



Health Sciences 2801a — *Research Methods in Health Sciences*

School of Health Studies, Faculty of Health Sciences

September to December 2017

Instructor

Christopher Lee, PhD

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Room 217, Labatt Health Sciences Building

Office Hours: Wednesdays, 11:30 to 1:30

Classes – 2 hours

Fridays, 10:30 to 12:20, SSC 2050

Labs – 1 hour

Fridays, 9:30 to 10:20, SSC 2050

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.

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. Each quiz is worth 24 percent of your course grade, and the final exam is worth 52 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 20** and **Friday November 17**. There is no class nor lab on these two Fridays. Each quiz will be open for a 12-hour period (8:00 am to 8:00 pm). You can login to OWL at any time during this period to complete the quiz. The first quiz covers readings 1 to 3, and the second quiz covers readings 1 to 5. The final exam covers all of the readings. The quizzes are open-book in the sense

that you have access to your notes and the readings while completing a quiz. The final exam is *not* open-book. I strongly encourage you to prepare for the quizzes as you would an exam and to complete the quizzes on your own, without collaboration with other students.

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 36 percent (i.e., 24% + 12%), and the final exam would be worth 64 percent (i.e., 52% + 12%).

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.

Student Code of Conduct

The purpose of the Code of Student Conduct is to define the general standard of conduct expected of students registered at The University of Western Ontario, provide examples of behaviour that constitutes a breach of this standard of conduct, provide examples of sanctions that may be imposed, and set out the disciplinary procedures that the University will follow. For more information, visit <http://www.uwo.ca/univsec/pdf/board/code.pdf>.

English Proficiency for the Assignment of Grades

The University policy on English proficiency is available at http://www.uwo.ca/univsec/pdf/academic_policies/exam/english.pdf.

Accommodation for Medical Illness or Non-Medical Absences

<http://www.westerncalendar.uwo.ca/2017/pg117.html>

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: http://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).

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 following website:
http://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf

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.

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	http://www.sdc.uwo.ca/
Student Health Services	http://www.uwo.ca/health/services/students/index.html
Office of the Registrar	http://www.registrar.uwo.ca/
Office of the Ombudsperson	http://www.uwo.ca/ombuds/

Course Schedule

Week	Date	Lab	Lecture
1	Sep 8	No Lab	Course Overview
2	Sep 15	No Lab	Numbers and Words (Reading 1)
3	Sep 22	Exercises Reading 1	Scores (Reading 2)
4	Sep 29	Exercises Reading 2	Internal Consistency (Reading 3)
5	Oct 6	No Lab	Exercises Reading 3
	Oct 13	Fall Reading Week	
6	Oct 20	Online Quiz — Quiz covers readings 1 to 3. No Lab. No Lecture.	
7	Oct 27	Quiz Follow-Up	Consistency and Agreement (Reading 4)
8	Nov 3	Exercises Reading 4	Repertory Grid (Reading 5)
9	Nov 10	Exercises Reading 5	Science (Reading 6)
10	Nov 17	Online Quiz — Quiz covers readings 1 to 5. No Lab. No Lecture.	
11	Nov 24	Quiz Follow-Up	Science (Reading 6)
12	Dec 1	No Lab	Simple Experiment (Reading 7)
13	Dec 8	No Lab	Exercises Reading 7

Detailed List of Course Topics

Numbers and Words

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

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.

Consistency and Agreement

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

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.

Simple Experiment

- between-groups and repeated-measures designs, calculation of a t ratio and confidence interval, Cohen's d .