

PSYC08 - Advanced Data Analysis in Psychology
Winter 2018
Room: AA112

Instructor: Dr. Lisa Fiksenbaum

Teaching Assistants:

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****There are NO Tutorials during the first week of the course!**

Overview: This course builds from the material covered in PSYB07. Topics that will be covered include: ANOVA, factorial ANOVA, repeated measures and mixed designs, and multiple comparisons associated with those designs. Non-parametric analyses will also be explored, if time permits. The primary goal of the course is to provide students with a solid understanding of both the logic and computations underlying many of the statistical procedures that psychologists use when analyzing data collected from studies.

By the end of the course, you should be able to:

- explain the logic and theory underlying each statistical technique and implement the computational procedures
- apply the appropriate statistic for testing a hypothesis given a particular research design and data
- correctly interpret and communicate the results of an analysis

Textbook: Howell, David C. (2017). *Statistics for Behavioral Sciences* (8th Edition). Wadsworth, Cengage Learning.

Course Requirements: Your final grade in the course will be based on assignments (20%), a mid-term examination (40%), and a final examination (40%). There will be at least six quizzes or assignments during the term. Your best four performances will be used for the quiz/assignment

portion of your grade. The quizzes will be administered in tutorial without warning, so be prepared! The date for the mid-term will be posted and announced early in the term. The date for the final examination will be published by the registrar's office sometime during the term.

Make-Ups: If you miss the mid-term exam for legitimate reasons, you must submit appropriate documentation (e.g., if the mid-term is missed due to illness, **the official UTSC Verification of Illness Form** must be submitted). *Forms are to be **completed in full**, clearly indicating the start date, anticipated end date, and severity of illness. The physician's registration number and business stamp are required as is the course information. In the case of emergency, a record of visitation to a hospital emergency room or copy of a death certificate may be considered.* There will be one make-up exam only. The date and time will be announced on Blackboard. If the make-up is also missed for legitimate reasons, a grade will be assigned on the basis of the student's relative performance on the final examination and quizzes.

For final exams, UTSC registrar's office sets the policies (not the course instructor). You are allowed to defer your exam if you cannot write it --- but you must follow the university's procedures. Please see this link for information on how to defer a final exam:

http://www.utsc.utoronto.ca/~registrar/current_students/deferred_exams

This link provides important information regarding academic integrity:

http://www.utsc.utoronto.ca/aacc/sites/utsc.utoronto.ca.aacc/files/tipsheets/Academic_Advising_Tipsheets/AIM%20-%20Tipsheet%20oct%202015.pdf

AccessAbility. *If you have a disability/health consideration that may require accommodations, please feel free to approach me and/or the AccessAbility Services Office as soon as possible. The UTSC AccessAbility Services staff are available by appointment to assess specific needs, provide referrals and arrange appropriate accommodations (416) 287---7560 or ability@utsc.utoronto.ca. The sooner you let us know your needs the quicker we can assist you*

In achieving your learning goals in this course.

Missed Term Work due to Medical Illness or Emergency: *All students citing a documented reason for missed term work must bring their documentation to Course Coordinator, Ainsley Lawson as soon as possible upon return to campus (and within 3 business days from the date of term test or assignment due date). Upon receipt of the documentation, both you and your instructor will receive email notification within 2 business days, containing a stamped departmental document detailing the affected date(s), along with a copy of the original document(s). The course instructor reserves the right to decide what accommodations (if any) will be made for the missed work.*

Please ensure that you complete the following form:

<https://www.utsc.utoronto.ca/psych/sites/utsc.utoronto.ca.psych/files/u11/PSY%20Missed%20Term%20Work%20Form.pdf>

What we expect from you

1. **Attend class regularly.** Attending class regularly will help to increase your understanding of the material by providing you with opportunities to engage with and discuss the material
2. **Prepare for class.** To facilitate discussion and allow you to clarify any questions you may have about the material, you should come prepared for class. Please complete the assigned readings before class.
3. **Conduct yourself appropriately.** You should listen to and interact with others in a respectful manner. Respect also includes creating an environment conducive to learning, which means being on time, not leaving class early, turning off cell phones, listening, and only using computers to take notes and not to check e-mail or surf the web.

What you can expect from us

1. **We are available to help.** We are available to help via e-mail and office hours. For e-mail, please include "Psyc08" in the subject line. Before sending an email, check the course syllabus, notes, with your classmates, and Blackboard for the answer to your question. Please also be patient; we will try to respond to e-mails in a timely manner (within 48 hours during business hours and excluding weekends).
2. For your more detailed or complicated questions, it may be better to meet in person.

What can I do to do well in this course?

1. **Do the practice questions.** One of the best ways to learn statistics is to practice, practice, and practice some more!
2. **Create study groups.** Not only can it be helpful to have others explain concepts to you but it can also be helpful to have to explain concepts to others!
3. **Attend Facilitated Study Groups.** PSYC08 is supported by Facilitated Study Groups. These weekly study sessions are open to everyone in the class. Attendance is voluntary, but students who attend regularly often earn higher grades. Please be sure to fill out the survey in the first week of class to help ensure the study groups are scheduled at optimal times. If you have any questions, please ask your facilitator, or visit the FSG website at <http://ctl.utsc.utoronto.ca/home/fsg>.

Tentative Course Outline

Week	Topic	Chapters
1.	Review of Descriptive Statistics and Graphs	1 through 7
2.	Review of PSYB07 tests	7
3.	Introduction to ANOVA (testing homogeneity of variance)	11
4.	One-Way between-subject designs	11
5.	Power & Magnitude of Experimental Effect	8 & 11
6.	Introduction to Multiple Comparisons (a priori & post-hoc comparisons)	12
7.	Introduction to Repeated Measures Designs	14
8.	Multiple comparisons continued	14
9.	Factorial Designs (between-subjects only)	13
10.	Factorial Designs (Mixed designs)	13
11.	Non-Parametric Approaches	18
12.	Integration	