PSYC*6940, Course Outline: Fall 2023

General Information

DUE to the ongoing COVID-19 pandemic some courses are being offered virtually and some face to face. **This course is offered using the Face-to-Face format. The course has a set day, time, and location of class.**

Course Title: PSYC*6940*01 Discrete-variable research design and statistics

Course Description:
This course is an in-depth examination of statistical approaches used in psychology, with an emphasis on experimental research designs with discrete independent variables (e.g., t-test, ANOVA, general linear model), and how these approaches address ongoing statistical challenges faced by psychological researchers, such as replication and generalizability.

Credit Weight: 0.50

Academic Department (or campus): Psychology

Semester Offering: F23

Class Schedule and Location: Tuesdays, 2:30-5:20pm, in CRSC 101

Instructor Information

Instructor Name: Naseem Al-Aidroos
Instructor Email: naseem@uoguelph.ca
Office location and office hours: Tuesdays and Wednesdays, from 1-1:30pm, in MCKN4018. ***Oct 3 and Nov 15 cancelled ***

GTA Information

GTA Name: None
GTA Email: None
GTA office location and office hours: None

Course Content

Specific Learning Outcomes:

Students will be able to, within the context of psychological research:
1. Understand and describe the statistical concepts behind the general linear model, in particular as applied to t-tests, ANOVAs, and the Pearson correlation coefficient.

2. Understand and describe the strengths and weaknesses of null-hypothesis testing (NHST).
3. Apply knowledge from (2) to judge when NHST approaches are appropriate.
4. Choose modern solutions that can overcome the limitations of NHST for a given statistical context, such as confidence intervals, registered replications, meta-analyses, and resampling.
5. Understand and describe the differences between NHST and Bayesian statistical approaches; in particular the types of conclusions each approach affords.
6. Write a results section reporting both NHST and Bayesian analyses of psychological data using proper APA format.
7. *Create effective visual depictions of data analyses*
8. *Select and learn new statistical software as needed*

Lecture Content:

Date	Topics (may change)
Sept 12	01. Overview, distributions, and Excel basics
Sept 19	02. Simulating and describing samples
Sept 26	03. Central Limit Theorem and p-values
Oct 3	04. The general linear model ****May be cancelled/rescheduled**
Oct 10	**Fall Study Break**
Oct 17	05. Practical considerations when using ANOVA
Oct 24	06. The psychology replication "crisis"
Oct 31	07. The New Statistics—hypothesis testing vs. parameter estimation
Nov 7	08. The New Statistics—meta-analysis
Nov 14	09. Bayesian approaches—Theory and hypothesis testing with Bayes factors
Nov 21	10. Bayesian approaches—Practice and implications for replication crisis
Nov 28	11. Open Science
Nov 30 (Thurs.)	Optional class to catch up on missed material

Course Assignments and Tests:

Assignment or Test	Due Date	Contribution to Final Mark (%)	Learning Outcomes Assessed
Assign. 1 Error Bars	Oct 27	20%	1,7,8
Assign. 2 Position paper on the new stats	Nov 13	20%	2-4
Assign. 3 Bayes results section	Nov 27	20%	5-8
Participation	Nov 28	20%	1-8
Take-home exam (released Nov 28)	Dec 4	20%	1-7

Additional Notes (if required):

In class lectures and recorded lectures: Some lectures will take place in-class, and some may be pre-recorded, with class time being used for discussion of the lecture.

Missed Lectures: Lectures will both introduce new material (i.e., not covered by the assigned readings) and provide opportunities to apply statistical techniques to example problems. Accordingly, attendance and participation are particularly important for this course. The participation component of the final grade is based on the percentage of attended lectures. One class can be missed without penalty; this policy is designed to facilitate attending academic conferences. Please note that if you miss a lecture, it is your responsibility to seek out the information you missed (e.g., sharing notes with classmates, or visiting during office hours).

Final examination date and time: The final assessment is a take-home exam. It will be released on Nov 28, and is due at 11:59pm on Dec 4.

Final exam weighting: 20%

Course Resources

Required Texts:

None. Assigned readings will be provided through CourseLink.

Course Policies

Grading Policies

No late submissions. Late submissions will not be accepted for any course components. Any assignments or exams not submitted by the assigned due date will receive a grade of 0%. Please contact the instructor immediately if you are going to miss a due date.

Course Policy on Group Work:

Assignments must be completed on an individual basis. Collaborations among students for the purposes of writing assignments are prohibited. Any student(s) suspected of unauthorized collaboration will be reported to the Dean's Office for an academic misconduct investigation (see Policy on Cheating & Academic Misconduct below). Note: It is permissible to talk with fellow students to facilitate understanding the material needed to complete an assignment; however, you must write the assignment independently.

Course Policy regarding use of electronic devices and recording of lectures:

Electronic recording of classes is expressly forbidden without consent of the instructor. When recordings are permitted, they are solely for the use of the authorized student and may not be reproduced, or transmitted to others, without the express written consent of the instructor.

University Policies

Disclaimer:
Please note that the ongoing COVID-19 pandemic may necessitate a revision of the format of course offerings, changes in classroom protocols, and academic schedules. Any such changes will be announced via CourseLink and/or class email. This includes on-campus scheduling during the semester, mid-terms and final examination schedules. All University-wide decisions will be posted on the COVID-19 website (https://news.uoguelph.ca/2019-novel-coronavirus-information/) and circulated by email.

Academic Consideration

When you find yourself unable to meet an in-course requirement because of illness or compassionate reasons, please advise the course instructor in writing, with your name, id#, and e-mail contact. See the academic calendar for information on regulations and procedures for

Academic Consideration:
[Grounds for Academic Consideration](#)

Academic Misconduct

The University of Guelph is committed to upholding the highest standards of academic integrity and it is the responsibility of all members of the University community, faculty, staff, and students to be aware of what constitutes academic misconduct and to do as much as possible to prevent academic offences from occurring.

University of Guelph students have the responsibility of abiding by the University's policy on academic misconduct regardless of their location of study; faculty, staff and students have the responsibility of supporting an environment that discourages misconduct. Students need to remain aware that instructors have access to and the right to use electronic and other means of detection. Please note: Whether or not a student intended to commit academic misconduct is not relevant for a finding of guilt. Hurried or careless submission of assignments does not excuse students from responsibility for verifying the academic integrity of their work before submitting it. Students who are in any doubt as to whether an action on their part could be construed as an academic offence should consult with a faculty member or faculty advisor.

The Academic Misconduct Policy is detailed in the [Graduate Calendar](#):

Illness

Medical notes will not normally be required for singular instances of academic consideration, although students may be required to provide supporting documentation for multiple missed assessments or when involving a large part of a course (e.g., final exam or major assignment).

Accessibility

The University of Guelph is committed to creating a barrier-free environment. Providing services for students is a shared responsibility among students, faculty and administrators. This relationship is based on respect of individual rights, the dignity of the individual and the University community's shared commitment to an open and supportive learning environment. Students requiring service or accommodation, whether due to an identified, ongoing disability or a short-term disability should contact Student Accessibility Services as soon as possible.

For more information, contact SAS at 519-824-4120 ext. 54335 or email accessibility@uoguelph.ca or the Student Accessibility Services Website

Student Feedback Questionnaire

These questionnaires (formerly course evaluations) will be available to students during the last 2 weeks of the semester: March 30th – April 10th. Students will receive an email directly from the Student Feedback Administration system which will include a direct link to the questionnaire for this course. During this time, when a student goes to login to Courselink, a reminder will pop-up when a task is available to complete.
Student Feedback Questionnaire

Drop date

The last date to drop one-semester courses, without academic penalty, is Friday December 1, 2023. For regulations and procedures for Dropping Courses, see the Schedule of Dates in the Academic Calendar.

Instructors must provide meaningful and constructive feedback, at minimum 20% of the final course grade, prior to the 40th class day. For courses which are of shorter duration, 20% of the final grade must be provided two-thirds of the way through the course.

 Current Graduate Calendar

Additional Course Information
Course instructors are allowed to use software to help in detecting plagiarism or unauthorized copying of student assignments. Plagiarism is one of the most common types of academic misconduct on our campus. Plagiarism involves students using the work, ideas and/or the exact wording of other people or sources without giving proper credit to others for the work, ideas

and/or words in their papers. Students can unintentionally commit misconduct because they do not know how to reference outside sources properly or because they don't check their work carefully enough before handing it in. Whether or not a student intended to commit academic misconduct is not relevant for a finding of guilt. Hurried or careless submission of assignments does not excuse students from responsibility for verifying the academic integrity of their work before submitting it. Students who are in any doubt as to whether an action on their part could be construed as an academic offence should consult with a faculty member or faculty advisor.

In this course, your instructor will be using Turnitin.com to detect possible plagiarism, unauthorized collaboration or copying as part of the ongoing efforts to prevent plagiarism in the College of Social and Applied Human Sciences.

A major benefit of using Turnitin is that students will be able to educate and empower themselves in preventing misconduct. In this course, you may screen your own assignments through Turnitin as many times as you wish before the due date. You will be able to see and print reports that show you exactly where you have properly and improperly referenced the outside sources and materials in your assignment.