

Faculty of Health
Department of Psychology
PSYC 2021 3.0 A: STATISTICAL METHODS I
Wednesday 2:30 – 5:30, Curtis Lecture Hall E
Fall 2019

Instructor and T.A. Information

Instructor: Dr. Jodi Martin

Email: jodimart@yorku.ca

Office: 280 Behavioural Sciences Building (BSB)

Office Hours: In person: Thursdays 10am to 12pm; Online: Tuesdays 1pm to 2pm (all of Dr. Martin's office hours are held as drop-in, first come first served. Links to weekly online office hours can be found on the course Moodle)

	LAST NAMES A-K	LAST NAMES L-Z
T.A.	Justeena Zaki-Azat	Alyssia Wilson
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Office	BSB 262	Calumet 303
Office Hours	Wednesdays 11am – 12pm	Wednesdays 1pm – 2pm

Note: To attend office hours with your assigned TA, please sign up for a time slot in Moodle. Time slots must be booked with minimum of 1 hour notice to the TA.

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 (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. Differentiate the various scales of measurement.
2. Calculate descriptive statistics (i.e., measures of central tendency and variability).
3. Understand how to appropriately use descriptive statistics to describe variables along the different scales of measurement.
4. Demonstrate the ability to generate null and alternative hypotheses for different research questions.
5. Demonstrate the ability to form and test hypotheses related to different research questions using basic inferential statistics (i.e., z-tests, t-tests, chi-square).
6. Understand the need for, how to calculate, and how to interpret effect sizes corresponding to inferential statistics.
7. Demonstrate the ability to calculate confidence intervals, and understand how 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 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.

Note: MindTap is required for this course in order for you to complete the weekly assignments.

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 statistics. 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	September 25	25%
Test #2	October 30	25%
Test #3	TBD between December 5 - 20	30%
Total		100%

Description of Assessments:

MindTap Problem Sets: These are weekly quizzes completed online through MindTap, which will focus on course material covered that week. You will have three attempts to complete each question on the weekly quizzes, and 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 weekly 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 December 4th 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: All 3 tests will be **non-cumulative** and will cover the material from lectures, readings, and MindTap problem sets 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.

Note: 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 Policy:

For any missed tests, students **MUST** complete the following online form **within 48 hours of the original deadline**, 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.

Please indicate the name of **the professor AND the TA** to whom you are assigned when completing this form. Your supporting documentation (see details below) can be uploaded using this 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.

In addition, to 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 (e.g. [Attending Physician Statement](#)) along with the above online form.

Students with a **documented, eligible reason** for missing a course test or the final exam (such as illness, compassionate grounds, etc.), which is **confirmed by supporting documentation** may request accommodation from the professor. Acceptable supporting documentation may include: Attending Physician Statement (doctor's note; which can be found at: <http://registrar.yorku.ca/pdf/attending-physicians-statement.pdf>), death certificate, obituary notice, automobile accident report, airline/bus ticket/receipt for emergency travel (note that documentation for emergency travel must indicate destination, departure, and return dates and is subject to approval by the Course Instructor). **Having to travel for non-emergent reasons (i.e., going on vacation) or having to work at the time of a test are not considered valid excuses for missing a test or exam.**

A physician's statement/doctor's note **must** include the following information:

- (i) full name, mailing address, telephone number of the physician,

- (ii) the nature of the illness and its duration (i.e., specific dates covered), and
- (iii) an indication of whether the illness and/or medication prescribed would have SERIOUSLY affected the student's ability to study and perform over the period in question.

NOTE: The physician's office may be contacted to verify that the forms were completed by the physician.

For any missed test, one make-up date will be set. Students will only be permitted to write a make-up with appropriate documentation after following the correct procedures outlined above (see paragraph above). **Students who do not complete the make up test/exam must provide additional documentation justifying why they cannot write the make up on the specified date, and will have to meet with the Professor to determine how the assessment grade weighting will be redistributed.**

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/exam 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, its quizzes and tests 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 PSYC2021A 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

<i>Week</i>	<i>Class Date</i>	<i>Topic</i>	<i>Required Readings</i>
1	September 4	<i>Course Overview</i> <i>Introduction to Statistics</i>	Syllabus 1, Appendix A
2	September 11	<i>Frequency Distributions</i>	2
3	September 18	<i>Central Tendency</i> <i>Variability</i>	3 4
4	September 25	Test #1 (25%) (covers chapters 1, 2, 3, 4)	
5	October 2	<i>z-scores: Location of Scores and Standardized Distributions</i>	5
6	October 9	<i>Probability</i> <i>Probability and Sample: The Distribution of Sample Means</i>	6 7
	October 16	No Class: Reading Week	
7	October 23	<i>Introduction to Hypothesis Testing</i>	8
8	October 30	Test #2 (25%) (covers chapters 5, 6, 7, 8)	
9	November 6	<i>Introduction to the t Statistic</i>	9
10	November 13	<i>Independent Samples t-test</i> <i>Dependent (Related) Samples t-test</i>	10 11
11	November 20	<i>Chi-square Statistic: Tests for Goodness of Fit and Independence</i>	17
12	November 27	<i>Correlation</i> <i>Test #3 Review</i>	15 (Sections 15.1-15.4)
	December 4	MindTap Problem Sets Close @ 11:59pm	
	December 5 - 20	Test #3 (30%) (covers chapters 9, 10, 11, 15, 17)	

