Faculty of Health
Department of Psychology
PSYC 2022A: STATISTICAL METHODS II
In-Person Lecture on Mondays 2:30pm-5:30pm
2024 Fall
Vari Hall B

Instructor and T.A. Information

Instructor	Cathy (Xijuan) Zhang
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Online and In-Person Office Hour	Mondays 5:30pm-6:30pm Behavioral Science Building Room 367

TAs	Ken Suzuki Will Fisher
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Online and In-Person Office Hour	Will Fisher: Tuesdays 1pm - 2pm Behavioural Science Building Room 019.

Course Prerequisite(s): Course prerequisites are strictly enforced
- HH/PSYC 2021 3.00 (Statistical Methods I).

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.

Course Description
This course is usually the first course in statistics that most psychology (and other) majors take in university. This class will introduce you to the basic principles underlying statistical analyses in psychology and other social sciences areas. It will also prepare you for future statistics classes which will focus on more advanced techniques. More specifically, this course will introduce you to the type of variables utilized in psychology, two-variable correlation, and comparing two independent or paired-sample means. Null hypothesis significance testing will be introduced, however the focus will be on understanding relationships among variables. Data analysis using statistical software will be carried out using the open-source software R (www.r-project.org).

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. Run simple analyses using the computer programming language *R*.

Topics Covered
- Defining Key Statistical Terms
- z-scores/Normal Distribution
- Probability
- Sampling Distribution
- Confidence Intervals
- Power
- Effect Size
- Hypothesis Testing
- Pearson's Correlation
- One-sample and two-sample *t*-test
- One-way ANOVA
- Two-way ANOVA
- Simple Linear Regression
- Multiple Linear Regression
- Basic R coding

Course Notes and Textbooks
Required lecture notes will be posted on eClass.

Optional textbook: Navarro (2018): Learning statistics with R: A tutorial for psychology students and other beginners.
- It is an open-source textbook that can be downloaded using the link
  https://open.umn.edu/opentextbooks/textbooks/559

Course Requirements and Assessment:
Final grades will be comprised of marks earned on:

1) Exams (Midterm: 20%; Final Exam: 30%)
We will have in-person midterm and final exams. The exams will consist of a combination of multiple-choice, filling-in-blank, and short-answer questions. Weekly practice questions and online practice quizzes will be posted on eClass to help you prepare for the exams.
The midterm will be held in class **on Oct 21**. It covers all materials taught before the midterm.
The final exam will be scheduled by the university. The final exam will cover all course materials covered with more emphasis on the second half of the course.

2) In-class participation (10%)
During lectures, I will have iclickers questions. The iclicker questions will be marked based on participation (50%) and correctness (50%). Your three lowest weekly marks will not be counted. In other words, if you miss up to three weeks, you can still get full marks for the in-class participation.

2) Assignments (4 x 10%)
There will be four assignments for the course that will require you to analyze data (including using R) and

short answer questions. You will be given the assignments one week before they are due.
<u>Assignment Due Dates:</u>
Assignment #1: Sept 23
Assignment #2: Oct 7
Assignment #3: Nov 18
Assignment #4: Dec 2
You will be deducted 10% (of the 10% allotted to each assignment; i.e., 1.5% of your final grade) for each day (not including weekends) that your assignment is late.

3) Bonus Assignment (3%)
You can earn up to 3% bonus if you complete bonus questions on the assignments.

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
You can still hand in the assignment before the answer key released. You will lose 10% of the mark for each late day. Once the answer key is released, you will not be able to submit the assignment for grades.
If you miss the midterm, then the final exam will count 50% of your grade.

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)	September 18	September 18	January 20
Last date to add a course **with permission** of instructor (also see Financial Deadlines)	October 2	October 16	January 31
Drop deadline: Last date to drop a course without receiving a grade (also see Financial Deadlines)	November 8	February 7	March 14
Course Withdrawal Period (withdraw from a course and receive a grade of "W" on transcript – see note below)	November 9 – December 3	February 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.

Electronic Device Policy
This course will be delivered in an online format and therefore 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.

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.

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 2021C 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.

Course Schedule

The schedule is subject to change depending on the pace of the lectures.

Day	Topic	Suggested Readings	Notes
Sept 9	Review of Basic Statistical Terms; Introduction to R	Syllabus Chapter 1	Assignment 1 Posted
Sept 16	Probability Introduction to *R*	Chapter 9 Chapter 10 Chapter 3	
Sept 23	Hypothesis Testing Introduction to *R*	Chapter 11 Chapter 4	Assignment 1 Due Assignment 2 Posted
Sept 30	One-Way ANOVA Introduction to *R*	Chapter 14	
Oct 7	One-Way ANOVA continued; Review	Chapter 14	Assignment 2 Due
Oct 14	Reading Week	Extra Office Hour TBA	
Oct 21	Midterm		
Oct 28	Two-Way ANOVA	Chapter 16	
Nov 4	Two-Way ANOVA		Assignment 3 Posted
Nov 11	Simple Linear Regression	Chapter 15	
Nov 18	Simple Linear Regression		Assignment 3 Due Assignment 4 Posted
Nov 25	Multiple Linear Regression		
Dec 2	Multiple Linear Regression; Review		Assignment 4 Due