PSYC*6940, Course Outline: Fall 2020

General Information

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**DUE to the COVID-19 pandemic, this course is offered in an alternative format.
Alternative Delivery Synchronous – AD-S Virtual:** [Classes held by Zoom](https://zoom.us/my/alaidroos)
(https://zoom.us/my/alaidroos**) on Thursdays, 3-5:50 pm.**
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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: F20

Class Schedule and Location: Thursdays, 3 to 5:50pm. Lectures and discussions [will take place using Zoom](https://zoom.us/my/alaidroos) (https://zoom.us/my/alaidroos).

Instructor Information

Instructor Name: Naseem Al-Aidroos
Instructor Email: naseem@uoguelph.ca
Office location and office hours: From Sept 14-Dec 7, I am holding drop-in, virtual office hours Mondays 11-12pm, and Thursdays 1-2pm, via Zoom (https://zoom.us/my/alaidroos).

GTA Information

GTA Name: Heather Collett
GTA Email: collett@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):

DATE	TOPIC
Sept 10	Overview, software basics, and review of p-values, t-tests, ANOVA, etc.
Sept 17	Using simulation to better understand p-values and NHST
Sept 24	The general linear model
Oct 1	Practical considerations when using ANOVA
Oct 8	The psychology replications "crisis"
Oct 15	The New Statistics—hypothesis testing vs. parameter estimation
Oct 22	The New Statistics—meta analysis
Oct 29	Bayesian approaches: Parameter estimation
Nov 5	Bayesian approaches: Hypothesis testing
Nov 12	Bayesian approaches: Summary
Nov 19	**No class**
Nov 26	Open Science; **Take home exam issued**
Dec 7	**Take home exam due**

Course Assignments and Tests:

Assignment or Test	Due Date	Contribution to Final Mark (%)	Learning Outcomes Assessed
Assign. 1 Error Bars	Oct 8	20%	1,7,8
Assign. 2 Position paper on the new stats	Oct 29	20%	2-4

Assignment or Test	Due Date	Contribution to Final Mark (%)	Learning Outcomes Assessed
Assign. 3 Bayes results section	Nov 26	20%	5-8
Participation	Nov 26	20%	1-8
Take home exam	Dec 7	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.

Recording of Lecture Materials

The University of Guelph's primary mode of course delivery has shifted from face-to-face instruction to remote and online learning due to the ongoing COVID-19 pandemic. As a result, some learning activities (e.g., synchronous lectures or student presentations) may be recorded by faculty, instructors and TAs and posted to CourseLink for grading and dissemination; students may be recorded during these sessions.

The following statements may be added to the course outline and it is recommended these are discussed in any synchronous courses during the first week of classes.

By enrolling in a course, unless explicitly stated and brought forward to their instructor, it is assumed that students agree to the possibility of being recorded during lecture, seminar or other "live" course activities, whether delivery is in-class or online/remote.

If a student prefers not to be distinguishable during a recording, they may:
1. turn off their camera
2. mute their microphone
3. edit their name (e.g., initials only) upon entry to each session
4. use the chat function to pose questions.

Students who express to their instructor that they, or a reference to their name or person, do not wish to be recorded may discuss possible alternatives or accommodations with their instructor.

University Policies

Disclaimer

Please note that the ongoing COVID-19 pandemic may necessitate a revision of the format of course offerings and academic schedules. Any such changes will be announced via CourseLink and/or class email. All University-wide decisions will be posted on the COVID-19 website and circulated by email.

Illness

The University will not normally require verification of illness (doctor's notes) for fall 2020 or winter 2021 semester courses. However, requests for Academic Consideration may still require medical documentation as appropriate

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](#)

Course Evaluation Information

Please refer to the [Course and Instructor Evaluation Website](#) .

Drop date

The last date to drop one-semester courses, without academic penalty, is Tuesday December 8th. For regulations and procedures for Dropping Courses, see the [Current Graduate Calendar](#)