

YORK UNIVERSITY  
FACULTY OF HEALTH  
DEPARTMENT OF PSYCHOLOGY  
PSYC 2022.03 M – DATA ANALYSIS II  
FRIDAY 11:30 – 2:30 IN CLH-E  
Pre- requisite PSYC 2021 3.0

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INSTRUCTOR:	Dr. Margarete Wolfram	TA:	Ryan Barnhart
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OFFICE:	BSB 274		
OFFICE HOUR:	Tu 4:00 – 6:00 Fr 3:00 – 4 :00		
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**TEXTBOOK:**

Recommended: Wolfram, M. and Cheng, L. Statistical Concepts and Procedures: The Essentials, 4th ed., York University, Toronto, 2012.  
Available in class from the rep for \$50.- during the break

**EVALUATION PROCEDURE:**

Grades will be based on the outcome of two tests, worth 50% each. All tests consist of 50% multiple-choice questions and 50% problem questions. The midterm exam will take place on February 15; the date for the final exam will be scheduled by the Registrar's Office during the final exam period, April 10 - 26.

To help students monitor their progress, there will be weekly assignments. Detailed collective feedback will be provided on a weekly basis. Students are free to hand in their completed assignment to receive individualized feedback; however, assignments are strictly for practice and do not count towards the course grade.

**PROCEDURES FOR MISSED EXAMS:**

Students who fail to write the exam at the scheduled time need to contact the instructor by e-mail within 48 hours. If they can document a valid reason for their absence they will be allowed to write a make-up exam at a time specified by the instructor. The date of the make-up will be the same for all students who missed the test. There will be no individual accommodation. For information on acceptable reasons for missing a test and required documentation consult the Department of Psychology website regarding guidelines for missed exams.

**GOAL OF THE COURSE:**

The goal of this course is statistical literacy, especially in the area of inferential statistics, and competence in choosing and carrying out statistical analyses appropriate to different research questions. Students will gain a better understanding of the experimental findings they encounter in other courses and they will be able to interpret and critically evaluate research findings reported in the media. The course will also provide solid preparation for PSYC 2030 (research methods), and PSYC 4000 (thesis course) or PSYC 4170 (advanced methodology).

## **PARTICULARITIES OF A STATISTICS COURSE:**

As you may already have discovered taking PSYC 2021, statistics differs from many other courses in that one thing builds on another. Students have to retain it all. The only way this can be achieved is by mastering each part to the point where it becomes automatic. Using statistics then becomes similar to speaking a language fluently without having to explicitly recall each rule. Mastering statistics does not require an unusual degree of aptitude for mathematics, but the course **does require** a fair amount of **regular work**. According to a questionnaire, successful students spend an average of five hours per week studying statistics in addition to class time. There is, however, a large range in the time required by different students. **Lack of investing enough regular time and attention is the one prime reason for failure in this course.**

Some students spend a lot of time wondering whether or not they will succeed. Henry Ford had the answer to their question when he said: "Whether you think you can or think you can't, - either way you are right." People tend to live up (or down) to their own expectation. However, positive expectations need to be combined with concrete strategies to move beyond wishful thinking.

## **STRATEGIES TO SUCCEED IN THIS COURSE:**

Maximum efficiency can be achieved by:

- (a) good resource management, i.e. keeping oneself in good operating conditions and setting aside weekly time periods for regular homework,
- (b) using several smaller time periods rather than one big block,
- (c) making friends with classmates and working with others (but NOT during exams),
- (d) making use of the models provided,
- (e) asking for help when encountering difficulties, i.e. essentially staying on top rather than letting things slide and hoping to catch up at some future point in time.
- (f) understanding the material AND making its use automatic through practice

## **CORRESPONDENCE:**

Please be aware that this is not a correspondence course. Attending lectures cannot be substituted by requesting information and explanation from the instructor or the TA via e-mail. Identify yourself clearly (first and last name, course number and section) when you need to communicate by e-mail or phone. State **2022** in the subject line of any e-mail. Please read your course outline carefully. It contains all the administrative information students tend to ask about.

## **IF YOU NEED EXTRA HELP:**

(1) Consider whether you have made an honest effort to cope on your own. Some students simply assume that they cannot handle the material. Hiring a tutor fulfils their need to depend on somebody other than themselves. (2) Make use of the resources available. The instructor and the TA have weekly office hours and are ready to help you out. If you can't make the office hours, alternative times can often be arranged. (3) Form a study group. (4) If you really find that the available resources do not suffice, we recommend registering for peer tutoring with UPSA (Undergraduate Psychology Student Association) at York University over hiring a tutor.

## COURSE SCHEDULE

Jan.	11	Introduction to the course Review of hypothesis testing
Jan.	18	Review of t-tests: one sample, two related samples, and two independent samples; effect sizes
Jan.	25	Analysis of variance for $k (>2)$ independent samples Post hoc comparison of group means; effect sizes
Feb.	1	Analysis of variance for repeated measures Comparison of means; effect sizes
Feb.	8	Review of principles of hypothesis testing, t-tests and 1-way ANOVAs Effect of $N$ on the outcome of hypothesis testing
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Feb.	15	Midterm exam (50%) covering chapters 7 – 13 of Wolfram and Cheng
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Feb.	22	READING WEEK – NO CLASSES
March	1	The notion of interaction between variables Two-way analysis of variance for two independent groups
March	8	Testing hypotheses about distributions of ranks for two groups The sign test, Wilcoxon test for correlated samples; effect sizes Mann-Whitney U for independent samples; measures of association
March	15	Testing hypotheses about distributions of ranks for more than two groups Friedman Analysis for $k (k>2)$ related groups; effect size Kruskal-Wallis test for $k$ independent groups; effect size
March	15	Last day to drop course without receiving a grade
March	22	Testing hypotheses about correlations; Pearson $r$ and Spearman $r$
March	29	GOOD FRIDAY – NO CLASSES
April	5	Review of chi square and its uses.
April	8 (make-up class for March 29 <sup>th</sup> )	How to choose a statistical procedure appropriate to a given data set
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April	10 to 26	Final exam (50%) covering chapters 7 – 17 of Wolfram and Cheng
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