

PSYC*1010, Course Outline: Winter 2025

General Information

This course is offered using the Face-to-Face format. The course has a set day, time, and location of class.

Course Title: Making Sense of Data in Psychological Research

Calendar Description

This course introduces research designs and quantitative approaches used in psychological science, with an emphasis on conceptual understanding. Specific topics include distributions, meta-analysis, confidence intervals and p -values, effect size, and correlation, as well as the differences between descriptive, correlational, and experimental research designs.

Credit Weight: 0.50

Academic Department (or campus): Psychology

Semester Offering: W25

Class Schedule and Location: T/Th 10:00AM-11:20AM MACN 105

Instructor Information

Instructor Name: Dr. Jeffrey Spence

Instructor Email: spencejr@uoguelph.ca

Office location and office hours: Mackinnon Extension 4006, Thursdays 9:00AM-10:00AM

GTA Information

GTA Name: Simran Dhatt

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Course Content

Specific Learning Outcomes:

A. Critical and Creative Thinking

1) Depth and Breadth of Knowledge: Describe core concepts in the scientific method, research methods and statistics, and indicate how these ideas work together in the scientific method. Understand and apply key concepts in research methods and statistics as it relates to the scientific method.

2) Inquiry and Analysis: formulate questions about psychology. Know how to find relevant evidence. Evaluate hypotheses based on data. Recognize the importance of supporting statements with evidence.

3) Problem Solving: Identify issues and create a plan to address the problem using knowledge of research methods and statistics.

B. Literacy

1) Methodological literacy: The ability to understand, evaluate, and apply the appropriate methodology for rigorous psychological science. Recognize and describe basic research methodologies (e.g., random assignment, random sampling).

2) Quantitative literacy: Understand the use of numerical data. Demonstrate the ability to interpret data (including formulas). Demonstrate the ability to analyze data (perform calculations) and interpret data to test a claim.

3) Visual literacy: Interpret graphs and tables. Evaluate images and their source (e.g., discerning when a graph is misleading).

C. Communication

1) Reading Comprehension: Read at a university level, acquiring psychological information. Understand theoretical and empirical writing in psychology.

2) Listening skills: Determine the key points in an auditory presentation. Summarize information in a clear and concise way so that you can later access the information. Ask questions of the speaker when you require clarification.

D. Personal and ethical behaviour

1) Ethical issues in research: Describe ethical principles in conducting research as it relates to the accurate (non-misleading) presentation of research results.

2) Personal organization/ time management: Recognize the importance of planning for completion of tasks. Deal with time pressures, prioritize and complete important or urgent tasks to schedule. Demonstrate personal accountability and responsibility.

Lecture Content:

Below, is an overview of the main topics that will be covered in lectures. Lectures will cover content that is crucial for assignments, midterms, and final exam.

1. Introduction to research and statistics (Chapter 1)
2. Research methods and designs (Chapter 2)
3. Measurement (Chapter 2)
4. Descriptive statistics and distributions (Chapter 3)
5. Z scores and introduction to sampling distributions (Chapter 4)
6. Standard error (Chapter 4)
7. Confidence intervals, *t* distribution, and effect sizes (Chapter 5)
8. Null hypothesis significance testing (Chapter 6)
9. Independent group design (Chapter 7)
10. Correlation (Chapter 11)
11. Regression or paired designs

Course Assignments and Tests:

In terms of tests, exams, and assignments you are responsible for all material presented in lectures and the textbook.

It is important to view lectures to ensure you receive announcements (relevant to grading and other course aspects) as well, material that is not covered in the textbook.

1. Midterms and Final Exam (96%)

Midterm 1 (26%): In-class multiple choice test. Thursday February 6th, during class time.

Midterm 2 (35%): In-class multiple choice test. Thursday March 13th, during class time.

Final exam (35%): In-person exam scheduled in exam period. WebAdvisor date: Tuesday April 15th, 7:00 – 9:00 pm, location TBD.

Final exam regulation are detailed at: [Examination Regulations](#)

2. Research Participation (4%)

Any combination of credits for SONA research pool or written summary of research articles up to 5. Due last day of class. The goal of the research exposure is to provide you an opportunity to see more closely the process of psychological research. Two options are available to you. You can either participate in actual studies being conducted at the university, or you can read and write a critical analysis of articles reporting on psychological research. Instructions for the research participation will be posted on the course website, please refer to them. **You must have completed this activity by April 4th 5pm.**

Summary Table With Due Dates

Assignment or Test	Due Date	Contribution to Final Mark (%)	Learning Outcomes Assessed
Midterm I	February 6 th	26%	A1-3, B1-3, C1-2, D1-2
Midterm 2	March 13 th	35%	A1-3, B1-3, C1-2, D1-2
Final Exam	April 15 th	35%	A1-3, B1-3, C1-2, D1-2
Research Participation	Last day of class April 4 th .	4%	B1, C1-2, D1-2

Schedule of Content and Due dates

Notes:

***The content and assigned readings may be subject to change based on progress through the material and student comprehension.**

***Students will be notified of changes in lectures and on Courselink.**

***More specific directions regarding readings may be provided week to week.**

Week	Date	Lecture	Reading
1	Jan. 7	Introduction to course	Course outline
	Jan. 9	Introduction to research and statistics	Chapter 1: Asking and Answering Research Questions
2	Jan. 14	Research methods and designs	Chapter 2: Research Fundamentals: Don't Fool Yourself
2	Jan. 16	Research methods and designs	Chapter 2: Research Fundamentals: Don't Fool Yourself
3	Jan. 21	Psychological Measurement	Chapter 2: Research Fundamentals: Don't Fool Yourself
3	Jan. 23	Psychological Measurement	Chapter 2: Research Fundamentals: Don't Fool Yourself
4	Jan. 28	Descriptive statistics and distributions	Chapter 3: Picturing and Describing Data
4	Jan. 30	Descriptive statistics and distributions	Chapter 3: Picturing and Describing Data
5	Feb. 4	Midterm Review	Lecture material & Chapters 1-3
5	Feb. 6	Midterm 1	

6	Feb. 11	Z scores and introduction to sampling distributions	Chapter 4: The Normal Distribution and Sampling
6	Feb. 13	Z scores and introduction to sampling distributions	Chapter 4: The Normal Distribution and Sampling
Reading Week			
7	Feb. 25	Standard error, confidence intervals, <i>t</i> distribution, and effect sizes	Chapter 5: Confidence Intervals and Effect Sizes
7	Feb. 27	Standard error, confidence intervals, <i>t</i> distribution, and effect sizes	Chapter 5: Confidence Intervals and Effect Sizes
Reading Week			
8	Mar. 4	Standard error, confidence intervals, <i>t</i> distribution, and effect sizes	Chapter 5: Confidence Intervals and Effect Sizes
8	Mar. 6	Standard error, confidence intervals, <i>t</i> distribution, and effect sizes	Chapter 5: Confidence Intervals and Effect Sizes
Reading Week			
9	Mar. 11	Midterm Review	Lecture material & Chapters 4 and 5
9	Mar. 13	Midterm 2	
Reading Week			
10	Mar. 18	Null hypothesis significance testing	Chapter 6: <i>p</i> Values, Null Hypothesis Significance Testing, and Confidence Intervals
10	Mar. 20	Null hypothesis significance testing	Chapter 6: <i>p</i> Values, Null Hypothesis Significance Testing, and Confidence Intervals
Reading Week			
11	Mar. 25	Independent group design	Chapter 7: The Independent Group Design

11	Mar. 27	Independent group design	Chapter 7: The Independent Group Design
12	Apr. 1	Correlation	Chapter 11: Correlation
12	Apr. 3	Correlation	Chapter 11: Correlation

Course Resources

Required Texts:

Cumming, G, & Calin-Jageman, R. M. R. (2024). *Introduction to the new statistics: Estimation, open science, and beyond (second edition)*. New York, NY: Routledge.

This book is available as a paper copy or as an ebook.

The cost of the required text for this course is \$125.95 (same cost for ebook and paper copy) at the campus bookstore. Students are welcome to use second-hand copies of the textbook or purchase the textbook from alternate locations. The prices in other locations may differ from that at the bookstore and prices at the bookstore are subject to change.

Course Policies

The course covers material included in lectures and in the required textbook. Some of the lecture material is not in the text and some of the textbook material will not be covered in lectures. Midterms and the final exam will have questions from the lecture and the textbook. You are responsible for material in the lecture as well as the text.

Grading Policies

All midterms and final exam are completed in person. Midterms will take place during scheduled class time and the final exam will occur during the exam period.

[Undergraduate Grading Procedures](#)

In addition to midterms and the final exam, part of your grade is from research participation. If you are not interested in participating in a study or if there are no studies available to you on SONA, you may also choose the option of reading published journal articles from the list available on the SONA website. Specifically, for each of the 5 credits participation time, you will need to read one of the articles and write summary for each in the format described on the SONA website. These must be written in your own words, not ones from the article or ones

written by your classmates. Plagiarism and cheating are regarded as academic misconduct. For further information, see the section on academic misconduct.

Please note that these policies are binding unless academic consideration is given to an individual student.

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.

Re-Grading of Assignments Policy

Where a student is of the belief that an assignment has not been accurately graded, they are to pursue a 2-step course policy: 1) as soon as possible, meet with the original TA that graded the assignment, and if a student remains dis-satisfied, 2) they can request from the instructor that another TA re-grade the assignment. Note that the student will be required to accept the re-grade, whether it be higher or lower.

University Policies

Disclaimer

Please note that the ongoing COVID-19 pandemic may necessitate a revision of the format of course offerings, changes in classroom protocols, and academic schedules. Any such changes will be announced via CourseLink and/or class email. This includes on-campus scheduling during the semester, mid-terms and final examination schedules. All University-wide decisions will be posted on the COVID-19 website (<https://news.uoguelph.ca/2019-novel-coronavirus-information/>) and circulated by email.

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

Medical notes will not normally be required for singular instances of academic consideration, although students may be required to provide supporting documentation for multiple missed assessments or when involving a large part of a course (e.g., final exam or major assignment).

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](#)

Illness

Medical notes will not normally be required for singular instances of academic consideration, although students may be required to provide supporting documentation for multiple missed assessments or when involving a large part of a course (e.g., final exam or major assignment).

University Policy on the Use of AI Technologies

Students' work must reflect their unique intellectual capacity and demonstrate the application of critical thinking and problem solving. Unauthorized use of AI to complete assessments violates the fundamental intellectual purposes of the University and does not demonstrate student achievement of course learning outcomes.

Submission of materials completed by AI, without permission of the instructor, constitutes an offence under the University's academic misconduct policies, either as a form of plagiarism or the use of unauthorized aids.

Acceptable use of AI should be determined by the course instructor and may vary across disciplines, programs and types of assessments. In setting out course requirements and assessment criteria, the instructor should specify allowable uses of AI, if any, through the course outline and/or the learning management system (e.g., CourseLink). Clarity about the acceptable use of AI is critical for students and instructors. Students are responsible for appropriately referencing how and to what extent they have used AI in assessments in keeping with University and course requirements.

**Please note that the use of AI is not permitted for PSYC*1010.*

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](#)

Student Feedback Questionnaire

These questionnaires (formerly course evaluations) will be available to students during the last 2 weeks of the semester. Students will receive an email directly from the Student Feedback Administration system which will include a direct link to the questionnaire for this course. During this time, when a student goes to login to CourseLink, a reminder will pop-up when a task is available to complete.

[Student Feedback Questionnaire](#)

Drop date

The last date to drop one-semester courses, without academic penalty, is Friday April 4, 2025. For regulations and procedures for Dropping Courses, see the [Schedule of Dates in the Academic Calendar](#)

Instructors must provide [meaningful and constructive feedback, at minimum 20% of the final course grade, prior to the 40th class day](#). For courses which are of shorter duration, 20% of the final grade must be provided two-thirds of the way through the course.

Additional Course Information

Course instructors are allowed to use software to help in detecting plagiarism or unauthorized copying of student assignments. Plagiarism is one of the most common types of academic misconduct on our campus. Plagiarism involves students using the work, ideas and/or the exact wording of other people or sources without giving proper credit to others for the work, ideas and/or words in their papers. Students can unintentionally commit misconduct because they do not know how to reference outside sources properly or because they don't check their work carefully enough before handing it in. 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.