PSYC*6940, Course Outline: Fall 2022

General Information

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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](#) and circulated by email.
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Course Title: 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: F22

Class Schedule and Location: Mondays, 11:30am to 2:30pm in MCKN 307

Instructor Information

Instructor Name: Naseem Al-Aidroos
Instructor Email: naseem@uoguelph.ca
Office location and office hours:
  MacKinnon Extension 4018. Office hours are drop-in (no appointment necessary).
  Mondays, 3:30-4:30pm. **Office hours cancelled for Oct 3 and Oct 17.**

GTA Information

GTA Name: Emma Belanger
GTA Email: ebelan03@uoguelph.ca
GTA office location and office hours: Announced on CourseLink news feed after assignments.

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 (topics may change):

Sept 12	Overview, distributions, and Excel basics
Sept 19	Simulating and describing samples
Sept 26	Central Limit Theorem and p-values
Oct 3	The general linear model
Oct 10	**Fall Study Break**
Oct 17	**Class cancelled**
Oct 24	Practical considerations when using ANOVA
Oct 31	The psychology replication "crisis"
Nov 7	The New Statistics—hypothesis testing vs. parameter estimation
Nov 12	The New Statistics—meta-analysis
Nov 14	Bayesian approaches—Theory and hypothesis testing with Bayes factors
Nov 21	Bayesian approaches—Practice and implications for replication crisis
Nov 28	Open Science
Dec 2 (Friday)	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 28	20%	1,7,8

Assignment or Test	Due Date	Contribution to Final Mark (%)	Learning Outcomes Assessed
Assign. 2 Position paper on the new stats	Nov 11	20%	2-4
Assign. 3 Bayes results section	Nov 25	20%	5-8
Participation	Nov 28	20%	1-8
Take home exam	Dec 5	20%	1-7

Additional Notes (if required):

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).

Course Resources

Required Texts: None

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.

University Policies

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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).

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:

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. 28th – April 08th. 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 December 2, 2022. 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