Faculty of Health
Department of Psychology
PSYC 2021 3.0 O: STATISTICAL METHODS I
Tuesdays 8:30 to 11:30 in Vanier College 135
Winter 2020

Instructor and T.A. Information

Instructor: Dr. Jodi Martin
Office: 280 BSB
Email: jodimart@yorku.ca
Office Hours: Online: Tuesdays 1pm to 2pm (via Google Hangouts, links on Moodle)
     In person: Thursdays 10am to 12pm

	LAST NAMES A – K	LAST NAMES L - Z
T.A.	**Rivka Green**	**Jeffrey Esteves**
Email	rrgreen@yorku.ca	jesteves@yorku.ca
Office Hours	Tuesdays 11:30 – 12:30	Tuesdays 11:30 – 12:30
Office	130 BSB	041 BSB

*Note: To attend TA office hours you <u>must</u> sign up for an appointment using Moodle's Scheduler app. If you do not know how to use this application, ask one of the TAs or the professor in class!

**Note: When communicating with either TAs or the Professor by email please include PSYC2021O in the subject line of your email

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: Moodle

Course Description

In this course, you will learn fundamental concepts, applications, and limitations of descriptive statistics (measures of central tendency, variability, correlation). You will also be introduced to inferential statistics through lecture topics including hypothesis testing, z-tests, t-tests, and chi-square tests.

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
- 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. Differentiate the various scales of measurement.
2. Demonstrate the ability to calculate descriptive statistics (i.e., measures of central tendency and variability) using the appropriate formulas.
3. Understand how to appropriately use descriptive statistics to describe variables along the different scales of measurement.
4. Demonstrate the ability to organize and summarize data numerically and graphically.
5. Understand the difference between descriptive and inferential statistics.
6. Demonstrate the ability to generate null and alternative hypotheses for different research questions.
7. Demonstrate the ability to form and test hypotheses appropriately for different research questions or designs (i.e., *z*-tests, *t*-tests, chi-square, correlation).
8. Understand the need for, how to calculate, and how to interpret effect sizes corresponding to inferential statistics.

9. Demonstrate the ability to calculate confidence intervals, and understand that they can be used to determine significant results.

Required Text

Gravetter, F. J., & Wallnau, L. G. (2017). Statistics for the Behavioural Sciences (10th ed.). Belmont, CA: Wadsworth, Cengage Learning
PLUS
MindTap access code

- Hard cover, loose leaf and e-book packages including the text and MindTap access codes are available at the York Bookstore

You will also need access to MindTap, an online companion resource. You can purchase the textbook plus MindTap access from the bookstore. If you do not prefer to have a hard copy you can purchase MindTap on its own as there is an e-book included, however with this option you will not have access to the e-book once your MindTap access expires. To register for MindTap, please follow the steps outlined in "How to access your MindTap course" which is posted in the Course Announcements on Moodle.

Course Requirements and Assessment:

This course adopts a formative learning approach, based on pedagogical studies which demonstrate that frequent, ongoing application of course materials fosters better learning of statisitics. The final grade for this course will be based on the components listed below. Be sure to also familiarize yourself with my policy on missed assignments and missed tests/exams, which is detailed further below.

Assessment	Date of Evaluation (if known)	Weighting
MindTap Problem Sets	Weekly (suggested, see below)	20%
Test #1	February 4th	25%
Test #2	March 3rd	25%
Test #3	TBD between April 7th to 25th	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. This gives you a unique, risk-free opportunity to learn from your initial mistakes on any given question.

The suggested weekly format is pivotal in ensuring that you stay up-to-date on the course materials and the formative skills that you will be learning throughout the course. Although I **strongly** suggest that you complete the problem sets at a regular weekly cadence as each

==chapter is covered in class throughout the semester, all problem sets have a final deadline of **April 7th at 11:59pm. <u>This deadline is non-negotiable</u>**.== It is strongly advised that you do not wait until the final few weeks of the semester to complete the problem sets, both because this will not support your continuous learning and because extensions will not be granted except in the most extreme circumstances.

Tests: All 3 tests will be **<u>non-cumulative</u>** 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.

==**<u>Note:</u>** When necessary, students will be provided with a formula sheet during tests. No additional aids (other than a non-programmable calculator) are permitted during tests.==

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 2019-20

Missed Tests:

Procedures for Notifying us of a Missed Test

For any missed tests students **<u>MUST</u>** complete the following online form **<u>within 48 hours</u>** of the missed test which will be received and reviewed in the Psychology undergraduate office.

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 test.

==In addition to completing the online form students MUST have a documented reason for a missed tests, midterm exam or late assignments such as illness, compassionate grounds, etc., and MUST submit official documentation <u>within 1 week of the missed test date</u> (e.g. Attending Physician Statement,== death certificate, obituary notice, automobile accident report, airline/bus ticket/receipt for <u>emergency</u> travel (note that documentation for <u>emergency travel</u> must indicate destination, departure, and return dates and is subject to approval by the Course Instructor). Please note that h<u>aving to travel for non-emergent reasons (i.e., going on vacation) or having to work at the time of a test are typically not considered valid excuses for missing a test or exam.</u>

When submitting the online form and your official documentation, **please indicate the name of the TA** to whom you are assigned in addition to the name of the Professor. Your

supporting documentation (see details below) can also be uploaded using the departmental form.

==If you cannot provide notification and documented support for missing the test or final exam within this 48-hour period, additional documentation accounting for the delay must be provided to avoid receiving a grade of zero.==

Make Up Testing for Approved Missed Tests

Students with a **documented, eligible reason** for missing a test (such as illness, compassionate grounds, etc.), which is **confirmed by supporting documentation** will have the following option:

- ==For each test, **one** make-up date will be set==. Students will only be permitted to write the make up with appropriate documentation after following the correct procedures outlined above (see paragraph above).
- Students who miss the original test as well as the make up test ==**must** provide additional documentation justifying why they could not write the make up on the specified date== and will have to **consult with the Professor** to determine how the assessment grade will be redistributed across remaining assessments. This option can only be used once per semester to minimize risk of impeding your performance in the course, except in extreme circumstances which will be determined by the Professor.

Important Note: You should be aware that if you miss the make-up test or exam as scheduled, you may not have the requisite 15% feedback on your course work to determine whether or not you need to drop the course, and you will not be provided an additional opportunity to make-up the test or exam; make-ups may not take the same format as the original test or exam (e.g., you may be asked to write an essay for the make-up). Therefore, it is in your best interest to write the tests as scheduled by the Course Instructor except in truly dire, exceptional circumstances.

Add/Drop Deadlines

For a list of all important dates please refer to: [Fall/Winter 2019-20 - Important Dates](#)

	FALL (F)	**YEAR (Y)**	**WINTER (W)**
Last date to add a course **without permission** of instructor (also see Financial Deadlines)	Sept. 17	Sept. 17	Jan. 19
Last date to add a course **with permission** of instructor (also see Financial Deadlines)	Oct. 1	Oct. 22	Feb. 3

Drop deadline: Last date to drop a course without receiving a grade (also see Financial Deadlines)	Nov. 8	Feb. 3	March 13
Course Withdrawal Period (withdraw from a course and receive a grade of "W" on transcript – see note below)	Nov. 9 - Dec. 3	Feb. 4 - Apr. 5	March 14 - Apr. 5

*Note: *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 (phones, tablets, smartwatches) 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 will be reported to the Undergraduate Office for a potential breach of Academic Honesty.**

Videorecordings of lectures are strictly prohibited. Should you wish to audiorecord a lecture, please obtain permission directly from the Professor prior to making any recordings.

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 thus 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.

Finally, certain classroom behaviours can be quite disruptive to the class. Out of respect for the other students in the class as well as the professor, please ensure that you do not:
1) arrive consistently late for class;
2) noisily start packing up early;
3) consistently leave before the class has finished;
4) talk amongst each other in class;
5) let your cell phone go off (or even worse, answer it!) in class.

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 information [SPARK Academic Integrity modules](#). These modules explain principles of academic honesty.

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 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 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 PSYC2021O 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](#).

Proposed Course Schedule (subject to minor changes due to weather class progress):

Week	Class Date	Topic	Required Readings
1	January 7th	*Course Overview & MindTap Demonstration*	Syllabus MindTap
2	January 14th	*Introduction to Statistics*	1 Appendix A
3	January 21st	*Frequency Distributions* *Measures of Central Tendency*	2 (exclude sections 2.4, 2.5) 3
4	January 28th	*Variability* *z-scores: Location of Scores and Standardized Distributions*	4 5
5	February 4th	**Test #1 (25%) Covers chapters 1, 2, 3, 4, 5**	
6	February 11th	*Probability* *Probability and Sample: The Distribution of Sample Means*	6 (exclude section 6.4) 7
	February 18th	**READING WEEK NO CLASSES**	
7	February 25th	*Introduction to Hypothesis Testing*	8
8	March 3rd	**Test #2 (25%) Covers chapters 6, 7, 8**	
9	March 10th	*Introduction to the t-statistic (one-sample t-test)* *Introduction to independent & dependent designs*	9
10	March 17th	*Correlation*	15
11	March 24th	*Chi-square Test for Goodness of Fit and Test for Independence*	17
12	March 31st	*How do I know which test to use? & Test #3 Review*	Practice problems
	April 7th	**MindTap Problem Sets Close @ 11:59pm**	
	April 7th to 25th	**Test #3 (30%) (covers chapters 9, 15, 17)**	