Faculty of Health
Department of Psychology
PSYC 2020 6.0 G: STATISTICAL METHODS I AND II
Recorded Lectures: Posted weekly on eClass
Weekly Community Meetings: Thursdays at 2:30pm via Zoom
Fall-Winter 2020-2021

Instructor and T.A. Information
Instructor: Dr. Jodi Martin
Office Hours: By appointment (see Communications folder on eClass to book)
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T.A.	Marette Abdelmaseh
Email	mjabd@yorku.ca
Office Hours	See Communications folder on eClass to book appointment

NOTE: ALL OFFICE HOURS WILL BE HELD AS ZOOM MEETINGS

This course will consist of both **asynchronous** (completed individually on your own time) and **synchronous** (completed as a community at a scheduled day and time) components.

Asynchronous recorded lectures: Pre-recorded content-based lectures will be shared each week through eClass. These videos will provide instruction of course material. Pre-recroded videos demonstrating skills in using statistical software (jamovi) will also be available on eClass. Students are expected to have viewed the recorded lectures before attending the live (synchronous) community meeting each week. Any additional supplemental or review materials will also be shared through eClass and completed on students' own time.

Synchronous community meetings: "Live" weekly meetings for the course community (students, teaching team) will be held via Zoom each Thursday at 2:30pm for 1 – 1.5 hours. During these meetings the instructor will address student questions about the week's lecture content. Students can submit questions for this session through eClass each week by 11:59pm the night before the community meeting (Wednesday). Additional demonstrations or application of content will be delivered as needed during community meetings. Recordings of live community meetings will be posted to eClass. Although attendance to these meetings is strongly recommended, students who cannot attend live can watch a recording of the session via eClass at a later time. **No live community meeting will be held during weeks when a Quiz is scheduled.**

Students are expected to spend **a minimum of 3 - 4 hours per week** on this course.

Course Prerequisite(s): Course prerequisites or co-requisite are strictly enforced

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

Course Credit Exclusions

Please refer to [York Courses Website](#) for a listing of any course credit exclusions.

Course website: [eClass](#)
eClass (formerly known as Moodle) will be your central access point for all course materials including important details about the course, weekly content-based lecture videos & lecture slides, question submissions for weekly community meetings, links to weekly community meetings via Zoom, quizzes, assignment instructions and submissions, and appointment sign-ups for instructor & TA office hours. All communications from instructor to students will also take place through eClass's Course Announcements.

It is absolutely necessary that you are regularly accessing 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. Following our initial orientation, it is the student's responsibility to review and become comfortable with using eClass for the purposes of this course.

Course Description

Statistical literacy is an important skill obtained through an undergraduate education in psychology. This course introduces students to the basic concepts of both descriptive and inferential statistics. We will take a hands-on, skills-based approach aimed at facilitating students' understanding of the use and interpretation of various statistical methods. Students will obtain both conceptual and applied knowledge in a range of topics including data visualization, central tendency & variability, probability & sampling distributions, hypothesis testing, and effect sizes as well as both parametric and non-parametric statistical methods. Students will gain hands-on analytic experience working with real data by using software (jamovi, R) to run statistical analyses and by interpreting their results.

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.

Specific Learning Outcomes

1. Compare and contrast descriptive and inferential statistics
2. Provide examples of the different scales of measurement
3. Summarize, organize, and present the essential features of different data types numerically and graphically

4. Calculate relevant descriptive statistics such as measures of central tendency and variability for different variables

5. Generate statistical hypotheses (i.e., null and alternative) for various research situations

6. Compute univariate inferential statistics and interpret their results (i.e.,t-tests, ANOVAs, chi-squares)

9. Discuss how effect size metrics and confidence intervals can supplement traditional approaches to hypothesis testing

10. Critically evaluate the results of statistical analyses in published psychology research

Required Textbook

There is no required text for this course. Activities and opportunities for practice will be provided to you through eClass.

Optional Textbooks

You can consider the following FREE texts available to download online to supplement your learning in the course. **If you use one of these books, keep in mind that all quizzes will be based on lecture materials alone, not content of the texts (they are just for additional optional support).**

1) https://www.learnstatswithjamovi.com/

> This book covers intro to statistics while also giving a lot of supplemental learning on using jamovi. Although this book goes far more in depth on some topics than is needed for this course, I would recommend it to supplement the application of your learning using jamovi, but also refer to the jamovi materials posted on eClass if you find this book too dense or intimidating.

2) https://open.umn.edu/opentextbooks/textbooks/an-introduction-to-psychological-statistics

> This book covers general conceptual knowledge of statistics.

You can also consider the following options for PAID hard copy or e-books as optional supplemental material for the course:

1) Gravetter, F. J., & Wallnau, L. G. Statistics for the Behavioural Sciences. Belmont, CA: Wadsworth, Cengage Learning. (8th through 10th editions would be fine)

2) Howell, D.C. (2016). Fundamental statistics for the behavioral sciences (9th ed). Wadsworth Publishing, Cengage Learning.

Please note that if you purchase a textbook thinking it is required you may not be able to return it. Before buying the book, make sure you are aware of the seller's refund policy.

Course Requirements and Assessment:

Assessment	Date of Evaluation (if known)	Weighting
Quiz 1	October 22	10%
Quiz 2	November 26	10%
Quiz 3	February 11	10%
Quiz 4	April 1	10%
Apply It! Check-ins (X 8)	Roughly every 2 weeks (see schedule, p. 9-10)	16%
Assignment 1	Between December 3 – 10	20%
Assignment 2	Between April 8 – 15	20%
R Tutorials & Feedback	Throughout Semester 1 (hard end: Dec 8)	4%
Total	**100%**	

Description of Assessments (see also "*Missed Quizzes and Late Assignments"* below)

Quizzes

Students will complete four online quizzes on eClass throughout the course. **Quizzes should be completed without reliance on additional aids (e.g., course notes, web searches, lecture slides).** Each quiz will be non-cumulative based on content from lectures, any assigned readings, and Apply It! check-ins. Quiz formats may include multiple choice and brief short-answer questions which will be randomly selected from a large question bank so no two students will complete an identical quiz. **Quizzes will be available between 2:30pm and 5:30pm (Toronto time) on their scheduled date. Once started, students will have a specified period of time (i.e., not the full 3 hours) to complete the quiz but all quizzes will auto-submit at 5:30pm; students are advised to plan timing accordingly.** More information about quizzes will be posted on eClass.

Apply It! Check-ins

Students will complete eight Apply It! Check-ins throughout the course (four in Semester 1, four in Semester 2). These are brief low-stakes assignments (worth 2% each) where students will apply course content to new situations, contexts, or data. Apply It! Check-ins are due roughly every two weeks throughout the course (see schedule on pages 9-10). **Students will receive feedback on Apply It! Check-ins that will aid them in completing the larger summative assignments**. Apply It! Check-ins will be submitted through eClass.

Assignments

Students will complete two summative assignments, one at the end of the first semester and one at the end of the second semester. The purpose of these assignments is to demonstrate a conceptual understanding of course material as well as an ability to apply knowledge through the conducting and interpreting of statistical analysis of data. **Each assignment is cumulative and will require knowledge and skills developed throughout the preceding course modules.** More information will be released about each assignment on eClass. All assignments will be submitted through eClass.

Note: Assignment instructions will be provided well in advance of deadlines. It is recommended that students work on assignments gradually over time and use the assignment to review and apply your understanding of course material in preparation for quizzes.

R Tutorials & Feedback Surveys

Students will complete a series of online tutorials introducing them to the statistical software, R. They will also completed a set of related feedback surveys. These tutorials will build on skills and knowledge acquired in this course and will prepare students' analytical skills for better performance in future courses. Participation points will be awarded for completion. More information on how to access the tutorials and earn 4% toward your final grade will be posted on eClass.

Class Format and Attendance Policy

Course content will be delivered through both pre-recorded videos posted weekly on eClass which students will watch on their own time and weekly live community meetings held each week on Thursdays at 2:30pm on Zoom. Community meeting sessions will be spent on student-led Q&A on course content and (when necessary) software demonstrations. These are also the primary opportunity for students to interact both with each other and the teaching team as a community. Although attendance to Thursday meetings is strongly recommended it will not be enforced in order to accommodate students who are truly unable to attend. Recordings of these community meetings will be posted on eClass for students who are not able to attend live.

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 2020-21](#)

Missed Quizzes and Late Assignments:

Missed Quizzes

For any missed quiz students MUST complete the Missed Quiz form found in the Communication & Contact Info folder on eClass. Failure to complete the form within 48 hours of the original quiz date will result in a grade of 0 for the missed quiz. 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.

Once you have notified us of a missed quiz a make up date and time will be set for you in eClass. **There will only be one opportunity to rewrite a quiz and the make up may be in a different format than the original quiz.** If you miss your scheduled make up quiz you must again completed the missed quiz form with a justifiable reason and the quiz's weighting will be redistributed across the other quizzes.

Late Apply It! Check-ins and Late Assignments:

Late Apply It! Check-ins and late Assignments will receive a grade of 0 and no extensions will be granted, except in extreme circumstances. Apply It! Check-ins and Assignment deadlines each span a 7-day submission window, which acts as built-in extra time for their completion. This does not mean that the final day of a deadline week for an assignment is the actual deadline, rather, students should submit their assignment at a time during the submission window that is most convenient for them.

Add/Drop Deadlines

For a list of all important dates please refer to: Fall/Winter 2020-21 Important Dates

	Fall (F)	Year (Y)	Winter (W)
Last date to add a course **without permission** of instructor (also see Financial Deadlines)	Sept 22.	Sept 22.	Jan. 25
Last date to add a course **with permission** of instructor (also see Financial Deadlines)	Oct. 6	Oct. 27	Feb. 8
Drop deadline: Last date to drop a course without receiving a grade (also see Financial Deadlines)	Nov. 6	Feb. 5	March 12
Course Withdrawal Period (withdraw from a course and receive a grade of "W" on transcript – see note below)	Nov. 7-Dec. 8	Feb. 6 – April 12	March 13-April 12

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 quizzes in a manner that does not include consulting an unauthorised source during the quiz

Any sharing of screenshots and/or personal feedback received from completing course quizzes online 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.

This includes the sharing of screenshots and/or personal feedback received from completing course quizzes online. The sharing of these details by any means (e.g., What's App group, student forum, Reddit, Facebook group etc.) is strictly prohibited.

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 the Professor 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 PSYC2020G 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 change as necessary) – **FALL SEMESTER**

Week	Live Mtg Date	Topic	What's due when?
1	Sept 10	Course Overview eClass Orientation	Getting to Know You Survey (Sept 9 @ 11:59pm)
2	Sept 17	Introduction to Statistics Intro to jamovi (in Zoom meeting)	
3	Sept 24	Examining Data: Tables & Figures	**Apply It 1 (Sept 24 – Oct 1)**
4	Oct 1	Measures of Central Tendency & Variability	
5	Oct 8	z-scores & the Normal Distribution	**Apply It 2 (Oct 8 – 15)**
	Oct 15	*Fall Reading Week*	
6	Oct 22	**Quiz 1**	
7	Oct 29	Probability & Intro to Hypothesis Testing	
8	Nov 5	Errors in Hypothesis Testing, Statistical Power, & Effect Size	**Apply It 3 (Nov 5 – 12)**
9	Nov 12	One-sample t-test	
10	Nov 19	Independent & Dependent Samples t-tests	**Apply It 4 (Nov 19 – 26)**
11	Nov 26	**Quiz 2**	
12	Dec 3	Q&A, Semester Wrap up	**Assignment 1 (Dec 3 – 10)**

WINTER SEMESTER

Week	Synchronous Mtg	Topic	What's due when?
1	Jan 14	One-way ANOVA	
2	Jan 21	Repeated measures ANOVA	**Apply It 5 (Jan 21 – 28)**
3	Jan 28	Non-parametric Alternatives to ANOVA: Kruskal Wallis Test & Friedman Test	
4	Feb 4	Factorial ANOVA	**Apply It 6 (Feb 4 – 11)**
5	Feb 11	**Quiz 3**	
	Feb 18	*WINTER READING WEEK*	
6	Feb 25	Correlation	
7	Mar 4	Chi-square Tests	**Apply It 7 (Mar 4 – 11)**
8	Mar 11	Simple Linear Regression	
9	Mar 18	Multiple Linear Regression	**Apply It 8 (Mar 18 – 25)**
10	Mar 25	Thinking Critically about Statistics	
11	Apr 1	**Quiz 4**	
12	Apr 8	Q&A, Course wrap up	**Assignment 2 (Apr 8-15)**