PSYC* 3290, Course Outline: Fall 2024

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 2024

Class Schedule and Location: Lectures held on Mondays and Wednesdays, 4:30 - 5:20 pm, MacNaughton Building (MACN), Room 105.

See more information about Lab sessions and times in the Course Content section below.

Instructor Information

Instructor Name: Chris M. Fiacconi, PhD
Instructor Email: cfiaccon@uoguelph.ca
Office location and office hours: Thursdays 12:00-1:00 pm**; MCKN 3019** beginning Sept. 19.

GTA Information

GTA Name: Skylar Laursen (Sections 3 & 4)
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GTA Name: Davin Peart (Sections 5 & 7)
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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. 9	Research Fundamentals (Ch. 1, 2, 9 pp. 257-264) – no LAB
Sep. 16	Sampling Distributions, Confidence Intervals, Effect Sizes (Ch. 3, 4, 5) – LAB #1
Sep. 23	NHST, Power/Planning (Ch. 6, 10 pp. 282-302) – LAB #2
Sep. 30	t-tests (Independent & Paired) (Ch. 7, 8) – LAB #3
Oct. 7	One-Way ANOVA (Between; Ch. 14 pp. 415-432) – LAB #4

Oct. 14	Thanksgiving (Mon.), Midterm I (Wed.) – No LAB	
Oct. 21	One-Way ANOVA (Within; Ch. 14 pp. 432-439) – LAB #5	
Oct. 28	Factorial ANOVA I (Ch. 15) – LAB #6	
Nov. 4	Factorial ANOVA II (Ch. 15) – LAB #7	
Nov. 11	Correlation & Bivariate Regression (Ch. 11, 12) – LAB #8	
Nov. 18	Multiple Regression (supplemental readings provided) – LAB #9 Class cancelled (Wed.)	
Nov. 25	Course Review	

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 7** different lab sections – make sure you attend the section you enrolled in. All labs will take place in-person in MCKN 028.

Section 1: Friday, 11:30 am – 1:20 pm
Section 2: Wednesday, 8:30 am – 10:20 am
Section 3: Monday, 2:30 pm – 4:20 pm
Section 4: Monday, 8:30 am – 10:20 am
Section 5: Thursday, 8:30 am – 10:20 am
Section 6: Wednesday, 11:30 am – 1:20 pm
Section 7: Tuesday, 8:30 am – 10:20 am

Course Assignments and Tests:

Assignment or Test	Due Date	Contribution to Final Mark (%)	Learning Outcomes Assessed
Midterm Exam	Wed. Oct. 16	20%	1.1, 1.2, 1.4
Final Exam	Fri. Dec. 13	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 section below	8 X 3% = 24%	1.1, 1.2, 1.3, 1.4, 2.1
Final Assignment	Due Friday, November 29	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 final exam will be cumulative and will also be conducted in this format, but emphasis will be placed on the most recent material. **There is no make-up midterm exam.** If you are unable to complete the exam at the scheduled time, the weight of the midterm (20%) will automatically be transferred to the final exam.

2. There are a total of 10 quizzes. You may drop/miss two quizzes without penalty. The remaining 8 quizzes are worth 2% of your mark each. There will be no make-up quizzes. Weekly quizzes will be completed on-line through Course Link. Students will have 10 minutes to complete 10 multiple-choice questions. Quizzes are not cumulative, and students can use lecture notes, textbooks, etc. to complete each quiz. For each week, each quiz will be available for completion immediately after the Wednesday afternoon lecture (5:30 pm) and must be finished/submitted by Friday evening by 11:59 pm. There will be no quizzes for the weeks of Oct. 14 and Nov. 25.

3. Each lab will have an assignment which will need to be completed and submitted via CourseLink Dropbox **before** the beginning of the following week's lab session. Assignments will involve data analysis using R software, and communicating these results in the format of an *R* Markdown document (.pdf). You may drop **one** lab assignment without penalty. There are no make-up lab assignments. A 10% per day late penalty will be applied to late 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 Studio Cloud, and the assignment should be submitted in the format of an R Markdown document (.pdf) to the corresponding CourseLink Dropbox. Assignments must be submitted no later than 11:59 pm on Friday, November 29, 2024. A 10% per day late penalty will be applied to late final assignments.

Final examination date and time: Friday December 13, 2024 from 8:30 am to 10:20 am.

Final exam weighting: 20%

[**Examination Regulations**](#)

Course Resources

Required Texts: Cumming, G., & Calin-Jageman, R. (2024). *Introduction to the New Statistics: Estimation, Open Science, and Beyond.* 2nd edition. New York: Routledge.
https://www.amazon.ca/Introduction-New-Statistics-Estimation-Science-dp-036753150X/dp/036753150X/ref=dp_ob_title_bk

Lab Manual: Weekly lab handouts will be uploaded to CourseLink 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. 18 will be posted on Course Link.

Software: In this class, we will be learning to use the *R* programming environment to conduct statistical analyses. For the F24 semester, we will be using a web-based version of R known as R Studio Cloud (http://posit.cloud). Use of *R* Studio Cloud is free of charge. This web-based

format has the advantage that it **does NOT require you to download anything to your personal computers.** You'll need only access to the internet and to make a free account at http://posit.cloud. Once you create your personal account, you will be given access to a shared workspace for the course. This workspace will contain all relevant tutorials and files needed for you to learn how to program in *R*, and to complete the lab assignments.

Field Trips: No field trips
Additional Costs: No additional costs

Course Policies

Grading Policies: If you are unable to complete the midterm exam due to medical, psychological, or compassionate reasons, you must email the course instructor *before* the exam is scheduled to take place. **There is no make-up midterm exam.** If you are unable to complete the exam at the scheduled time due to the aforementioned reasons, the weight of the midterm (20%) will automatically be transferred to the final exam. 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, November 29, 2024 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. Similarly, any material created by the course instructor is intended for those enrolled in this course solely. Under no circumstances are you allowed to disseminate course materials to external parties.

University Policies

Illness

The University will not require verification of illness (doctor's notes) for the Fall 2024 or Winter 2025 semesters.

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 29, 2024. 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.