Faculty of Health
Department of Psychology
PSYC 2020 6.0 C: STATISTICAL METHODS I AND II
Monday/11:30am-2:30pm/RN203
Fall-Winter/2019-2020

Instructor and T.A. Information

Instructor: Monique Herbert, PhD
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Office	SHR 1006
Office Hours	By appointment only

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: [Moodle](#) (please do not send an email to the instructor or TA via Moodle; please use the email addresses provided above)

Course Description

An introduction to the analysis of data from psychological studies. Fundamental concepts and techniques of both descriptive and inferential statistics and their application to psychological research.

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.

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
- Two independent samples t-test
- Paired samples t-test
- Review of basic statistical concepts
- One-way Independent Groups ANOVA (with contrasts)
- Two-way Independent Groups ANOVA (with interaction and contrasts)
- One-way Repeated Measures ANOVA (with contrasts)
- Correlation (including partial correlation)
- Simple Regression
- Multiple Regression
- *Effect size is included as part of all inferential statistics covered in this course.*

Specific Learning Objectives

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

7. Demonstrate the ability to generate statistical hypotheses (i.e., null and alternative) that are applicable to various research situations
8. Demonstrate the ability to compute univariate inferential statistics and interpret and present the results for various research situations (i.e.,t tests, ANOVAs)
9. Identify limits of conlusions based on inferential statistics (e.g., statistical vs practical significance)

Required Text

Custom Ll Pkg Stats For The Behavioral Sciences 10Th W/Chap 20 and Mindtap

**Please note it is important that you purchase this 10th edition with MindTap as you will be completing weekly online assignments based on the information provided in this package. A copy of the above text can be purchased from the bookstore.

MindTap Student Registration URL: https://login.nelsonbrain.com/course/MTPPK6PN0J4R

Course Requirements and Assessment:

Assessment	Date of Evaluation (if known)	Weighting
MindTap Assignments	Weekly	20%
Test#1	Oct 07	10%
Test#2	Dec 02	10%
Test#3	Feb 10	10%
Test#4	Mar 23	10%
Final Exam	Apr 07- 25	40%
Total		100%

Description of Assignments/Tests/Final Exam

These are weekly assignments which will focus on course material covered in class on a given week. **However, to accommodate those who may need a bit more time to complete assignments for the Fall Semester they are due on Dec 09, 2019 and for the Winter Semester they are due on April 06, 2020; this due date is non-negotiable. I strongly advise that you do not wait until the last few weeks of the semester to complete the assignments. Only the Problem Sets associated with the chapters from the text we covered in this course count toward your final grade.** However, there are other activities (e.g., End-of-chapter problems, exam) available for you to practice course material.

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Tests: Tests will be non-cumulative and cover the material from lectures, readings, and MindTap assignments preceding the test. The format of the tests will be a mix of multiple-choice and open-ended/short-answer questions (e.g., defining concepts or responses to analysis questions).

Final Exam: The final exam will be cumulative and covers all course material.

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/Midterm Exams/Late Assignment:

For any missed tests, midterm exam or late assignments, students MUST complete the following online form 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 tests, midterm exam or late assignments.

In addition, to the online form, students documented reason for a missed tests, midterm exam or late assignments such as illness, compassionate grounds, etc., MUST submit official documentation (e.g. [Attending Physician Statement](#))

Missed Tests: Please note in completing the online form you will also need to include formal documentation to verify the circumstances for missing the test (e.g., completed Attending Physician's Statement Form) – this documentation should be submitted **within 7 days of the missed test.**

Upon completion of the online form and after receipt of your supporting documentation you will have two options:

   (1) **one opportunity** to write a make-up tests (this will be scheduled at a day and time to be announced by the instructor and may take a different form from the original test)**
      OR
   (2) opt to have the weight of the missed test added to your cumulative final exam

**Note: If you miss your make-up test option 2 will take immediate effect provided the appropriate notification and documentation were received.

Missed Final Exam: If you miss your final exam please also complete the online form **within 48 hours of the missed exam** and provide formal documentation (i.e., Attending Physician Statement and Final Exam Deferred Standing Agreement Form) **within 7 days of the missed final exam**.

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.*

Information on Plagiarism Detection

Turnitin will be used to detect any evidence of plagiarism.

Electronic Device Policy

Students who wish to use an electronic device (e.g., tablets, laptops) during class time are asked to do so only for course-related purposes.
See also policy on use of electronic mobile devices during tests and exams.

Attendance Policy

Students are expected to attend all classes as weekly class activities builds on the previous week's material.

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 PSYC2020C 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

Week	Date	Topic	Chapters
SEMESTER I			
1	Sep 09	*Course Overview* *MindTap Demo* *Brief Assessment*	
2	Sep 16	*Introduction to Statistics*	1, Appendix A
3	Sep 23	*Frequency Distributions* *Central Tendency*	2, 3
4	Sep 30	*Variability* *z-Scores: Location of Scores and Standardized Distributions*	4, 5
5	Oct 07	**Test#1 (10%)**	
	Oct 14	**Reading Week - NO CLASS**	
6	Oct 21	*Probability* *Probability and Samples: The Distribution of Sample Means*	6, 7
7	Oct 28	*Introduction to Hypothesis Testing*	8
8	Nov 04	*Introduction to the t Statistic*	9
9	Nov 11	*The t Test for Two Independent Samples*	10
10	Nov 18	*The t Test for Two Related Samples*	11
11	Nov 25	*Mann-Whitney U test* *Wicoxon Signed-Ranks test*	20
12	Dec 02	**Test#2 (10%)**	
SEMESTER II			
1	Jan 06	*Semester I Review*	
2	Jan 13	*Introduction to Analysis of Variance*	12
3	Jan 20	*Introduction to Analysis of Variance*	12, 20

Week	Date	Topic	Chapters
		Kruskal-Wallis Test	
4	Jan 27	*Two- Factor Analysis of Variance (Independent Measures)*	14
5	Feb 03	*Repeated-Measures Analysis of Variance* *Friedman Test* **Last date to drop a course without receiving a grade**	13, 20
6	Feb 10	<mark>**Test#3 (10%)**</mark>	
	Feb 17	**Winter Reading Week - NO CLASS**	
7	Feb 24	*Correlation*	15
8	Mar 02	*Introduction to Regression*	16
9	Mar 09	*The Chi-Square Statistic: Test for Goodness of Fit and Independence*	17
10	Mar 16	*Binomial Test*	18
11	Mar 23	<mark>**Test#4 (10%)**</mark>	
12	Mar 30	*Overall Course Review (prep for final exam)*	
	Apr 07-25	<mark>**Final Exam (cumulative) – 40%**</mark>	