PSYC*6060, Course Outline: Fall 2019

General Information

Course Title: Research Design and Statistics

Course Description:
This course covers significance testing and effect-size estimation using non-parametric and parametric techniques. Topics include meta-analysis, multiple regression/correlation, and analysis of variance. Current controversial issues are presented.

Credit Weight: 0.50

Academic Department (or campus): Psychology

Semester Offering: F19

Class Schedule and Location:
Lecture: Tuesday, 8:30am – 11:20am, MCKN 317
Lab: Wednesday, 9:30am – 10:20am, BW 111 (note change)

Instructor Information

Instructor name: David Stanley
Instructor email: 6060guelph@gmail.com
Office location and office hours: See website profile for hours that week.
Also remember to use the Slack for 6060 (slack.com)

GTA Information

GTA Name: Sebastian Sciarra
GTA Email: ssciarra@uoguelph.ca

Course Content

Specific Learning Outcomes:

1. Understand and apply advanced concepts in statistics to data analysis in psychology.

2. Understanding of the reasons for open science and ability to engage in open science practices.

3. Know how to write hypotheses, analyses, and set sample sizes.

4. Show an ability to analyze and interpret data to test a claim.

5. Demonstrate a skill set with statistical analysis software.

6. Evaluate the nature and extent of graphs needed to support analyses.

7. Evaluate the graphs associated with analyses.

8. Write with appropriate vocabulary, APA style adherence, and few grammatical or functional errors.

9. Writes in a sophisticated manner clearly conveying the message of the writer to a target audience.

10. Locate and use information about R from a variety of resources and formats including books, R help files, Google searches, etc.

Lecture Content:

A partial list of readings is presented below. Additions may be emailed to you. The list below represents a sequential order but the exact dates may change pending lecture progress. On occasion we may pause the schedule to allow for catchup, project work, and additional learning about R.

ITNS: Introduction to the New Statistics
SDS: Seven Deadly Sins of Psychology

Note that additional readings may be add to the Lecture Quiz content indicated. This will be done by email to the class.

Date	Data Camp	Lecture Quiz
1. Sept 10	Cleaning Data	
2. Sept 17	Intro to Tidyverse	ITNS: 4, 5, 6
3. Sept 24	Correlation & Regression Ch 1 Correlation & Regression Ch 2 Introduction to Data Visualization with ggplot (Part 1) Chapters below: ggplot: intro ggplot: data	ITNS: Ch 11 (correlation) SDS: 1, 2
4. Oct 1	Introduction to Data Visualization with ggplot (Part 1) Chapters below: ggplot: aesthetics ggplot: geometries ggplot: qplot	ITNS: 7, 8 (t-test)
5. Oct 22		Schmidt (1996) ITNS: 10 (open science) SDS: 3
6. Oct 29	Correlation & Regression Ch 3 Correlation & Regression Ch 4 Correlation & Regression Ch 5	ITNS: 14, 15 ANOVA
7. Nov. 5	Multiple and Logistic Regression	SDS: 4, 5
8. Nov 12	Inference for Linear Regression	ITNS: 12 (regression) SDS: 6
9. Nov 19		SDS: 7
10. Nov 26		SDS: Ch 8
11. Nov 28	Exam In Class	

Labs:
Most weeks there will be a lab quiz.

Course Assignments and Tests:

Lecture Quiz. There will be a lecture quiz at the beginning of most classes. This quiz will be based, primarily, on the chapters assigned for that week but may also assess mastery of the previous 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.

Lab Quiz. There will be a quizzes in most labs starting week 1. The lab quiz will **primarily** cover material from the lecture the previous few weeks. 85% of each lab quiz grade will be obtained from individual performance during the lab. 15% of each lab quiz grade will be obtained from group completion (groups of 3 or 4) of the same lab quiz. Individual lab quizzes are due at the end of each lab. The group lab quiz will be due the following day at noon. Group quizzes submitted late (no grace period) will receive a 20% penalty per day. Submission of group quizzes will occur via email. ***All group members must be cc'd on the email submission.***

Lab quizzes may also include a second section which requires you to re-analyze the data from the previous week (minus a few cases). This is done to encourage a reproducible workflow. submission time.

Data Camp. There are 7 courses listed for data camp below (and on the Data Camp website). You will obtain credit (1 or 0) for courses where you obtain 60% of more of the experience points and complete the course by the Data Camp deadline. 5 courses with credit will give you full marks in the Data Camp portion of the grade. That is, you can skip two courses (or get less than 60% of the experience points for two courses) and still receive full credit for the Data Camp portion of the course. Note, however, knowledge of the Data Camp instruction is often needed to do well on the corresponding lab quiz (i.e., the lab quiz after the Data Camp deadline). Note that when you look at the assignments on the Data Camp website sometime courses are listed but other times specific chapters within a course are listed (to spread a single course out over multiple weeks). The above applies to Courses not Chapters.

Final Exam. The tentative final exam is posted. You need to memorize the list of 34 p-hacking strategies from Wicherts et al. In Part 1 of the exam you will be asked to list these 34 strategies. In Part 2 of the exam you will be asked a series of detailed questions about one specific strategy (why it is problematic, consequences of using the strategy, etc). The tentative final exam is posted on course link.

Summary

Lecture Quizzes:	40%
Lab Quizzes:	40%
Data Camp:	10%
Final Exam:	10%

	100%

Final examination date and time: Thursday. November 28th, 8:30am in class (bring your laptop)

Final exam weighting: 10%

Course Resources

Required Texts:

Cumming, G., & Calin-Jageman, R. (2016). *Introduction to the new statistics: Estimation, open science, and beyond*. Routledge.

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

Additional academic 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
Additional Course Resource: DataCamp

We will be using R and RStudio in class. Both are free software. You can download and install them with the links sent via email. 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).

Course Policies

Grading Policies

Lecture Quiz Grading:
The lowest two lecture quiz marks will be dropped. A missed quiz, due to illness other reasons (e.g., **conferences**), will count as the lowest mark that is dropped. This policy is designed to facilitate attending conferences.

Lab Quiz Grading:
Each lab quiz will be graded out of 10. Marks are assigned for correct numbers, writing style, and APA style. The lowest two lab quiz marks will be dropped

Group lab quizzes submitted late (no grace period) will receive a 20% penalty per day. Submission of group quizzes will occur via email. Group members must be cc'd on the email submission to receive credit.

Lab quiz grade may be grade-limited. A few principals underlying the course are so important that if they are violated your quiz grade will have a maximum value imposed. A single violation is enough to trigger this automatic grading action. Finally, if the exact numbers that are used in the report cannot be generated via code submitted the mark assigned to the quiz will be no higher than 70%.

Course Policy on Group Work:

Lab assignments must be completed on an individual basis (excluding the group component). 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).

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

For more information, contact SAS at 519-824-4120 ext. 56208 or email accessibility@uoguelph.ca or see the 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 class. For regulations and procedures for Dropping Courses, see the Academic Calendar:
Current Graduate Calendar