

PSYC*4780, Course Outline: Fall 2022

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 Alternate-Delivery-Synchronous (AD-S) format. There is an assigned day and time for class lectures, but no classroom, because lectures are delivered virtually.**

Course Title: Advanced Research Methods and Statistics

Course Description:

As a companion to the honours thesis, this course focuses on advanced research methods and statistical techniques cumulating in the creation of statistical research plans for student honours theses in a manner consistent with contemporary standards. A key feature of the course is learning research designs and workflows that are consistent with APA standards and likely to create replicable study results. Students will focus on the correspondence between complex designs and the statistical techniques that can be used to analyze the data resulting from such designs. In addition to readings, lectures, and in-class exercises, students will be guided through the process of creating scripts for analyzing quantitative data and reporting on an empirical investigation.

Credit Weight: 0.50

Academic Department (or campus): Psychology

Semester Offering: F22

Class Schedule and Location:

Mondays, 2:30pm to 5:20pm (on Zoom)

Zoom link posted on Courselink.

Instructor Information

Instructor Name: David Stanley

Instructor Email: psyc4780@uoguelph.ca

Office location and office hours: TBA

Only questions that can be answered simply -- with a short sentence, will be answered by email. For longer answers you will most likely receive an email asking you to see me during virtual office hours. I will do my best to answer emails within 2 business days. Because of extremely high email volume during term, I will not respond to emails where the answer is covered in the course outline.

Any course concerns should be raised during office hours – not over email.

GTA Information

GTA Name: Ivana Marcincinova

GTA Email: imarcinc@uoguelph.ca

GTA office location and office hours: TBA

GTA Name: Rahul Patel

GTA Email: rpatel40@uoguelph.ca

GTA office location and office hours: TBA

Note: Be sure to follow assignment/quiz directions for submissions. Especially around reporting the right number of decimal places for numbers. Assignments are bespoke and marking is partly automated. Remarking requests will not be granted if the grade loss is due to a failure to follow assignment directions (e.g., reporting the right number of decimals etc.).

Course Content

Specific Learning Outcomes:

1. Literacy. Facet 2. Methodological literacy: the ability to understand, evaluate, and design appropriate methodologies for rigorous psychological science
2. Literacy. Facet 3. Quantitative literacy: includes numeracy, and competence in working with numerical data
3. Literacy. Facet 4. Technological literacy: the ability to select and use appropriate technology
4. Communication. Facet 3. Reading comprehension: the understanding of theoretical and empirical literature in Psychology.
5. Communication. Facet 2. Written communication: the ability to express one's ideas and summarize theory and research through a variety of writing styles (e.g., American Psychological Association style)

Lecture Content:

1. *Background replication crisis in psychology*
2. *Problems discussed in Chamber (2017) such as internal validity, ecological validity, and construct validity.*
3. *Open science / pre-registration and the new APA journal article reporting standards*
4. *Factors contributing to false positive findings in psychology*
5. *Interpretation of p-values and confidence intervals. Discussion of p-hacking.*
6. *Sample size planning with statistical power for various designs*
7. *Sample size planning with confidence intervals for various designs*
8. *Sample size planning for precision using power*
9. *Positive predictive value*

Slides/lecture videos/articles on [Courselink](https://courselink.uoguelph.ca): <https://courselink.uoguelph.ca>

Lecture readings on course [website](http://bit.ly/psyc4780): <http://bit.ly/psyc4780>

Textbook readings: Seven Deadly Sins of Psychology: Reforming Culture of Scientific Practice

Course Assignments and Tests:

Assignment or Test	Due Date	Contribution to Final Mark (%)	Learning Outcomes Assessed
Final Exam	Dec 14	10	1, 2, 3, 4, 5
Course outline quiz	Sept 16	1	All (knowledge of)
Statistical Design	October 24	4	1, 4
Final project	Nov 21	15	1, 2, 3, 4, 5
Quiz 1	Sept 19	5	1, 2, 3, 4, 5
Quiz 2	Sept 26	5	1, 2, 3, 4, 5
Quiz 3	Oct 3	5	1, 2, 3, 4, 5
Quiz 4	Oct 17	5	1, 2, 3, 4, 5
Quiz 5	Oct 24	5	1, 2, 3, 4, 5
Quiz 6	Oct 31	5	1, 2, 3, 4, 5
Quiz 7	Nov 7	5	1, 2, 3, 4, 5
Quiz 8	Nov 14	5	1, 2, 3, 4, 5
Quiz 9	Nov 21	5	1, 2, 3, 4, 5
Quiz 10	Nov 28	5	1, 2, 3, 4, 5
Assignment 1 Error Tight	Sept 19	5	2, 3, 4
Assignment 2 Graphing	Sept 26	5	2, 3, 4
Assignment 3 Qualtrics	Oct 3	5	1, 2, 3, 4
Assignment 4 Effect sizes	Oct 17	5	1, 2, 3, 4
Assignment 5 Power	Oct 24	5	1, 2, 3, 4
Assignment 6 Equivalence	Oct 31	5	1, 2, 3, 4
Assignment 7 SESOI – thesis	Nov 7	5	1, 2, 3, 4
Assignment 8 Sample size - thesis	Nov 14	5	1, 2, 3, 4

Additional Notes (if required):

This course uses universal accommodation for missed components of the course. That is, we recognize students may miss components of the course (or perform poorly on components of the course) due to extenuating life circumstances (illness, family matters, etc.). Consequently:

- Assignments: We use the best 6 of 8 assignments to calculate your grade. (30% total)
- Quizzes: We use the best 8 of 10 quizzes to calculate your grade. (40% total)

If you miss an assignment or quiz due to an extenuating circumstance you don't need to worry. The above reweighting is automatic. You do not need to contact the instructor or TA.

Course Resources

Required Texts:

Chambers, C. (2019). The seven deadly sins of psychology: A manifesto for reforming the culture of scientific practice. Princeton University Press.

Available from the [University Bookstore](#) and other resellers (Kindle, etc.).
On digital reserve at the library: [here](#)

Other Resources:

[Lecture readings website](#)

[Courselink](#)

[R Studio Cloud](#)

[Zoom Tutorial for Guelph Students](#)

Course Policies

Course concerns

Concerns about any aspect of the course should be raised during office hours – not via email.

Grading Policies

Assignments have a 5% per day late penalty. Weekends count as two days. This penalty applies to the final project as well.

Be sure to follow assignment/quiz directions for submissions. Especially around reporting the right number of decimal places for numbers. Assignments are bespoke and marking is partly automated. Remarking requests will not be granted if the grade loss is due to a failure to follow assignment directions (e.g., reporting the right number of decimals etc.).

[Undergraduate Grading Procedures](#)

Re-Grading of Assignments Policy

Where a student is of the belief that an assignment has not been accurately graded, they are to pursue a 2-step course policy: 1) as soon as possible, meet with the original TA that graded the assignment, and if a student remains dis-satisfied, 2) they can request from the instructor that the assignment is regraded. Note that the student will be required to accept the re-grade, whether it be higher or lower.

Be sure to follow assignment/quiz directions for submissions. Especially around reporting the right number of decimal places for numbers. Assignments are bespoke and marking is partly automated. Remarking requests will not be granted if the grade loss is due to a failure to follow assignment directions (e.g., reporting the right number of decimals etc.).

Course Policy on Group Work:

All assignments and quizzes must be completed on an individual basis. Group work is not permitted for these course components.

With respect to the final assignment, if two (or more) students are in the same lab, with related research projects, some degree of collaboration/coordination is permitted. The final assignments must still be written individually but \ some information sharing is allowed with approval. This should be explicitly discussed/arranged with the instructor on a case-by-case basis. Any approval for collaboration on a final assignment will be received via email to avoid misunderstanding.

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. Lectures maybe recorded for the purpose of documenting teaching practices.

Student Rights and Responsibilities when Learning Online

Online behaviour

According to the University Secretariat, students have a responsibility to help support community members' access to the tools they need to engage in their learning and development, both in and outside of the classroom. An example of this type of responsibility is the requirement to abide by the following:

Section 4.3.3. Disruption - to not interfere with the normal functioning of the University, nor to intimidate, interfere with, threaten or otherwise obstruct any activity organized by the University, including classes, or to hinder other members of the University community from being able to carry on their legitimate activities, including their ability to speak or associate with others.

As such, appropriate online behaviour will not be tolerated. Examples of inappropriate online behaviour include

- Posting inflammatory messages about your instructor or fellow students
- Using obscene or offensive language online
- Copying or presenting someone else's work as your own
- Adapting information from the Internet without using proper citations or references
- Buying or selling term papers or assignments
- Posting or selling course materials to course notes websites
- Having someone else complete your quiz or completing a quiz for/with another student
- Stating false claims about lost quiz answers or other assignment submissions
- Threatening or harassing a student or instructor online
- Discriminating against fellow students, instructors and/or TAs
- Using the course website to promote profit-driven products or services
- Attempting to compromise the security or functionality of the learning management system
- Sharing your username and password

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.

Communication Policy

Ontario has passed [legislation](#) codifying the right of employees to disconnect from work. Correspondingly, University of Guelph has developed a written [Disconnecting from Work Policy](#) and a corresponding [FAQ](#). Following from this policy, email responses to student questions will only be sent during business hours Monday to Friday. The instructor will endeavor to respond to student questions within 2 **business** days.

Academic Consideration

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).

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:

[Academic Consideration, Appeals and Petitions](#)

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 Undergraduate Calendar:

[Academic Misconduct Policy](#)

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 Dec. 02, 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 Undergraduate Calendar](#)