PSYC* 3290, Course Outline: Fall 2018

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: 0.5

Academic Department (or campus): Department of Psychology

Semester Offering: Fall 2018

Class Schedule and Location: Lectures Mon., Wed., 9:30 am- 10:20 am, Richards Building, Room 2520

Instructor Information

Instructor Name: Chris M. Fiacconi, PhD
Instructor Email: cfiaccon@uoguelph.ca
Office location and office hours: MacKinnon Extension 3019; Wednesday 10:30 – 11:30 am

GTA Information

GTA Name:
GTA Email:
GTA office location and office hours:

Course Content

Specific Learning Outcomes:

Literacy

1.1. Methodological literacy: the ability to understand, evaluate, and design appropriate methodologies for rigorous psychological science

1.2. Quantitative literacy: includes numeracy, and competence in working with numerical data

1.3. Technological literacy: the ability to select and use appropriate technology

1.4. Visual literacy: the ability to effectively find, interpret, evaluate, use, and create images and visual media and content

Communication

2.1. Written communication: the ability to express one's ideas and summarize results from statistical analyses.

Schedule:

Week of:

Sep. 10	Research Fundamentals (Ch. 1, 2, 10 pp. 257-264) – no LAB
Sep. 17	Sampling Distributions, Confidence Intervals, Effect Sizes (Ch. 3, 4, 5) – LAB #1
Sep. 24	NHST, Power/Planning (Ch. 6, 10 pp. 265-292) – LAB #2
Oct. 1	t-tests (Independent & Paired) (Ch. 7, 8) – LAB #3
Oct. 8	Thanksgiving (Mon.), Midterm Exam (Wed.) – No LAB
Oct. 15	One-Way ANOVA (Between; Ch. 14 pp. 397-416; 421-22) – LAB #4
Oct. 22	One-Way ANOVA (Within; Ch. 14 pp. 417-421; 423-25) – LAB #5
Oct. 29	Factorial ANOVA I (Ch. 15) – LAB #6
Nov. 5	Factorial ANOVA II (Ch. 15) – LAB #7
Nov. 12	Correlation & Bivariate Regression (Ch. 11, 12) – LAB #8
Nov. 19	Multiple Regression (supplemental readings provided) – LAB #9
Nov. 26	R Markdown – no LAB; Final Assignment due Fri. Nov. 30.

Labs:

There are 9 labs in this course, which will take place in the weeks indicated in the schedule above. In the weeks with labs, there will be 4 different lab sections – make sure you attend the section you enrolled in. All labs will take place in MCKN 028.

Section 1: Friday, 11:30 – 1:20 pm
Section 2: Thursday, 8:30 – 10:20 am
Section 3: Monday, 12:30 – 2:20 pm
Section 4: Thursday, 10:30 – 12:20 pm
Section 5: Tuesday, 8:30 – 10:20 am

Course Assignments and Tests:

Assignment or Test	Due Date	Contribution to Final Mark (%)	Learning Outcomes Assessed
Midterm Exam	Wed. Oct. 10	20%	1.1, 1.2, 1.4
Final Exam	Mon. Dec. 10	20%	1.1, 1.2, 1.4
Weekly quizzes	Due each Friday by 11:59 pm	8 X 2% = 16%	1.1, 1.2, 1.4
Lab Assignments	See above section	8 X 3% = 24%	1.1, 1.2, 1.3, 1.4, 2.1
Final Assignment	Due Friday, Nov. 30	20%	1.1, 1.2, 1.3, 1.4, 2.1

Additional Notes:

1. The midterm and final exams will consist of multiple-choice questions. The midterm will be held in class. The final exam is cumulative, but emphasis will be placed on most recent material.

2. There are a total of 10 quizzes. You may drop/miss two quizzes. The remaining 8 quizzes are worth 2.5% of your mark each. Weekly quizzes will be completed on-line through Course Link. Students will have 30 minutes to complete 10 multiple-choice questions. Quizzes are not cumulative, and students can use lecture notes, textbooks, etc. to complete each quiz. Each quiz will be available for completion starting Wednesdays after class (12:30 pm) and must be finished/submitted by Friday evening by 11:59 pm. There will be no quizzes for weeks 5 and 13.

3. Each lab will have an assignment which will need to be completed and submitted at the end of each lab session. Assignments will involve data analysis using R software, and communicating these results in written form. You may drop one lab assignment without penalty. There are no make-up lab assignments.

4. The final assignment will consist of a series of questions involving datasets on which you will be asked to perform various calculations, statistical tests, and written summaries of the results. The questions on the final assignment must be answered using R software, and the assignment should be formatted using R Markdown.

Final examination date and time:
Monday Dec. 10, 8:30-10:30 am.
Final exam weighting:
20%
[Examination Regulations](#)

Course Resources

Required Texts:
Cumming, G., & Calin-Jageman, R. (2017). *Introduction to the New Statistics.* New York: Routledge.

Recommended Texts:
Zuur, A. F., Ieno, E. N., & Meesters, E. (2009). *A beginner's guide to R*. New York: Springer.

Lab Manual: Weekly lab handouts will be provided prior to each lab.

Other Resources:
Lecture slides will be made available in .pdf format on Course Link before each class as soon as possible. Reading material for the week of Nov. 19 will be posted on Course Link.

Software: In this class we will be learning to use the R software package to conduct statistical analyses. I highly recommend downloading this free program onto your personal computer/laptop so that you can work on assignments, practice, etc. outside of lab hours. The links for downloading are provided below. R is the basic program, and R Studio provides a user-friendly interface. My recommendation is that you install both of these software programs, as both are free.
R: http://cran.us.r-project.org/
R Studio: https://www.rstudio.com/products/rstudio/download/
Field Trips: No field trips
Additional Costs: No additional costs

Course Policies

Grading Policies: If you are unable to attend the midterm exam due to medical, psychological, or compassionate reasons, you must provide formal documentation (i.e., note from physician or counselor) to the course instructor. No other reasons for missing an examination will be accepted (e.g., other exams on the same day, final exam conflicts, travel plans). A make-up exam for each midterm will be scheduled one week after the originally scheduled midterm, and will take place during class time. There are no make-up quizzes (you can drop two of the 10 quizzes without penalty) or lab assignments (you can drop one of the 9 lab assignments without penalty). Final Assignments submitted after Friday, Nov. 30, 2018 are considered late, and are subject to a 10% per day grade penalty.

Course Policy on Group Work: No group work

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](#) as soon as possible.

For more information, contact SAS at 519-824-4120 ext. 54335 or email csdexams@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 Friday, November 2, 2018. For regulations and procedures for Dropping Courses, see the Schedule of Dates in the Academic Calendar.
Current Undergraduate Calendar

Additional Course Information

No additional course information.