

THE UNIVERSITY OF WESTERN ONTARIO
LONDON CANADA

School of Health Studies

Health Sciences 3801B
Research Methods and Analysis in the Health Sciences

1.0 CALENDAR DESCRIPTION

An introduction to measurement and analysis in health sciences research, covering topics such as validity, reliability, standard errors, confidence intervals, tests of means, correlation, and linear regression.

Prerequisites: Health Sciences 2801a/b or equivalent

Antirequisites: All other University-level statistics courses at the 2000-level or above

Note regarding prerequisite checking

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

2.0 COURSE INFORMATION

Instructor: Dr. Andrew Johnson
Elborn College, Room 1004
ajohnson@uwo.ca

Office Hours: Tuesdays, 10:00am to 12:00pm (Elborn College, Room 1008)

Extra Office Hours:

Exam #1: Friday, February 5th, 9:30am to 11:15am

Exam #2: TBA

Course Website: <https://owl.uwo.ca>

Times and Location of Lectures:

Fridays 9:30am to 11:30am NS-145

3.1 TEXTBOOKS

There are no required textbooks for this course. Where appropriate, practice questions and data will be posted to the web.

3.2 CALCULATOR

You will need a calculator with a “stats mode” for this course. You should choose a calculator that is easy to use, rather than one that has a lot of functions not needed for this course. A calculator sufficient for this course should cost approximately \$15 to \$35. If you currently have a calculator, and are unsure if it is adequate, you may show it to me after a lecture, or during office hours. Bring your calculator to all lectures, labs, and tests. Some calculators are quite complex – it is a good idea to hang onto the instruction manual until you are sure that you know how to use it.

4.0 COURSE OBJECTIVES

In this course, you will be introduced to statistical analyses in the health sciences, with an emphasis on learning how the analyses are conducted by hand. By the end of the course, you will be comfortable with the theory and mechanics of calculating measures of central tendency and dispersion, standard scores, t-tests (both independent and dependent), bivariate correlation and regression, simple chi-square calculations for frequency distributions, and simple ANOVAs (both independent and dependent).

5.1 EVALUATION

Exam #1	2016.02.05	50%
Exam #2	TBA	50%

Exam #1: The first exam for this course will cover course material presented (either in class, or through OWL) between 2016.01.08 and 2016.01.29 (inclusive). The test will consist solely of multiple-choice questions, and will be closed-book (although you will be provided with a formula sheet during the exam). You will need a calculator for the exam. This exam will be held during class on February 5th, 2016. You will be notified via OWL as to where you will be writing the exam.

Exam #2: The second (and final) exam for this course will cover course material presented (either in class, or through WebCT) between 2016.02.12 and 2016.04.01. The test will consist solely of multiple-choice questions, and will be closed-book (although you will be provided with a formula sheet during the exam). You will need a calculator for the exam. This exam will be held during the final exam period in April. You will be notified via OWL as to when and where you will be writing the exam.

Important Note Regarding the Use of Electronic Devices During Examinations: You will need a calculator for both examinations, and there are no restrictions on the type of calculator that may be used. Unless you have medical accommodations that require you to do so, you may not use any of the following electronic devices during the examinations: cellphones, smart phones, audio players or recorders of any sort, video cameras, video games, DVD players, televisions, laptop/notebook/netbook computers, desktop computers, flashlights, laser pointers, or power tools of any sort.

5.2 EXAM DATES / LOCATIONS

	<u>Location</u>	<u>Date</u>	<u>Time</u>
Exam #1 (covers 2016.01.08 to 2016.01.29)	TBA	2016.02.05	9:30am to 11:15am (during class)
Exam #2 (covers 2016.02.12 to 2016.04.01)	TBA	TBA	TBA

5.3 MAKEUP EXAM DATES / LOCATIONS

You must have a valid medical or compassionate reason for missing a scheduled examination, and documentation for your absence must be filed with the main office of the School of Health Studies. See section 7.2 of this outline for information concerning acceptable documentation of illness. Retroactive exam accommodation (i.e., for exams that have been written) will not generally be granted.

	<u>Location</u>	<u>Date</u>	<u>Time</u>
Makeup for Exam #1	TBA	2016.02.12	9:30am to 11:30am
Makeup for Exam #2	TBA	2016.05.02	10:30am to 12:30pm

There is no second makeup examination for Exam #1. Students that are unable to write the makeup examination on TBA (for any reason) will have their final exam re-weighted to be worth 100% of their final grade.

6.0 LECTURE / LAB SCHEDULE

	Lecture Topics
2016.01.08	Describing Data
2016.01.15	Introduction to Hypothesis Testing
2016.01.22	Single Sample Inference
2016.01.29	Correlation & Regression
2016.02.05	Exam #1
2016.02.12	Analysis of Count Data I
2016.02.26	Analysis of Count Data II
2016.03.04	Two Sample Inference
2016.03.11	ANOVA, Independent Groups
2016.03.18	ANOVA, Dependent Groups
2016.03.25	<i>Good Friday (No Class)</i>
2016.04.01	Pairwise Comparisons

7.1 GENERAL COURSE NOTES

Student Code of Conduct

You are expected to comply with the Code of Student Conduct at all times within the classroom, and when dealing with members of the instructional team. The purpose of this Code 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>.

Course Website

This course is a totally “paperless” course, and as such the course website will be your sole source for lecture overheads, readings, and course information (including this course outline). Due to privacy regulations, grades will only be provided to you through OWL – I will not, under any circumstance, convey grades via email, or over the phone.

Online Discussion Forum

An online discussion forum has been set-up on OWL, and you are encouraged to use this resource to locate and set-up study groups, and to ask questions regarding course content and procedures.

Email

I am happy to answer your questions via email. You must, however, use your UWO email address for all correspondence regarding this course. Because the University ‘anti-spam’ programs often reject email from Gmail, Hotmail, Yahoo, and other public email addresses, there is no guarantee that I will receive your emails if you send them from a public email program – or from any off-campus server, when sending email using any method other than the university’s webmail system. That said, I will do my best to answer your emails promptly. Please limit your questions to administrative matters only – detailed questions on course content should be: (a) raised during (or immediately after) lectures, (b) asked during office hours, or (c) posted to the online discussion forum.

Lecture Attendance

You are expected to attend every class, as some material that is covered during lecture will not be in the course notes.

Eating and Drinking in Class

Out of consideration for your fellow students, please refrain from eating during class (lidded beverages are acceptable).

Grade Adjustments

Final grades in this course will be taken to the closest integer (i.e., I will “round off” decimals). Exam grades will be calculated out of 100% to one decimal place. I will not, under any circumstances, “bump up” your grade (i.e., to facilitate professional school applications etc.). This includes grades that end in a “9”. Along similar lines, I will not reweight examinations for reasons other than those outlined in section 5.3. In other words – I will not alter exam weights for evaluations that you have already written.

Use of Cellphones During Class

Please ensure that any cellphones, pagers, or other communication devices on your person are turned off, or have their ringers silenced (or turned to vibrate) during lectures and labs.

Use of Laptops During Class

If you plan to bring your laptop to class, please restrict your computer use to course-related activities, and refrain from using instant messaging clients, video games, or other software packages that might be distracting to students sitting near you.

Recording Lectures

You do not have my permission to make audio or video recordings of lectures – nor do you have my permission to edit, re-use, distribute, or re-broadcast any of the material posted to the course website.

Example Questions

Some of the examples used within this course were drawn from the sample problem set used by psychology statistics instructors, at The University of Western Ontario. They are used with permission.

7.2 POLICY REGARDING ILLNESS

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 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. Documentation shall be submitted, as soon as possible, to the appropriate academic counselors (the Office of the Dean of the student's Faculty of registration/home Faculty) together with a request for relief specifying the nature of the accommodation being requested. For this course, you are to contact the academic counselors in the main office of the School of Health Studies. Documents submitted in this fashion will be retained in your file, and will be held in confidence in accordance with the University's Official Student Record Information Privacy Policy [<http://www.uwo.ca/univsec/handbook/general/privacy.pdf>].

Once the petition and supporting documents have been received and assessed, appropriate academic accommodation shall be determined by the Dean's Office (Academic Counsellor) in consultation your instructor. Academic accommodation may include extension of deadlines, waiver of attendance requirements for classes/labs/tutorials, arranging Special Exams or Incompletes, re-weighting course requirements, or granting late withdrawals without academic penalty. Academic accommodation shall be granted only where the documentation indicates that the onset, duration and severity of the illness are such that you could not reasonably be expected to complete your academic responsibilities. **Note** – it will not be sufficient to provide documentation indicating simply that you were “seen for a medical reason” or “were ill.” Whenever possible, students who require academic accommodation should provide notification and documentation in advance of due dates, examinations, etc. You must follow up with your professors and the Academic Counseling office in a timely manner.

Documentation from Family Physicians and Walk-In Clinics

A UWO Student Medical Certificate (SMC) is required whenever you seek 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: <https://studentservices.uwo.ca/secure/index.cfm>. Hard copies are available from Academic Counseling.

Documentation from Hospital Urgent Care Centres or Emergency Departments

Students should request that an SMC be filled out. You may take this form with them, or request alternative Emergency Department documentation. Documentation should be secured at the time of the initial visit to the Emergency Department. Where it is not possible for you to have an SMC completed by the attending physician, you must request documentation sufficient to demonstrate that your ability to meet your academic responsibilities was seriously affected.

7.3 POLICY ON CHEATING & ACADEMIC MISCONDUCT

Scholastic offences are taken seriously and you are directed to read information prepared by the Office of the Ombudsperson, here: <http://www.uwo.ca/ombuds/student/cheating.html>.

Additionally, 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.

7.4 SUPPORT SERVICES

There are various support services around campus, and these include (but are not limited to):

- Student Development Centre -- <http://www.sdc.uwo.ca/ssd/>
- Student Health -- <http://www.shs.uwo.ca/student/studenthealthservices.html>
- Registrar's Office -- <http://www.registrar.uwo.ca/>
- Ombuds Office -- <http://www.uwo.ca/ombuds/>

8.0 PROCEDURES FOR APPEALING ACADEMIC EVALUATIONS

In the first instance, all appeals of a grade must be made to the course instructor (informal consultation). If you are not satisfied with the decision of the course instructor, a written appeal must be sent to the Program Director. If you consider this response to be unsatisfactory, you may then appeal to the Dean of the Faculty of Health Sciences. If this response is unsatisfactory, you may appeal to the Senate Review Board Academic. A Guide to Appeals is available from the Ombudsperson's Office.