PSYC*4780, Course Outline: Fall 2019

General Information

Course Title: Advanced Research Methods and Statistics

Course Description:
As a companion to the honours thesis, this course focuses on advanced research methods, including quantitative qualitative methods and statistical techniques. Of particular emphasis is the correspondence between complex designs and the statistical techniques that can be used to analyze the data resulting from such designs. A key focus of the course is reporting analyses using contemporary standards.

Credit Weight: 0.50

Academic Department (or campus): Psychology

Semester Offering: F19

Class Schedule and Location: Wednesday 11:30am to 2:20pm, GRHM 2310

Instructor Information

Instructor Name: David Stanley
Instructor Email: 4780guelph@gmail.com
Office location and office hours: See website profile.

GTA Information

GTA Name: Tyler Pritchard
GTA Email: tyler.pritchard@uoguelph.ca

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 1. Oral communication: includes interpersonal skills, oral speaking and active listening as they apply to 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, term papers, posters
6. Communication. Facet 3. Reading comprehension: the understanding of theoretical and empirical literature in Psychology.

Lecture Content:

The following topics will be covered. Note that this is a topic list not a lecture by lecture breakdown.

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. *Interpretation of p-values and confidence intervals*
5. *Correlation and differences among correlations*
6. *Advanced multiple regression*
7. *Analysis of variance (between/within)*
8. *Qualitative analysis (where relevant for theses)*

Course Assignments and Tests:

Lecture Quiz. There will be a lecture quiz at the beginning of most classes after the first week. This quiz will be based, primarily, on the chapters assigned the previous week and corresponding lecture content. Your lowest two lecture quiz grade will be dropped. If you miss a class quiz for any reason it will receive a grade of zero and be dropped. Notes for extenuating circumstances will only be considered once the two dropped quiz grades have been "used up".

Lecture: Discussion/Activities
Most classes will have a portion of the class dedicated to the discussion of an article or issue. This is the section of the class where active learning principles are used. In some cases, students will break in to groups and create materials or verbal presentations for the class. Your grade in this section will be the result of the quality/quantity of your engagement in these discussions and the quality of the outputs generated (materials/presentations). Your lowest two lecture discussion/activity grades will be dropped. If you miss a class quiz for any reason it will receive a grade of zero and be dropped. Notes for extenuating circumstances will only be considered once the two dropped grades have been "used up".

Stats Assignments
Students must submit two statistics assignments from the list below. Each is worth 15%. Details will be provided in class. Only the first two submission for each student will be graded. That is, there is not an option for getting the best two out of three assignment grades.
Assignment 1: Due date 2019.09.25
Assignment 2: Due date 2019.10.09
Assignment 3: Due date 2019.10.23

Student conducting a qualitative thesis may talk to the instructor about replacing this set of assignments with a single qualitative analysis project. Details will be worked out at the time if this option is taken.

Final Project.
Final projects will vary depending on the nature of the thesis each student is conducting. If a student is conducting an empirical thesis then the final project will be based on how to conform to current American Psychology Association journal article reporting standards with respect to statistics. If a student is conducting a thesis that is primarily qualitative in nature, then a qualitative analysis project will conducted that is not part of the thesis to practice qualitative techniques. This assignment for qualitative thesis students was developed via consultation with a qualitative researcher in the Department. Details for both types of projects will be provided later in the term.

Final projects are due on the last day lecture day of this class: 2019.11.27.

Summary

Lecture Quizzes:	30%
Lecture: Discussion/Activities:	5%
Stats Assignments:	30%
Final Project:	35%

	100%

Final examination date and time: Not applicable
Final exam weighting: Not applicable

Course Resources

Required Texts:

Chambers, C. (2017). *The seven deadly sins of psychology: A manifesto for reforming the culture of scientific practice*. Princeton University Press.

Additional articles will sometimes be assigned each week as part of the readings.
Readings will be posted each week on Courselink.

Other Resources:

Course Resources: [CourseLink](#)

We will be using R and RStudio in class. Both are free software. You can download and install them with the links below. I encourage you to do so before the first class. Some downloads are too large to be done over the universities wifi network (it could take several hours if you try).

[RStudio Download](#)

[R Download](#)

Course Policies

Grading Policies

All statistics assignments must be submitted electronically by 11:59pm on the day they are due. Assignments handed in later than this are considered late. In class lecture/activities are due in class the day they are assigned.

Late penalty: 20% per day. Weekends count as two days. A short extension maybe granted on assignments for compassionate or medical reasons, with documentation.

In general, retroactive requests for grade revisions on medical or compassionate grounds will not be considered.

[Undergraduate Grading Procedures](#)

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 possible to talk to fellow students to 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

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:
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 the Student Accessibility Services (SAS) as soon as possible.

For more information, contact SAS at 519-824-4120 ext. 56208 or email csd@uoguelph.ca or see the website: [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 the last day of classes. For regulations and procedures for Dropping Courses, see the Academic Calendar: [Current Undergraduate Calendar](#)