

PSYC*3290, Course Outline: Winter 2019

General Information

Course Title: Conducting Statistical Analyses in Psychology

Course Description:

This course focuses on training students in the quantitative analysis and communications skills needed to become a researcher in psychology. Students conduct a correlation-based meta-analysis to help them concretely understand sampling distributions and the difficulties associated with obtaining study results that replicate. This meta-analytic foundation is then leveraged to teach traditional psychological analysis techniques (e.g., t-test, analysis of variance, and bi-variate/multiple regression) with an emphasis on maximizing factors that increase the probability of study findings that replicate. The value of interpreting results using effect sizes with confidence intervals is discussed and the logic of null-hypothesis testing is briefly reviewed.

Credit Weight: 0.50

Academic Department (or campus): Psychology

Semester Offering: W19

Class Schedule and Location: Lecture MCKN 117, Monday/Wednesday 8:30am to 9:20am

Instructor Information

Instructor Name: David J. Stanley, PhD

Instructor Email: psyc3290@gmail.com

Office location and office hours: MCKN 4002, see [profile](#) each week for office hours.

GTA Information

Lab	Location	TA	TA Office Hour	TA Location
LAB #1: M: 12:30-2:20	MCKN 028	Tyler	Thurs, 3:00pm	TBA
LAB #2: M: 2:30-4:20	MCKN 028	Heather	Fri 2:30pm	TBA
LAB #3: T: 9:30-11:20	MCKN 028	Rylan	Mon 12:00pm	TBA
LAB #4: W: 12:30-2:20	MCKN 028	Heather	Tues 4:00pm	TBA
LAB #5: F: 8:30-10:20	MCKN 028	Mallory	Wed 11:30am	MCKN 3022

The only avenue for communicating with TAs is a) the lab or b) office hours (not email; due to contract time restrictions). Consequently, please make sure you are available during your TA's office hours. When major lab assignments are due office hours will begin at the same time but be twice as long. This is to provide extra help with major assignments.

Course Content

Specific Learning Outcomes:

2 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

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

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

4 Communicating, 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)

Lecture Content:

I encourage you to bring a laptop to lectures so that you can follow along with the R code I am using. That said, you **do not** need a laptop for class. You can form small groups for in-class coding and only one person in the group needs to have a laptop for those exercises.

During lecture you can obtain a copy of the code I am creating by typing the following link into your browser: bit.ly/guelphR

Labs:

Lab sections/times/TAs are described above. Student should attend labs every week – labs are a crucial part of the learning for this course. **You may only attend the lab you are scheduled for in WebAdvisor. You may bring your own laptop to the lab if you prefer – but it must have the latest versions of R and RStudio installed. Please try the assignments before the lab so you can come with questions.**

Course Assignments and Tests:

Note that in the table below the DataCamp weeks indicate the week you should work on the DataCamp tutorial. The due dates for the DataCamp assignments are in the Grading Details table that follows the table below. Lab assignments are due at the start of your lab and should be handed in to your TA.

Week Starting	Reading	Lecture/Lab Topic	Data Camp	Lab	Assignment Due in Lab
Jan. 7	1, 2	Introduction to the Tidyverse	Introduction to the Tidyverse	DataCamp	
Jan. 14	3	Categorical data in the Tidyverse	Categorical data in the Tidyverse	Introduction to the Tidyverse	RStudio and R Introduction (Homework only)
Jan. 21		Data visualization	Data Visualization with ggplot Part 1 (all)	Categorical data in the Tidyverse	Introduction to the Tidyverse
Jan. 28	11, H&S Ch1	Correlation, Meta-analysis	Correlation Regression Chapters: 1, 2	Data visualization	Categorical data in the Tidyverse
Feb. 4	10	Correlation Confidence intervals, p-values	Correlation and Regression Chapters: 3, 4	Correlation, Meta-analysis	Data visualization
Feb. 11	12	Regression and Multiple Regression Part 1	Multiple and Logistic Regression Chapters: 1, 2, 3	Correlation Confidence intervals, p-values	Correlation, Meta-analysis

Week Starting	Reading	Lecture/Lab Topic	Data Camp	Lab	Assignment Due in Lab
Feb. 25		Regression and Multiple Regression Part 2	NA	Regression and Multiple Regression Part 1	Correlation Confidence intervals, p-values
Mar. 4	5, 6, 7	t-test Part 1	NA	Regression and Multiple Regression Part 2	Regression and Multiple Regression Part 1
Mar. 11	8, 9	t-test Part 2	NA	t-test Part 1	Regression and Multiple Regression Part 2
Mar. 18	14	Extended Designs 1way	NA	t-test Part 2	t-test Part 1
Mar. 25	15	Extended Designs 2way	NA	Extended Designs 1way	t-test Part 2
April 1		Review	NA	Extended Designs 2way	Lab work to prepare for exam – no assignment due

Grading Details:

Grading is order by assignment type not date.

Please review the entire table so you do not miss a deadline

Assignment or Test	Due Date (in your lab week of)	Contribution to Final Mark (%)	Learning Outcomes Assessed
Assignments			
Intro to tidyverse	Jan 21	2	2 Literacy (Facets, 2,3, 4, 5) 4 Communicating (Facet 2)
Categorical data in the tidyverse	Jan 28	2	2 Literacy (Facets, 2,3, 4, 5) 4 Communicating (Facet 2)
Data visualization	Feb 4	2	2 Literacy (Facets, 2,3, 4, 5) 4 Communicating (Facet 2)
Correlation/ meta-analysis	Feb 11	15 (major)	2 Literacy (Facets, 2,3, 4, 5) 4 Communicating (Facet 2)
r, CI, p-values	Feb 25	2	2 Literacy (Facets, 2,3, 4, 5) 4 Communicating (Facet 2)
Regression 1	Mar 4	2	2 Literacy (Facets, 2,3, 4, 5) 4 Communicating (Facet 2)
Regression 2	Mar 11	15 (major)	2 Literacy (Facets, 2,3, 4, 5) 4 Communicating (Facet 2)
t-test Part 1	Mar 18	2	2 Literacy (Facets, 2,3, 4, 5) 4 Communicating (Facet 2)
t-test Part 2	Mar 25	15 (major)	2 Literacy (Facets, 2,3, 4, 5) 4 Communicating (Facet 2)
DataCamp			
Intro to Tidyverse	Jan 13	3	2 Literacy (Facets, 3, 4, 5)
Categorical Data in R	Jan 20	3	2 Literacy (Facets, 3, 4, 5)
Data Visualization with ggplot (Part 1)	Jan 27	3	2 Literacy (Facets, 3, 4, 5)
Correlation and Regression Chapters 1, 2	Feb 3	1.5	2 Literacy (Facets, 3, 4, 5)
Correlation and Regression Chapters 3, 4, 5	Feb 25	1.5	2 Literacy (Facets, 3, 4, 5)
Multiple and Logistic Regression Chapters 1, 2, 3	Mar 3	3	2 Literacy (Facets, 3, 4, 5)

Additional Notes (if required):

Minor Assignments: 10% (one free miss for medical or other reasons: best 5 of 6)

Major Assignments: 45%

DataCamp Work: 15%

Exam: 30%

Final examination date and time: See [WebAdvisor](#)

Final exam weighting: 30%

Final Examination regulations are detailed at:

[Examination Regulations](#)

Course Resources

Required Texts:

Cumming, G., & Calin-Jageman, R. (2016). Introduction to the new statistics: Estimation, open science, and beyond. Routledge. [3 digital copies available on library website].

Other Resources:

Schmidt, F. L., & Hunter, J. E. (2014). Methods of meta-analysis: Correcting error and bias in research findings. Sage publications. Chapter 1 only. Reading on Courselink.
Listed in course schedule as: H&S Ch1

CourseLink: Course materials available on [CourseLink](#).

DataCamp Work: Required course tutorials available on [DataCamp](#). This is typically a monthly fee website but it has been made available as a free resource for students in PSYC*3290 by DataCamp. You should receive an email invitation to join the course portion of DataCamp for free.

Software: We will use the free software below for our analyses:

[R](#)
[RStudio](#)

Mac users may also need [XQuartz](#) – but wait to see if it is needed in class before downloading.

Course Policies

Grading Policies

All assignments are due at the beginning of your lab in order to be considered “on time”.
Major assignments (15% each) have a late penalty of 20% per day.
Minor assignments (2% each) that are late are not accepted and receive a grade of zero.
DataCamp assignments that are completed after the due date will receive 50% credit.

If you are running late for your lab, you may email a copy to psyc3290@gmail.com as proof of competition. But you still need to hand a paper copy into your TA ASAP for marking.

Paper copies of major and minor assignments must be handed in at the beginning of your lab (i.e., the one indicated in your schedule on webadvisor). DataCamp assignment completion times are tracked by datacamp.com.

[Undergraduate Grading Procedures](#)

Course Policy on Group Work:

You may work with other students to understand the material, but minor and major lab assignments should be written individually without the assistance of others.

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 [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 March 8, 2019. For regulations and procedures for Dropping Courses, see the [Schedule of Dates in the Academic Calendar](#).

[Current Undergraduate Calendar](#)