

Mathematics 0210/0212
Quantitative Methods for the Health/Social Scientist
Fall 2024

Instructor: Dr. Luis Santiago

Email: lsantiag@lakeheadu.ca

Lectures: Tuesdays and Thursdays from 5:30 PM to 7:00 PM (on Zoom)

Labs: Mondays from 2:30 PM to 3:30 PM (on Zoom)

Office hours: By appointment.

Recommended Textbook: *Elementary Statistics: A Brief Version*, 8th Edition, by Allan G. Bluman.

Course Content: We will cover the majority of the textbook material. By the end of the course students will be able to: summarize both qualitative and quantitative data sets using frequency distributions and graphs; interpret data presented graphically; calculate measures of central tendency such as mean, median, mode, and midrange; calculate measures of variation such as variance, standard deviation, and coefficient of variation; and identify the position of a data value in relation to its data set using both z-scores and percentiles; define a sample space and distinguish between simple and compound events; identify mutually exclusive and independent probability events; compute classical and empirical probabilities, as well as compound and conditional probabilities; use counting rules to compute the probabilities of more complex events; construct and interpret discrete probability distributions; identify binomial distributions and apply the binomial probability formula to compute expected values; use the application of the normal distribution to compute probabilities for normally distributed data; apply the Central Limit Theorem to make predictions about sampling distributions; apply the normal approximation to the binomial distribution to compute binomial probabilities on large data sets; construct confidence intervals for various population parameters and use them to make estimates; perform a variety of hypothesis tests to draw research conclusions; describe relationships

between two quantitative variables using Pearson's correlation coefficient and regression lines; and compare three or more population means using one way Analysis of Variance.

Labs: The lab on Mondays will give students the opportunity to ask questions about course content and problems.

Grading Scheme:

Assignments	20 %
Midterm Exam 1 (Monday October 7 from 2:30 PM to 3:30 PM)	20 %
Midterm Exam 1 (Monday November 11 from 2:30 PM to 3:30 PM)	20 %
Final Exam	40 %

Assignments: Assignments will be collected and graded online using the free online homework system WebWork. A link to WebWork can be found on the d2l webpage of the course.

Midterm Exams: There will be two midterm exams scheduled for Monday, October 7, and Monday, November 11. The midterm exams will be done through d2l.

Final Exam: The final exam will be scheduled by the registrar during the examination period. DO NOT book a flight before the exam schedule is released. The final will be a three hour cumulative exam, and you will be allowed a scientific calculator as well as two double-sided 8.5x11" formula sheets.

Accommodations: Lakehead University is committed to achieving full accessibility for persons with disabilities. Part of this commitment includes arranging academic accommodations for students with disabilities to ensure they have an equitable opportunity to participate in all of their academic activities. If you think you may need accommodations, you are strongly encouraged to contact Student Accessibility Services (SAS) and register as early as possible. For more information, please visit:

<http://studentaccessibility.lakeheadu.ca>

Important Dates: Please note the following important dates:

Tuesday September 3:	First day of classes
Monday December 3:	Final day of classes
Friday November 8:	Final date to withdraw
Friday December 6 to Monday December 16:	Examination Period
Tuesday December 17:	Exam Contingency Date
Monday October 14 to Friday October 18:	Study Week