Faculty of Health
Department of Psychology
PSYC 2020 6.0 C: STATISTICAL METHODS I AND II
Tuesday / 11:30am – 2:30pm / ACE 002
Fall and Winter / 2024-2025

- We will meet **in person every Tuesday at 11:30am in ACE 002.** Each class will involve a lecture followed by demonstrations/ activities to aid in your understanding of the concepts covered in the lecture. Lecture attendance is strongly encouraged as material will expand upon the slides provided and demonstrations will be valuable to understand course material and statistical software use.
- In the case of a **university/provincial shut down of in-person learning lectures will be delivered online via Zoom** (information will be provided on eClass if this occurs). Please note these sessions should be treated like an official class and therefore you are expected to conduct yourself in a respectable manner.
- Please note that your quizzes will take place during the assigned class time 11:30am – 2:30pm and therefore **it is expected that you will be available during this time**. More information about your quizzes is provided below. All other assessments will be completed outside the assigned class time but will have specific due dates. **There will be no weekly live class activity on the day a quiz is scheduled**.

Instructor and T.A. Information:
Instructor: **Dr. Stefania Moro**
Office Hours: By appointment only
Email: moros@yorku.ca

T.A.	**Aysha Noushad Kinakool Vayalippath**
Email	ayshak@yorku.ca
Office Hours	By appointment only

Please note that it may take the instructor and TAs up to 3 business days to respond to your emails. If you send us an email over the weekend please do not expect a response until the normal work week (Monday – Friday) unless otherwise stated by a member of the teaching team or it is an urgent matter.

When sending emails to the teaching team please include "PSYC2020C**" in the subject line and your **full name** and **student number** in the signature of the message.

Course Prerequisite or corequisite(s): Course prerequisites are strictly enforced.

- HH/PSYC 1010 6.00 (Introduction to Psychology)

Course Credit Exclusions:
Please refer to York Courses Website for a listing of any course credit exclusions.

Course website: eClass

All course materials will be available on the course eClass site, unless otherwise indicated by the instructor. The site will be your central access point for course materials. Note: Please do not send the teaching team messages through the chat on eClass.

It is absolutely necessary that you regularly access eClass to be successful in this course. "I didn't know it was on eClass" or "I don't know how to use eClass" are not acceptable excuses for missing any course component. It is the students' responsibility to review and become comfortable with using eClass for the purposes of this course.

Course Description:
An introduction to the fundamental concepts and application of descriptive statistics. Fundamental concepts and techniques of both descriptive and inferential statistics and their application to psychological research are discussed. Course content is delivered via weekly, in-person lectures. Additionally, online problem sets, and demonstrations provide the opportunity to gain hands-on experience with course content and enhance experiential learning of course concepts.

Program Learning Outcomes:
Upon completion of this course, students should be able to:
1. Compute descriptive statistics and inferential statistics.
2. Interpret and report the results of descriptive statistics and inferential statistics.
3. Distinguish between the role of descriptive statistics and inferential statistics.
4. Compute inferential statistics for univariate linear models (ANOVA, regression).
5. Interpret and report the results of inferential statistics for univariate linear models.
6. Recognize the limits of inferential statistics.

Topics Covered:
- Defining Key Statistical Terms
- Frequency Distributions
- Central Tendency
- Variability
- *z*-Scores/Normal Distribution
- Probability
- Sampling Distribution
- Confidence Intervals
- Power
- Effect Size
- Hypothesis Testing
- $\chi 2$ Goodness of Fit
- χ2 Test of Independence
- One-sample *t*-test

- Independent samples *t*-test
- Dependent samples *t*-test
- One-Way Independent Groups ANOVA (with contrasts)
- Two-Way Independent Groups ANOVA (with interaction and contrasts)
- One-Way Repeated Measures ANOVA (with contrasts)
- Correlation (including partial correlation)
- Simple Regression
- Multiple Regression

**Effect size is included as part of all inferential statistics covered in this course.*

Specific Learning Objectives:

- Choose descriptive statistics such as measures of central tendency and variability that are appropriate for summarizing and organizing variables with different scales of measurement.
- Demonstrate the ability to summarize, organize, and present the essential features of data numerically and graphically.
- Identify the differences between descriptive and inferential statistics (e.g., summarize sample data vs. use sample data to make inferences about the population).
- Identify limitations of descriptive statistics (e.g., cannot be used to test hypotheses about the population under study).
- Demonstrate the ability to generate statistical hypotheses (i.e., null and alternative) that are applicable to various research situations.
- Demonstrate the ability to formulate and perform hypothesis tests that are applicable to various research situations (i.e., z test, t tests, correlations).
- Use statistical software (jamovi) to conduct descriptive and inferential statistics.
- Interpret and present results in APA.

Required Text:

Nolan, S. A. & Heinzen, T. E. (2024). Statistics for the Behavioral Sciences (6th Edition). Worth Publishers. MacMillan Learning.

Recommended Texts (Open Source):

Cote, L. R., Gordon, R., Randell, C. E., Schmitt, J., & Marvin, H. (2021). Introduction to Statistics in the Psychological Sciences. https://open.umn.edu/opentextbooks/textbooks/an-introduction-to-psychological-statistics

Navarro, J. D., Foxcroft, D. R. (2019). Learning Statistics with jamovi. https://www.learnstatswithjamovi.com

Required Software:

Students are required to download the *"solid" version of jamovi (version 2.3.28)* from www.jamovi.org. This software is required for students to complete activities and assignments

in the course. Students are advised to download this software as soon as possible to be prepared for the start of the course.

APA resource:
https://owl.purdue.edu/owl/research_and_citation/apa_style/apa_formatting_and_style_guide/reference_list_books.html

Course Requirements and Assessment:

Assessment	Date of Evaluation (if known)	Weighting
Achieve Learning Curves	Weekly	15%
Mini Assignment 1	November 19, 2024	5%
Mini Assignment 2	February 4, 2025	5%
Mini Assignment 3	March 11, 2025	5%
Quiz 1	October 22, 2024	10%
Quiz 2	December 3, 2024	10%
Quiz 3	February 11, 2025	10%
Quiz 4	April 1, 2025	10%
Major Assignment 1	December 9, 2024	15%
Major Assignment 2	April 7, 2025	15%
Total		**100%**

Description of Assignments:

Learning Curves: Learning Curve online activity can be found on the textbook's online accompaniment site: Achieve. You must complete a Learning Curve for each chapter covered in our course. Learning Curve's are game-like quizzes that adapt based on performance. ***There will be no opportunities to make up grades for missed Learning Curves.***

Mini Assignments: Students will complete an activity that covers key material taught throughout the course. **This activity will be completed outside the normal class meeting time and students will work individually.** The activity may take the form of a scenario where students will be asked to read some information and then respond to a question(s) – students will need to use course materials and other resources to respond. These activities will be made available on eClass on the assigned dates provided and you will receive them in advance of the due date. **Late assignments will receive a penalty of 10% per day, up until 3 days when a grade of 0 will be assigned.**

Quizzes: Quizzes will be non-cumulative and cover the material from lectures, readings, class, and mini assignments. The format of the quizzes may be a mix of multiple-choice and open-ended/short-answer questions (e.g., defining concepts or responses to analysis questions). **Quizzes will take place during the assigned class time: 11:30am-2:30pm ONLINE**. More information about the content, format and length of the quiz will be provided prior to its administration.

Major Assignments: The purpose of an assignment is to further evaluate your conceptual understanding of the material covered in class, to demonstrate that you can perform the types of analysis covered in this course and that you can interpret/report the results. **Major Assignments will be completed outside the normal class time and students are expected to complete their assignment individually.** More information will be provided in eClass and you will receive each assignment in advance of the due date. **Late assignments will receive a penalty of 10% per day, up until 3 days when a grade of 0 will be assigned.**

Class Format and Attendance Policy:
Students are strongly encouraged to attend the class sessions as the material covered in the course in a given week build on the previous week's material and enhances your overall learning experience. These sessions will also help you to stay on track with the course material.

Grading as per Senate Policy:
The grading scheme for the course conforms to the 9-point grading system used in undergraduate programs at York (e.g., A+ = 9, A = 8, B+ = 7, C+ = 5, etc.). Assignments and tests* will bear either a letter grade designation or a corresponding number grade (e.g. A+ = 90 to 100, A = 80 to 89, B+ = 75 to 79, etc.).

For a full description of York grading system see the York University Undergraduate Calendar – Grading Scheme for 2024-25

Missed Tests/Midterm Exams/Late Assignment:
For any missed quiz or late assignment, students MUST complete the following online form which will be received and reviewed in the Psychology undergraduate office. At this time, due to COVID-19 an Attending Physician's Statement (APS) is not required, **however, a reason for missing an evaluated component in the course must be provided**.

HH PSYC: Missed Tests/Exams Form. Failure to complete the form within 48 hours of the original deadline will result in a grade of zero for the missed quiz or late assignment.

Late Learning Curves:
Learning Curves that are not submitted by the weekly deadline will receive a grade of 0 and no extensions will be granted, except in extreme circumstances.

Missed Quiz:
If you miss a Quiz you must complete the Missed Tests/Exam Form and contact your Teaching Assistant within 48 hours of missing the Quiz. Once you have notified us about your missed quiz, a member of the teaching team will be in contact with you to schedule a make-up. **There is only one opportunity to write a make-up quiz;** the makeup may be in a different form from the original test. If you do not contact us or complete the form within 48 hours you will be assigned a 0. **Please note that a Mini Assignment or Major Assignment cannot be used as a subsititute for a missed quiz.**

Late Mini Assignment/ Major Assignment:
Similar to your quizzes you must have a valid reason for missing the scheduled due date for your mini or major assignment. It is up to the course instructor to determine how much additional time, if any, will be allowed to complete and submit the stats check/assignment. **Please note that a quiz cannot be used as a subsititute for a Mini Assignment or Major Assignment.**

Add/Drop Deadlines:
For a list of all important dates please refer to: Undergraduate Fall/Winter 2024-2025 Important Dates

	Fall (Term F)	Year (Term Y)	Winter (Term W)
Last date to add a course **without permission** of instructor (also see Financial Deadlines)	Sept. 18	Sept. 18	Jan. 20
Last date to add a course **with permission** of instructor (also see Financial Deadlines)	Oct. 2	Oct. 16	Jan. 31
Drop deadline: Last date to drop a course without receiving a grade (also see Financial Deadlines)	Nov. 8	Feb. 7	Mar. 14
Course Withdrawal Period (withdraw from a course and receive a grade of "W" on transcript – see note below)	Nov. 9 - Dec. 3	Feb. 8 - April 4	March 15 - April 4

Add and Drop Deadline Information:
There are deadlines for adding and dropping courses, both academic and financial. Since, for the most part, the dates are **different**, be sure to read the information carefully so that you understand the differences between the sessional dates below and the Refund Tables.
You are strongly advised to pay close attention to the "Last date to enrol without permission of course instructor" deadlines. These deadlines represent the last date students have unrestricted access to the registration and enrolment system.
After that date, you must contact the professor/department offering the course to arrange permission.

You can drop courses using the registration and enrolment system up until the last date to drop a course without receiving a grade (drop deadline).

You may withdraw from a course using the registration and enrolment system after the drop deadline until the last day of class for the term associated with the course. When you withdraw from a course, the course remains on your transcript without a grade and is notated as 'W'. The withdrawal will not affect your grade point average or count towards the credits required for your degree.

Information on Plagiarism Detection:
Turnitin will be used to detect any evidence of plagiarism.

Electronic Device Policy:
Electronic devices (e.g., tablets, laptops) are permitted during class time for course-related purposes. It is expected that you would complete tests/exams in a manner that does not require consulting an unauthorised source during an examination unless the tests/exams are open-book.

Any sharing of screenshots and/or personal feedback received from completing course assessments will be considered a violation of the electronic device policy and there will be consequences for this behaviour. The unauthorized sharing of these details or any other course materials by any means (e.g., What's App group, student forum, Reddit, Facebook group etc.) is strictly prohibited.

Academic Integrity for Students:
York University takes academic integrity very seriously; please familiarize yourself with Information about the Senate Policy on Academic Honesty. It is recommended that you review Academic Integrity by completing the Academic Integrity Tutorial and Academic Honesty Quiz.

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.

Generative AI Tools:
In this course, every element of each assessment (including assignments, tests, exam, or any other form of assessment) must be fully prepared by the student themselves. The use of generative AI is not permitted, and its use may be treated as a breach of academic honesty. For more information, please refer to York University's *Senate Policy on Academic Honesty*.

Course Group Chats:
Participating in group chats other than the Student Forum on eClass (e.g., What'sApp, Discord, Reddit, SnapChat, etc.) in the interest of forming a course community that is solely for the students is permitted, but students should proceed with caution for the following reasons:

1. The professor, teaching assistants, department and York University overall have no jurisdiction over adverse behaviours (e.g., hacking, bullying, etc.) that may occur in these contexts. That means that it is difficult if not impossible for the professor to intervene if an unsafe situation arises. If such an event occurs, students are advised to shut down the

group and form a new one. To reduce the risk of external individuals joining a course chat group please only share links to the group through private means (i.e., don't post the link publicly on Reddit) and share only with other members of this course.

2. Participation in illicit activity (e.g., cheating) that occurs in such groups may put your academic integrity at risk. Sharing of answers or asking for an answer on a graded course components through such a group chat is considered an act of academic dishonesty and is strictly prohibited. Any violations will be reported to the Department of Psychology and are subject to consequences (e.g., a failing grade on the assessment in question, a grade of 0 on the particular assessment, a failing grade in the course, etc.).

3. The sharing of screenshots of emails or answers provided by the professor or other members of the teaching team through emails is not permitted in course community group chats. All email communications between student and professor/teaching team are considered private and should not be shared without express permission from the professor/teaching team.

Academic Accommodation for Students with Disabilities:
While all individuals are expected to satisfy the requirements of their program of study and to aspire to do so at a level of excellence, the university recognizes that persons with disabilities may require reasonable accommodation to enable them to do so. The university encourages students with disabilities to register with Student Accessibility Services (SAS) to discuss their accommodation needs as early as possible in the term to establish the recommended academic accommodations that will be communicated to Course Directors as necessary. Please let me know as early as possible in the term if you anticipate requiring academic accommodation so that we can discuss how to consider your accommodation needs within the context of this course. https://accessibility.students.yorku.ca/

Excerpt from Senate Policy on Academic Accommodation for Students with Disabilities:

1. Pursuant to its commitment to sustaining an inclusive, equitable community in which all members are treated with respect and dignity, and consistent with applicable accessibility legislation, York University shall make reasonable and appropriate accommodations in order to promote the ability of students with disabilities to fulfill the academic requirements of their programs. This policy aims to eliminate systemic barriers to participation in academic activities by students with disabilities.

All students are expected to satisfy the essential learning outcomes of courses. Accommodations shall be consistent with, support and preserve the academic integrity of the curriculum and the academic standards of courses and programs. For further information please refer to: York University Academic Accommodation for Students with Disabilities Policy.

Course Materials Copyright Information:
These course materials are designed for use as part of the **PSYC 2020C** 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.

Calumet and Stong Colleges' Student Success Programming:

Calumet and Stong Colleges aim to support the success of Faculty of Health students through a variety of **free programs** throughout their university career:

- Orientation helps new students transition into university, discover campus resources, and establish social and academic networks.
- Peer Mentoring connects well-trained upper-year students with first year and transfer students to help them transition into university.
- Course Representative Program aims to build the leadership skills of its Course Reps while contributing to the academic success and resourcefulness of students in core program classes.
- Peer-Assisted Study Session (P.A.S.S.) involve upper-level academically successful and well-trained students who facilitate study sessions in courses that are known to be historically challenging.
- Peer Tutoring offers one-on-one academic support by trained Peer Tutors.
- Calumet and Stong Colleges also support students' Health & Wellness, leadership and professional skills development, student/community engagement and wellbeing, Career Exploration, Indigenous Circle, Awards & Recognition, and provide opportunities to students to work or volunteer.
- Please connect with your Course Director about any specific academic resources for this class.
- For additional resources/information about Calumet and Strong Colleges Student Success Programs, please consult our websites (Calumet College; Stong College), email us at scchelp@yorku.ca, and/or follow us on Instagram (Calumet College; Stong College), **X** (formerly Twitter: Calumet College; Stong College), Facebook (Calumet College; Stong College) **and** LinkedIn
- Are you receiving our **weekly email** (Calumet and Stong Colleges - Upcoming evens)? If not, please check your Inbox and Junk folders. If you do not find our weekly emails, then please add your 'preferred email' to your Passport York personal profile. If you need support, please contact ccscadmn@yorku.ca, and request to be added to the listerv.
- Feel free to consult additional resources and student supports at York University

Course Schedule (Fall 2024)

Week	Date	Topic	Reminder
1	Sept. 10	Course Overview Introduction to Statistics (Chapter 1)	
2	Sept. 17	Frequency Distributions & Visual Displays of Data (Chapters 2 & 3)	*Learning Curves Ch. 1-3 Due*
3	Sept. 24	Central Tendency & Variability (Chapter 4) Working with data: Introduction to jamovi	*Learning Curve Ch. 4 Due*
4	Oct. 1	Sampling and Probability (Chapter 5)	*Learning Curve Ch. 5 Due*
5	Oct. 8	The Normal Curve, Standarization, & *z*-scores (Chapter 6)	*Learning Curve Ch. 6 Due*
6	Oct. 15	**NO CLASS – FALL READING WEEK**	
7	Oct. 22	**QUIZ #1 (10%)**	
8	Oct. 29	Hypothesis Testing with *z*-scores (Chapter 7)	*Learning Curve Ch. 7 Due*
9	Nov. 5	Confidence Intervals, Effect Size, & Statistical Power (Chapter 8) Single-Sample *t*-test (Chapter 9)	*Learning Curves Ch. 8 & 9 Due*
10	Nov. 12	Independent samples *t*-test (Chapter 11)	*Learning Curve Ch. 11 Due*
11	Nov. 19	Dependent samples *t*-test (Chapter 10)	*Learning Curve Ch. 10 Due* **Mini Assignment #1 (5%) DUE**
12	Nov. 26	**NO CLASS**	
13	Dec. 3	**QUIZ #2 (10%)**	**MAJOR ASSIGNMENT 1 (15%) DUE MON DEC. 9**

QUIZ 1 (10%) - COVERS WEEKS 1-5
QUIZ 2 (10%) - COVERS WEEKS 8-12

Course Schedule (Winter 2025)

Week	*Date*	*Topic*	*Reminder*
14	Jan. 7	Key Statistical Concepts Review	
15	Jan. 14	One-Factor Analysis of Variance (Chapter 12)	*Learning Curve Ch. 12 Due*
16	Jan. 21	Repeated-Measures Analysis of Variance (Chapter 13)	*Learning Curve Ch. 13 Due*
17	Jan. 28	Two-Factor Analysis of Variance (Chapter 14)	*Learning Curve Ch. 14 Due*
18	Feb. 4	**NO CLASS**	**Mini Assignment #2 (5%)**
19	Feb. 11	**QUIZ #3 (10%)**	
20	Feb. 18	**NO CLASS – WINTER READING WEEK**	
21	Feb. 25	Chi-Square Tests (Chapter 17)	*Learning Curve Ch. 17 Due*
22	Mar. 4	Correlation (Chapter 15)	*Learning Curve Ch. 15 Due*
23	Mar. 11	**NO CLASS**	**Mini Assignment #3 (5%)**
24	Mar. 18	Linear Regression (Chapter 16)	*Learning Curve Ch. 16 Due*
25	Mar. 25	Assignment Q & A + Course Wrap Up	
26	Apr. 1	**QUIZ #4 (10%)**	**MAJOR ASSIGNMENT #2 (15%) DUE MON APR 7**

QUIZ 3 (10%) - COVERS WEEKS 14-17
QUIZ 4 (10%) - COVERS WEEKS 21-25