students

Office of the Registrar

www.registrar.uwo.ca

Office of the Ombudsperson

www.uwo.ca/ombuds

Health and Wellness

www.health.uwo.ca

Health and wellness is a critical part of a successful undergraduate experience at Western, and there are many opportunities on campus to engage in healthy living while pursuing your degree. All students receive membership in Western's Campus Recreation Centre as part of their registration fees. In addition, numerous cultural events are offered on campus, including concerts in the Faculty of Music (www.music.uwo.ca) and art exhibits at the McIntosh Gallery (www.mcintoshgallery.ca).

University Policy on Grades for Undergraduate Students

www.uwo.ca/univsec/pdf/academic_policies/general/grades_undergrad.pdf

The following university-wide descriptors of the meaning of letter grades are part of your official transcript:

A+	90-100	One could scarcely expect better from a student at this level
A	80-89	Superior work that is clearly above average
B	70-79	Good work, meeting all requirements and eminently satisfactory
C	60-69	Competent work, meeting requirements
D	50-59	Fair work, minimally acceptable.
F	below 50	Fail

It is expected that the average grade in this course will fall between 70 and 79. In the event that the average grade falls outside this range, a constant may added (or subtracted) from each student's grade to align it with the policy on grades.

Code of Student Conduct

www.uwo.ca/univsec/pdf/board/code.pdf

Every student is expected to comply with the provisions of the Code of Student Conduct. Sanctions for non-compliance range from a warning or reprimand to expulsion from the University. It is the responsibility of every student to read the Code and familiarize him or herself with its contents.

English Proficiency for the Assignment of Grades

www.uwo.ca/univsec/pdf/academic_policies/exam/english.pdf

Each student granted admission to Western must be proficient in spoken and written English. Students must demonstrate the ability to write clearly and correctly. Work presented in English in any subject at any level, which shows a lack of proficiency in English and is, therefore, unacceptable for academic credit, will either be failed or, at the discretion of the instructor, returned to the student for revision to a literate level. To foster competence in the use of the English language within their own discipline, all instructors will take proficiency in English into account in the assignment of grades.