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 2021

*** Please note that this is a course that depends on remote teaching and learning. There will be no in-class interactions or activities on campus. ***

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	Prof. Denise Henriques (Course Director) deniseh@yorku.ca

Prof. Merv Mosher mmosher@yorku.ca

Email correspondence:

Email communication should be reserved primarily for issues that need to be resolved immediately. Questions that arise related to course content should be posted on the EClass Discussion Boards or discussed during the regularly scheduled virtual office hours.

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: https://eclass.yorku.ca/eclass/course/view.php?id=14017

All students require an aClass 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.

Technical requirements for taking the course:

Since the entire course will be delivered remotely, two platforms will be used, (i.e., eClass and Zoom), through which students will interact with the course materials, the course director, Teaching Assistants, as well as with one another. Therefore, a computer or smart device with a camera and microphone is required to complete 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, especially for tests and exams. If a student has any concerns about their internet connection, they should seek all available options for writing their exams/tests/quizzes 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 Coure Director well in advance of the quiz/test/exam.

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.
- The system is configured in a way that all participants are automatically notified when a session is being recorded. In other words, a session cannot be recorded without you knowing about it.

Course manuals:

An Introduction to Basic Statistics (Horvath, T.)

KINE 2050 Course Kit (2021 Edition).

KINE 2050 3.0 Laboratory Manual (2021 Edition).

Please see the York University Bookstore webpage (<u>https://bookstore.yorku.ca</u>) for ordering books and for the information about free shipping of course kits to students with a Canadian address

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.

Organization of the course:

KINE 2050 is being delivered remotely via eClass and Zoom; <u>there will be no in-class</u> interactions or activities on campus. KINE 2050 involves a blend of asynchronous (participate on your own and at times you choose) and synchronous (students are expected to attend and participate at a specific time in live virtual/online sessions) modes of teaching.

Lectures: (Asynchronous mode)

Course lectures are scheduled as follows: <u>Section M - M, W at 11:30 am</u>; and <u>Section N - M, W, at 12:30 pm</u>. Class begin January 11^{th} , and the 12-weeks of lecture material will be available on eClass in the form of pre-recorded videos which will be posted at the beginning of each week. You can watch the recordings at the scheduled lecture time or any other time you choose. It is imperative that you watch the lecture material during the week the lecture is posted if you want to be successful in the course.

Student hours: (Synchronous mode).

Although lectures will be pre-recorded, you will have an opportunity to talk and ask questions to Professors Henriques and Mosher on a weekly basis virtually during "in-class" time.

M & W: 12-1pm.

Alternatively, students can request additional individual or group-meetings by emailing Prof Henriques or Prof Mosher.

Laboratories: (Synchronous mode)

Each week, commencing January 25th, you will meet via Zoom with your Teaching Assistant, during the scheduled lab time in which you enrolled. It is during this 2-hour lab time that you will submit your weekly lab assignment. This is the synchronous portion of the course and <u>requires that you are available at the same time each week to meet with</u> <u>your Teaching Assistant</u>. The Teaching Assistant may record the synchronous Zoom labsessions to assist with record keeping. Students are NOT granted permission to record Zoom sessions.

It is your responsibility to ensure that you understand the weekly assignment <u>BEFORE</u> you leave the lab. To receive credit for completion of a lab, <u>the assignment must be completed</u> <u>prior to the end of a student's assigned lab time</u>. For some labs, the assignment must be submitted before the end of the lab; for most labs, students will have up until the start of subsequent lab to submit. Lab assignments will be submitted in eClass. Late labs will not be marked.

*Labs commence the week of January 25th, 2021.

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."

Labs the week of:	Lab number and topic
January 25	Lab 1 (descriptive stats & histogram graphs after data collection)
February 1	Lab 2 (more descriptive stats, measures of variability & plots after data collection) & Lab 3 (calculate percentiles & z-scores)
February 8	Lab 4 (calculate percentile & z-scores after data collection)
February 15	Reading Week (Study break)
February 22	No Lab (Quiz 1 is this week).
March 1	Lab 5 (compute t-tests after data collection)
March 8	Lab 6 (correlation) & 7 (regression)
March 15	Lab 8 (ANOVA in class exercises; assignment due end of class)
March 22	No Lab (Quiz 2 is this week).
March 29	Lab 9 (Chi square, in class exercise; assignment due end of class)

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	20% Weekly assignments based on labs.
Mid-term exam 1	20% Scheduled <i>Feb. 22</i> , <u>during lecture time</u> . Section M: 11:30 am ET Section N: 12:30 pm ET
Mid-term exam 2	20% Scheduled <i>March. 24</i> , <u>during lecture time</u> . Section M: 11:30 am ET Section N: 12:30 pm ET

Final exam (compulsory) 40% - 100% Scheduled during April exam period.

Students who do not write Quiz #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 quiz 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.

Exams/Tests: (Synchronous mode)

The mid-term tests and the final exam **MUST** be written at the date and time noted above. Students must make themselves available at the time the section in which they are enrolled, (Section M or Section N), is writing the test/exam (mid-terms and final). <u>All times noted are</u> <u>local Toronto times</u>. Mid-term tests and the final exam are <u>closed book exams</u> 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.

** An appeal against any grade assigned to an item of course work must be made in writing to the course director, Professor Denise Henriques, within <u>7 days</u> 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.

TOPICS	INSTRUCTOR	READINGS (HORVATH TEXTBOOK)
Introduction to Statistics, Level of	Henriques	P. 1-15
Measurements		
Organizing & Display Data	Henriques	P. 16-27, 53-70.
Measures of Central Tendency	Henriques	P. 38-44, 70-77
Measure of Variability	Henriques	P. 45- 52, 77-81
Percentiles & Z-scores	Mosher	P. 28-36, 83-112
SEM & Confidence intervals	Henriques	P. 139-155
Probability	Henriques	P. 113-138
Hypothesis testing	Henriques	P. 156-168
t-tests	Henriques	P. 169-206
Correlation & Regression	Henriques	P. 256-302
ANOVA	Henriques	P. 207-255
Chi-square	Mosher	P. 303-321

Lecture Topics (Readings from Horvath textbook)

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.

<u>Drop Date:</u> The last day to drop a Winter term course without receiving a grade is: <u>March</u> **12, 2021**.

Withdrawal Period: March 13 – April 12, 2021

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 <u>Academic Integrity module</u> 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 <u>Senate Policy on Academic Honesty</u>.

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 <u>Turnitin.com</u> 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."

<u>Test Banks</u>

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 <u>Senate Policy on Academic Honesty</u>. 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.

Eproctoring:

An online proctoring service may be used to deliver the mid-terms and final exam, which are administered through the Learning Management System (e.g. EClass). Students are required to have access to minimum technology requirements to complete examinations. If an online proctoring service is used, students will need to become familiar with it at least five days before exam(s). For technology requirements, Frequently Asked Questions (FAQs) and details about the online proctoring service visit –

[<u>https://registrar.yorku.ca/online-exams</u>]. Students are required to share any technological (IT) accommodation needs with the instructor as soon as they are able.

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 <u>Senate Committee on Academic Standards, Curriculum & Pedagogy</u> website.

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

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.