

PSYC*6060, Course Outline: Fall 2016

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, path-analysis, multiple regression/correlation, and analysis of variance/covariance. Current controversial issues are presented.

Credit Weight: 0.50

Academic Department (or campus): Psychology

Semester Offering: F16

Class Schedule and Location:

Lecture: 3 hours TBA

Lab: 1 hour TBA

Office Hours: TBA

Instructor Information

Instructor Name: David Stanley

Instructor Email: dstanley@uoguelph.ca

Office location and office hours: TBA

GTA Information

GTA Name: TBA

GTA Email: TBA

GTA office location and office hours: TBA

Course Content

Specific Learning Outcomes:

Literacy, Facet 2. Methodological Literacy: The ability to understand, evaluate, and design appropriate methodologies for rigorous psychological science

- I. Recognize and describe complex research methodologies (e.g., multivariate, 2x2 ANOVA)
- II. Evaluates the appropriateness (e.g., strengths, weaknesses) of different methodologies for different questions
- III. Tailors methodologies to particular populations and circumstances

Literacy, Facet 3. Quantitative Literacy: Includes numeracy, and competence in working with numerical data

- IV. Shows ability to analyze and interpret data to test a claim.
- V. Uses quantitative data as evidence for a claim.

Literacy, Facet 4 Technological Literacy: The ability to select and use appropriate technology

- VI. *Demonstrate a skill set in statistical software to generate the quantitative results needed for research paper results section*

Literacy, Facet 5 Visual Literacy: The ability to effectively find, interpret, evaluate, use, and create images and visual media and content.

- VII. Evaluates the extent to which a graph supports purported results of an analysis
- VIII. Creates meaningful graphs to supplement analyses

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 [APA] style, term papers, posters

- IX. *Write a results section with APA style adherence and few grammatical or spelling errors.*
- X. *Write the results section in a sophisticated manner clearly conveying the statistical results to a target audience.*

XI. Lecture Content:

- Lecture 1. Replication Crisis in Psychology / Introduction to using R
- Lecture 2. Creating of graphs using R
- Lecture 3. Correlation
- Lecture 4. Meta-analysis
- Lecture 5. Regression
- Lecture 6. Path Analysis
- Lecture 7. Multiple regression with missing data
- Lecture 8. Multiple regression with bootstrapping
- Lecture 9. Multiple regression with mediation / moderation
- Lecture 10. Analysis of Variance / Covariance

Labs:

Each week there will be a lab quiz that consists primarily of the material covered in lecture the previous week. Due to the cumulative nature of the course, some material in the lab quiz may come from lectures covered much earlier in the course.

Course Assignments and Tests:

Lecture Quiz. There will be a lecture quiz at the beginning of each class starting with lecture 2. This quiz will begin at 8:30 and end at 8:45. The quiz will cover background readings for the lecture that day.

Lab Quiz. There will be a quizzes in many (but not all) labs starting with the lab following lecture 2. The lab quiz will **primarily** cover material from the lecture the previous few weeks (topics are cumulative in nature). 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. Group members must be cc'd on the email submission. All learning outcomes are reflect in this quiz.

Summary

Lecture Quizzes:	20%
Lab Quizzes:	40%
Exam:	40%

	100%

Final examination date and time: December 14, 2016, 7:00-9:00pm.

Final exam weighting: 40%

Course Resources

Required Texts:

Field, A, Miles, J. & Field, Z. (2012). *Discovering Statistics Using R*. Sage.

Kline, R. B. (2008). *Becoming a behavioral science researcher: A guide to producing research that matters*. Guilford Press. Chicago

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

Other Resources:

Navarrio, D. (2013) *Learning Statistics With R*. Version 0.40. [Free PDF [download](#)]

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.

Course Policies

Grading Policies

Lecture Quiz Grading:

The lowest lecture quiz will be dropped. A missed quiz, due to illness other reasons (e.g., **conferences**), will count as the lowest mark that is dropped in both cases. 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.

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.

The lowest lab quiz will be dropped. The lowest lecture quiz will also be dropped. A missed quiz, due to illness other reasons (e.g., **conferences**), will count as the lowest mark that is dropped in both cases. This policy is designed to facilitate attending conferences.

Course Policy on Group Work:

Lab 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 understand 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 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 csd@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 Nov 6, 2015. For regulations and procedures for Dropping Courses, see the Academic Calendar: [Current Graduate Calendar](#)