Faculty of Health
Department of Psychology
PSYC 2021 3.0 O: STATISTICAL METHODS I
Tuesday/ 8:30-11:30 am/VH-A
Winter/2022

Instructor and T.A. Information

Instructor: Jonathan Tong, Ph.D.
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T.A.	Mark Adkins
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Office Hours	By appointment

Course Prerequisite or corequisite(s):

- HH/PSYC 1010 6.00 (Introduction to Psychology), with a minimum grade of C when used as a prerequisite.

Course Credit Exclusions

Please refer to York Courses Website for a listing of any course credit exclusions.

Course website: eClass

Course Description

An introduction to the fundamental concepts and application of descriptive statistics. An introduction to probability and inferential statistics, including hypothesis testing with the normal- and t-distributions.

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.

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
- Correlation (Pearson at minimum)
- χ^2 Goodness of Fit
- χ^2 Test of Independence
- One-sample t test
- Introduce independent and dependent designs

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

Specific Learning Objectives

1. Demomstrate the ability to calculate descriptive statistics such as measures of central tendency and variability using the appropriate formulas.
2. Choose descriptives statistics that are appropriate for summarizing and organizing variables with different scales of measurement.
3. Demonstrate the ability to summarize, organize, and present the essential features of data numerically and graphically.
4. Identify the differences between descriptive and inferential statistics (e.g., summarize sample data vs use sample data to make inferences about the population).
5. Identify limitations of descriptive statistics (e.g., cannot be used to test hypotheses about the population under study).
6. Demonstrate the ability to generate statistical hypotheses (i.e., null and alternative) that are applicable to various research situations.
7. Demonstrate the ability to formulate and perform hypothesis tests that are applicable to various research situations (i.e., z test, t tests, correlations).

Required Text

Statistics for the Behavioural Sciences 10th Edition, Gravetter and Wallnau. (with MindTap access)

Course Requirements and Assessment:

Assessment	Date of Evaluation (if known)	Weighting
MindTap Exercises	Weekly (online)	20%
Test 1	February 8th	25%
Test 2	March 8th	25%
Final Exam	TBD	30%
Total		**100%**

Description of Assignments

MindTap Problem Sets: These are weekly quizzes completed online through MindTap, which will focus on course material covered each week. You will have three attempts to complete each question on the weekly quizzes, and only your highest mark across these three attempts will be recorded.

Although I strongly suggest that you complete the problem sets weekly as each chapter is covered in class throughout the semester, all problem sets have a final deadline of April 8th at 11:59pm. This deadline is non-negotiable. It is strongly advised that you do not wait until the final few weeks of the semester to complete the problem sets.

Tests: Tests will be non-cumulative and will cover the material from lectures, readings, and in-class activities from the section of the course directly preceding the test (i.e, since the last test). The format of the tests will be a mix of multiple-choice and short answer/analysis questions.

Final: The final will be cumulative, however, more heavily weighted towards later chapters (not tested in the mid-terms). The format of the tests will be a mix of multiple-choice and short answer/analysis questions.

Class Format and Attendance Policy

Attendance is highly recommended for success in this course. Although lecture content will overlap with the textbook content, lectures will include examples and applications of these materials that are not covered in-depth in the textbook, and important information regarding the course and its assessments will be provided in class. Students are expected to attend each class, barring illness or extenuating circumstance. When lectures are missed, students are responsible for making arrangements to obtain notes and information regarding the missed lecture from classmates.

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 2021-22

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.

NOTE to instructors: We cannot request APS during the Summer due to COVID-19. We recommend you are explicit about penalties for missing a test/exam/assignment, or any other evaluated course component. If you know when you will provide a make-up test, outline it at this point so it is clear for students. In addition, if you have expectations or examples of what is a legitimate reason for missing a test, please provide examples.

Add/Drop Deadlines

For a list of all important dates please refer to: Fall/Winter 2021-22 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. 21	Sept. 21	Jan. 23
Last date to add a course **with permission** of instructor (also see Financial Deadlines)	Oct. 5	Oct. 26	Feb. 7
Drop deadline: Last date to drop a course without receiving a grade (also see Financial Deadlines)	Nov. 12	Feb. 11	18-Mar
Course Withdrawal Period (withdraw from a course and receive a grade of "W" on transcript – see note below)	Nov. 13 - Dec. 7	Feb. 12 - April 10	March 19 - April 10

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

Electronic mobile devices of any kind are not allowed during a test or examination. Students are required to turn off and secure any electronic mobile device in their bag which is to be placed under the chair while a test/exam is in progress. Any student observed with an electronic device during a test/exam may be reported to the Undergraduate Office for a potential breach of Academic Honesty.

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 2021 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 (Subject to Change)

Week	Date	Topic	Reading
1	January 11	Course overview & Mindtap demo	Syllabus
2	January 18	Introduction to statistics	Ch. 1
3	January 25	Frequency Distributions Measures of Central Tendency	Ch. 2, 3
4	February 1	Variability Z-scores	Ch 4, 5
5	**February 8**	**Midterm 1**	-
6	February 15	Probability Probability and Sample: Distribution of sample means	Ch. 6,7
7	February 22	Reading week	-
8	March 1	Introduction to Hypothesis Testing	Ch. 8
9	**March 8**	**Midterm 2**	-
10	March 15	Introduction to the t-statistic (one-sample t-test) Introduction to independent and dependent designs	Ch. 9
11	March 22	correlation	Ch. 15
12	April 5	Chi-Square Test for Goodness of Fit and Test for independence	Ch. 17