

Acknowledgement of Indigenous Peoples and Traditional Territories:

York University recognizes that many Indigenous nations have longstanding relationships with the territories upon which our campuses are located that precede the establishment of York University. We acknowledge our presence on the traditional territories of the Mississaugas of Credit First Nation, the Huron-Wendat, the Haudenosaunee Confederacy and the Métis Nation of Ontario.

YORK UNIVERSITY

FACULTY OF HEALTH

SCHOOL OF KINESIOLOGY AND HEALTH SCIENCE

HH KINE 2050 3.0 Analysis of Data in Kinesiology

Winter 2023/2024

This course is an introduction to the statistical analysis of experimental data. Students will simulate a variety of simple experiments involving behavioural concepts relevant to kinesiology and analyze the data using basic descriptive and inferential statistics. Computer analysis of data will be introduced. Emphasis is on the use of statistics as a scientific tool and only the most elementary mathematical knowledge is required for entrance into the course.

Prerequisites

KINE 2049 3.0 (Research Methods in Kinesiology)

Course Instructors

Dr. Denise Henriques
deniseh@yorku.ca

Dr. Gord Binsted
gbinsted@yorku.ca

Lab instructors

TBA
Lab coordinator, Durmalouk Kesibi durrak@my.yorku.ca

Labs: 125, 125A, & 163 Chemistry Building
Labs begin the week of January 22nd

Email correspondence:

Email communication should be reserved primarily for issues applies only to you or need to be resolved immediately. Questions that arise related to course content should be posted on the eClass Discussion Boards for all to benefit.

Please ensure that email messages are professional, clear, and coherent. We can only respond to emails that we understand. We generally review and respond to course-related student emails quite promptly with the exception of emails sent on weekends. These will likely be answered on the first business day of the following week.

Course website: on eClass

All students require an eClass account. Students are responsible for being actively involved in the course, and for checking eClass regularly and frequently to ensure you have the latest information about the course. “I did not know because I was not online” or “because I did not check eClass” are not excuses that will be accepted under any circumstances for the course.

Course manuals:

An Introduction to Basic Statistics (Horvath, T.)

KINE 2050 Course Kit (2022 Edition – although any addition from 2018 should do).

KINE 2050 3.0 Laboratory Manual (2024 Edition).

The course materials can be purchased at Northview Printing which is located just north of Keele campus at 2700 Steeles West, unit 1, Concord, ON, L4K 3C8.

Note: Lecture slides will be posted on eClass site on a weekly basis. Lecture will be recorded. However, sometimes there are technical issues with recording so can't guaranteed that each lecture will be recorded.

** Every student is required to have a portable calculator (which is necessary for the final exam which will be in-person). Microsoft Excel is required for labs and midterm tests.

Course Materials Copyright Information

These course materials are designed for use as part of this course at York University and are the property of the instructor unless otherwise stated. Third party copyrighted materials (such as book chapters, journal articles, music, videos, etc.) have either been licensed for use in this course or fall under an exception or limitation in Canadian Copyright law. Copying this material for distribution (e.g. uploading material to a commercial third-party website) may lead to a violation of Copyright law. [Intellectual Property Rights Statement](#)

Technical requirements for taking the course:

Please review this syllabus carefully to determine how the course content will be delivered, how office hours will be conducted and how assignments will be submitted.

Students must make every effort to arrange adequate internet connection for midterm tests and submitting labs. If a student has any concerns about their internet connection, they should seek all available options for writing their midterm tests in a location with a stable internet connection. In the event that a student is not confident they can access a reliable internet connection, they should communicate their concerns to the Course Director well in advance of the test.

Office hours will likely take place over Zoom to maximize the number of student can attend and participate. Students should note the following:

- Zoom is hosted on servers in the U.S.A. This includes recordings done through Zoom.
- If you have privacy concerns about your data, provide only your first name or a nickname when you join a session.

Organization of the course:

Lectures: Course lectures are scheduled as follows:

Section M: Monday and Wednesday, 11:30am-12:20pm, LAS A

Section N: Monday and Wednesday, 12:30pm-1:20pm, LAS A

Class begins January 8th. We will try our best to record each lecture, but there are sometimes technical issues and there are always delays associated with the recordings being uploaded onto eClass that are outside the control of the instructors.

Student hours:

There are no set student hours. Student can request virtual meetings by emailing Prof Henriques or Prof Binsted. All such scheduled student hour appointments will be open for any student to drop in.

Laboratories:

Each week, commencing January 22nd, you will meet with your Teaching Assistant, during the scheduled 2-hour lab time in which you enrolled.

It is your responsibility to ensure that you understand the weekly assignment BEFORE you leave the lab. **And you can only submit a lab assignment if you attend the lab** (which usually involve data collection). Lab assignments should be completed the SAME day, but in order to accommodate all students (both with official accommodations and those without), **you must submit a PDF version of the assignment through eClass three days after the scheduled lab**. Late labs will not be marked.

The following statement MUST be included with each lab assignment that is submitted. "I confirm that the assignment I have submitted has been done independently and is my own work. I am aware of York University's policies about plagiarism and the penalties for plagiarism."

Course Evaluation:

A simple way to explain the course evaluation is as follows: The Final Exam will be worth 100% of your mark unless you complete other components of the course. You do not lose marks if work is not attempted/completed. ***The percentage allocated for any course-work item that is not attempted/completed will remain as part of the weight of the final exam.*** Each item of course-work a student completes reduces the weighting of the Final Exam as shown below.

Lab Assignments	14%	Weekly assignments based on labs. There are a total of 9 labs. Each lab is worth approximately 1.5%.
Mid-term exam 1	20%	Scheduled Wed Feb. 14 , online <u>during lecture time</u> . Section M: 11:30 am ET Section N: 12:30 pm ET Covers topics taught between Jan 8-Feb 12 th
Mid-term exam 2	20%	Scheduled Mon March. 25 , online <u>during lecture time</u> . Section M: 11:30 am ET Section N: 12:30 pm ET Cover topics taught between Feb 26 – March 24 th .
Final exam (compulsory)	46% - 100%	Scheduled during April exam period. Covers all topics

Students who do not write Midterm #1 waive their right to receive “a specific percentage of graded feedback” prior to the drop date for the Winter term.

In the event a midterm test is missed the percentage allocated to that test will be added to the Final Exam. There are no make-up tests in the course.

Each exam may include material from the lectures, readings and labs, however, exams focus primarily on information covered in lectures and the labs.

Finally, if your performance on any of the midterm exams is subpar but you demonstrate significant improvement in your final exam score, the weight of the midterm exams will be transferred to the final exam, allowing you to benefit from your enhanced performance.

Exams/Tests: (Synchronous mode)

The mid-term tests written be online at the date and time noted above, in a private location of your choice. Students must make themselves available at the time the section in which they are enrolled, (Section M or Section N), for writing the test/exam (mid-terms and final). Mid-term tests and the final exam are closed book exams which means no external aids (notes, books, or other reference materials) are permitted, except the formula sheets and specified tables. A calculator and/or spreadsheet software (Excel) can be used, and in some cases, are required.

The final exam MUST be written in person at a date and time to be scheduled in April.

** An appeal against any grade assigned to an item of course work must be made in writing to the course directors, within 7 days of the graded work being made available to the class.

The result of an appeal may cause the grade to increase, decrease or remain the same.

** Although numerical marks are assigned to each piece of work in this course there should be no assumption that a total number of marks translates directly to a lettergrade. Lettergrades will be determined by the descriptions in the York University Undergraduate Calendar.

Lecture Topics (Readings from Horvath textbook)

The table below outlines the topics covered by each instructor and again the relevant readings. Some of the lectures will be delivered by senior TAs: (1) Durra Kesibik, (2) Sepehr Rassi, (3) Taslima Mamataz, and (4) Ambika Bansal, with the support and presence of the professor-instructor.

TOPICS	INSTRUCTOR	READINGS (HORVATH TEXTBOOK)
Introduction to Statistics, Level of Measurements	Binsted	P. 1-15
Organizing & Display Data	Binsted	P. 16-27, 53-69 for using Excel.
Measures of Central Tendency	Binsted	P. 38-44, 76-77 Excel, 88-90
Measure of Variability	Binsted	P. 45- 52, 77-81
Percentiles & Z-scores	Binsted	P. 28-37, 72-75, 83-112
SEM & Confidence intervals	Binsted	P. 139-153, 176-179
Hypothesis testing	Henriques	P. 156-168
t-tests	Henriques ¹	P. 169-206
Correlation & Regression	Henriques ²	P. 256-274, 278-291, 301-302
ANOVA	Henriques ³	P. 213-232, 243, 245-248 (p. 207-213 is theoretical background)
Chi-square	Binstead ⁴	P. 303-327

In addition, topics covered during the labs will include: 1) the use of computer software (Excel) to calculate descriptive, inferential and correlation statistics; 2) the collection, presentation and interpretation of data; 3) observational and experimental studies; 4) independent and dependent variables; 5) control and experimental groups; 6) conceptual and operational definitions.

Drop Date: The last day to drop a Winter term course without receiving a grade is: **March 16, 2024**.

Withdrawal Period: March 18 – April 11, 2024

The York University Student Code of Conduct specifically prohibits theft of intellectual property, which includes recording a course director's lecture without his/her permission or taking lecture material provided on line, modifying it, and/or using it for your own personal use or gain. The material provided is only to be used for your personal study when you take the course for which it was created. Use in any other way will result, at the minimum, in sanctions in accordance with the York Code and, at the maximum, will be breaking federal, provincial or municipal laws and will be acted on accordingly.

Academic Honesty And Integrity:

In this course, we strive to maintain academic integrity to the highest extent possible. Please familiarize yourself with the meaning of academic integrity by completing SPARK's [Academic Integrity module](#) at the beginning of the course. Breaches of academic integrity range from cheating (i.e., the improper crediting of another's work, the representation of another's ideas as your own, etc.) to aiding and abetting (helping someone else to cheat). All breaches in this course will be reported to the appropriate university authorities, and can be punishable according to the [Senate Policy on Academic Honesty](#).

To promote academic integrity in this course, students may be required to submit their written assignments to Turnitin (via the course EClass) for a review of textual similarity and the detection of possible plagiarism. In so doing, students will allow their material to be included as source documents in the Turnitin.com reference database, where they will be used only for the purpose of detecting plagiarism. The terms that apply to the University's use of the Turnitin service are described on the [Turnitin.com](https://www.turnitin.com) website.

The following statement MUST be included with each lab assignment that is submitted. "I confirm that the assignment I have submitted has been done independently and is my own work. I am aware of York University's policies about plagiarism and the penalties for plagiarism."

Test Banks

The offering for sale of, buying of, and attempting to sell or buy test banks (banks of test questions and/or answers), or any course specific test questions/answers is not permitted in the Faculty of Health. Any student found to be doing this may be considered to have breached the [Senate Policy on Academic Honesty](#). In particular, buying and attempting to sell banks of test questions and/or answers may be considered as "Cheating in an attempt to gain an improper advantage in an academic evaluation" (article 2.1.1 from the Senate Policy) and/or "encouraging, enabling or causing others" (article 2.1.10 from the Senate Policy) to cheat.

Electronic Devices During a Test/Examination

Electronic mobile devices other than the one computer or tablet being used to write the test/exam are not allowed during a test or examination. Students are required to turn off and secure all electronic communication devices while a test/exam is in progress. Any student observed using more than one electronic device during a test/exam may be reported to the Undergraduate Office for a potential breach of Academic Honesty.

Important Information For Students:

All students are expected to familiarize themselves with the following information, available on the [Senate Committee on Academic Standards, Curriculum & Pedagogy](#) website.

- [Senate Policy on Academic Honesty](#) and the [Academic Integrity Website](#)
- [Ethics Review Process for research involving human participants](#)
- [Course requirement accommodation for students with disabilities, including physical, medical, systemic, learning and psychiatric disabilities](#)
- [Student Conduct Standards](#)
- [Religious Observance Accommodation](#)

Policy on Free Speech:

York University reaffirms its commitment to provide an environment conducive to freedom of enquiry and expression where all members of the community may learn, teach, work and live, free from prejudice, inequality and discrimination based on race, ancestry, place of origin, colour, ethnic origin, citizenship, creed, religion, sex, sexual orientation, gender identity, gender expression, age, marital status, family status or disability.

Disruptive and/or Harassing Behaviour in Academic Situations Policy:

York is committed to policies that support the teaching and learning of controversial subject matter. Students and instructors are, however, expected to maintain a teaching and learning environment that is physically safe and conducive to effective teaching and learning for all concerned, and to be civil and respectful at all times within the learning environment, including within classrooms, laboratories, libraries, study halls and other places where academic activities are conducted and in areas proximate to those where academic activities are taking place.

Learning Expectations:

After completion of KINE 2050 3.0 [Analysis of Data in Kinesiology], students will understand fundamental statistical concepts and some of their basic applications in science and society. Students will be able to:

- a) identify the level of measurement represented by a dataset.
- b) calculate the appropriate descriptive statistics (measures of central tendency and variability), for a dataset.
- c) construct the appropriate figure(s), (histograms, line charts, and scatterplots) to represent a dataset graphically.
- d) describe the normal curve and solve word problems utilizing the z-score concept.
- e) solve basic probability word problems.
- f) state the null hypothesis for a given research problem.
- g) select the appropriate statistical significance test to analyze a dataset.
- h) calculate a test statistic and determine the associated p-value.
- i) utilize a statistical software to analyse data.
- j) write a summary paragraph to describe the results of a significance test.