
PSYC*1010 - Making Sense of Data in Psychological Research

Fall 2025 Course Outline

Section: 01

Credits: 0.50

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 regression, as well as the differences between descriptive, correlational, and experimental research designs.

Prerequisite(s): PSYC*1000

Restriction(s): STAT*2040, STAT*2060, STAT*2080, STAT*2120, STAT*2230. This is a Priority Access Course. Enrolment may be restricted to particular programs or semester levels during certain periods.

Department(s): Department of Psychology

What Will Happen in this Course

This course is a **step-by-step guide** to help you become an **informed consumer** of statistical information. You will become an informed consumer by **learning how statistics work**. Classes will be a combination of lectures and in-class exercises. We will make use of publicly available data sets that concern interesting topics (e.g., love, movies, disease, relationships, social media, sex, drugs, rock 'n' roll).

Lecture Schedule

MonWedFri 11:30am-12:20pm in RICH*2520 (9/4 to 12/12)

In general, Monday and Wednesday class times will be used for lectures and in-class exercises, and Friday class times will be used for weekly quiz preparation.

Instructor Information

Ian Newby-Clark

Professor

Email: inewby@uoguelph.ca

Office: MCKNEXT Rm:3008

Office Hours:

By Appointment

Office Phone: 519-824-4120 x53517

Teaching Assistants

Here are the Teaching Assistants for this course:

Ms. Sydney Austin <austins@uoguelph.ca>

Ms. Katherine Jamieson <kjamie03@uoguelph.ca>

Ms. Shayla Lazanik <slazanik@uoguelph.ca>

Meetings with the TAs are By Appointment.

Textbooks

Group	Title	Author	ISBN
Required	Statistics Without Tears: An Introduction for Non- Mathematicians	Derek Rowntree	9780141987491

Learning Resources

Required Resources

The textbook, *Statistics Without Tears* (by Derek Rowntree) is required. It is a great book in many ways. Yet, in your instructor's opinion, it puts too much emphasis on 'statistical significance.' Your instructor has his own take on statistical significance, which he will teach at the appropriate time in the course. Accordingly, when chapters are assigned that include discussions of statistical significance, you can feel free to ignore those discussions unless and until you are told otherwise.

Please visit the course website on CourseLink FREQUENTLY. News, updates, and other important information, **including learning resources**, will appear there regularly.

Campus Resources

If you are concerned about any aspect of your academic program: Make an appointment with a Program Counsellor (<https://www.uoguelph.ca/uaic/programcounsellors/>) in your degree program. If you are struggling to succeed academically: There are numerous academic resources offered by the Learning Commons (<https://www.lib.uoguelph.ca/using-library/spaces/learning-commons/>) including, Supported Learning Groups for a variety of courses, workshops related to time management, taking multiple choice exams, and general study skills.

Cost of Textbooks and Learning Resources

Textbook / Learning Resource	Required / Recommended	Cost
Statistics Without Tears	Required	\$23

Students are advised that prices are often determined by the publisher or bookstore and may be subject to change.

Learning Outcomes (LOs)

By the End of this Course You Will Be Able To:

1. Perform basic mathematical operations.
2. Perform basic mathematical operations using statistics notation.
3. Explain the strengths and weaknesses of various methods of exploring data.
4. Explain why a method of exploring data is appropriate or inappropriate given the nature of the data under consideration.
5. Explain the advantages and disadvantages of different methods of determining central tendency.
6. Explain why a method of determining central tendency is appropriate or inappropriate given the nature of the data under consideration.
7. Explain the advantages and disadvantages of different methods of determining dispersion.
8. Explain why a method of determining dispersion is appropriate or inappropriate given the nature of the data under consideration.
9. Calculate and interpret an effect size for the difference between two means.
10. Explain the advantages and disadvantages of different methods of calculating an association.
11. Explain why a method of calculating an association is appropriate or inappropriate given the nature of the data under consideration.
12. Explain the nature of sampling.
13. Explain the characteristics of sampling distributions with respect to sample size.
14. Explain the characteristics of sampling distributions with respect to the statistic under consideration.
15. Explain how confidence intervals are determined.
16. Explain what factors influence the width of a confidence interval.

17. Correctly interpret confidence intervals for central tendency and association statistics.
18. Correctly interpret confidence intervals for effect sizes.

Note About the Schedule of Topics

The Schedule of Topics is subject to change.

Schedule of Topics and Assignments

Day	Date	Topic	Activities	Due
Fri	9/5	Welcome to Statistics!	1. What is Going to Happen? 2. Course Outline Review 3. Fermi Problems 4. Preparing for Next Class	
Mon	9/8	A Bit of Math LO #1 Perform basic mathematical operations. LO #2 Perform basic mathematical operations using statistics notation.	1. Fermi Problem 2. Order of Operations 3. Sigma 4. Preparing for Next Class	Chapter 1 (SWT)
Wed	9/10	Working With Statistics Notation LO #2: Perform basic mathematical operations using statistics notation.	1. Review of Monday 2. Working with Sigma 3. Preparing for Next Class	Chapter 2 (SWT)
Fri	9/12	Quiz #1 Prep	1. Review of Monday and Wednesday 2. Q & A Before Release of Quiz #1	Quiz #1 Opens
Mon	9/15	Exploring Data: Frequency Distributions LO #3: Explain the strengths and weaknesses of various methods of exploring data. LO #4: Explain why a method of exploring data is appropriate or inappropriate given the nature of the data under consideration.	Lecture and In-Class Exercise	Chapter 2 (SWT)
Wed	9/17	Exploring Data: Stem-and-Leaf Plots Exploring Data: Boxplots LO #3: Explain the strengths and weaknesses of various methods of exploring data. LO #4: Explain why a method of exploring data is appropriate or inappropriate given the nature of the data under consideration.	Lecture and In-Class Exercise	Chapter 2 (SWT)
Fri	9/19	Quiz #2 Prep	1. Review of Monday and Wednesday 2. Q & A Before Release of Quiz #2	Quiz #2 Opens
Mon	9/22	Determining Central Tendency LO #5: Explain the advantages and disadvantages of different methods of determining central tendency. LO #6: Explain why a method of determining central tendency is appropriate or inappropriate given the nature of the data under consideration.	Lecture and In-Class Exercise	Chapter 3 (SWT)

Wed	9/24	Determining Dispersion LO #7: Explain the advantages and disadvantages of different methods of determining dispersion. LO #8: Explain why a method of determining dispersion is appropriate or inappropriate given the nature of the data under consideration.	Lecture and In-Class Exercise	Chapter 3 (SWT)
Fri	9/26	Quiz #3 Prep	1. Review of Monday and Wednesday 2. Q & A Before Release of Quiz #3	Quiz #3 Opens
Mon	9/29	Effect Size of Mean Difference LO #9: Calculate and interpret an effect size for the difference between two means.	Lecture and In-Class Exercise	See CourseLink for Resources
Wed	10/1	All About Scatterplots LO #3: Explain the strengths and weaknesses of various methods of exploring data. LO #4: Explain why a method of exploring data is appropriate or inappropriate given the nature of the data under consideration.	Lecture and In-Class Exercise	Chapter 8 (SWT)
Fri	10/3	Quiz #4 Prep	1. Review of Monday and Wednesday 2. Q & A Before Release of Quiz #4	Quiz #4 Opens
Mon	10/6	Associations Part I LO #10: Explain the advantages and disadvantages of different methods of calculating an association. LO #11: Explain why a method of calculating an association is appropriate or inappropriate given the nature of the data under consideration.	Lecture and In-Class Exercise	Chapter 8 (SWT)
Wed	10/8	Associations Part 2 LO #10: Explain the advantages and disadvantages of different methods of calculating an association. LO #11: Explain why a method of calculating an association is appropriate or inappropriate given the nature of the data under consideration.	Lecture and In-Class Exercise	Chapter 8 (SWT)
Fri	10/10	Quiz #5 Prep	1. Review of Monday and Wednesday 2. Q & A Before Release of Quiz #5	Quiz #5 Opens
Mon	10/13	Thanksgiving Holiday		
Wed	10/15	Mid-Term Exam Preparation	Mid-Term Exam Preparation Lecture and In-Class Exercise	Mid-Term Exam Preparation
Fri	10/17	IN-CLASS MID-TERM EXAM	IN-CLASS MID-TERM EXAM	IN-CLASS MID-TERM EXAM
Mon	10/20	Sampling from a Population LO #12: Explain the nature of sampling.	Lecture and In-Class Exercise	Chapter 5 (SWT)
Wed	10/22	What the #S^2 is a Sampling Distribution? LO #12: Explain the nature of sampling.	Lecture and In-Class Exercise	Chapter 5 (SWT)
Fri	10/24	Quiz #6 Prep	1. Review of Monday and Wednesday 2. Q & A Before Release of Quiz #6	Quiz #6 Opens
Mon	10/27	REVIEW OF MID-TERM EXAM	REVIEW OF MID-TERM EXAM	REVIEW OF MID-TERM EXAM
Wed	10/29	The Central Limit Theorem LO #13: Explain the characteristics of sampling distributions with respect to sample size.	Lecture and In-Class Exercise	See CourseLink for Resources

Fri	10/31	Quiz #7 Prep	1. Review of Wednesday 2. Q & A Before Release of Quiz #7	Quiz #7 Opens
Mon	11/3	The Central Limit Theorem Continued LO #13: Explain the characteristics of sampling distributions with respect to sample size.	Lecture and In-Class Exercise	See CourseLink for Resources
Wed	11/5	Various Key Sampling Distributions LO #14: Explain the characteristics of sampling distributions with respect to the statistic under consideration.	Lecture and In-Class Exercise	See CourseLink for Resources
Fri	11/7	Quiz #8 Prep	1. Review of Monday and Wednesday 2. Q & A Before Release of Quiz #8	Quiz #8 Opens
Mon	11/10	What the #@#! is a t-distribution? LO #15: Explain how confidence intervals are determined. LO #16: Explain what factors influence the width of a confidence interval.	Lecture and In-Class Exercise	See CourseLink for Resources
Wed	11/12	Confidence Intervals (Part 1) LO #17: Correctly interpret confidence intervals for central tendency and association statistics.	Lecture and In-Class Exercise	See CourseLink for Resources
Fri	11/14	Quiz #9 Prep	1. Review of Monday and Wednesday 2. Q & A Before Release of Quiz #9	Quiz #9 Opens
Mon	11/17	Confidence Intervals (Part 2) LO #17: Correctly interpret confidence intervals for central tendency and association statistics.	Lecture and In-Class Exercise	See CourseLink for Resources
Wed	11/19	Confidence Intervals (Part 3) and "Significance" LO #18: Correctly interpret confidence intervals for effect sizes.	Lecture and In-Class Exercise	See CourseLink for Resources
Fri	11/21	Quiz #10 Prep	1. Review of Monday and Wednesday 2. Q & A Before Release of Quiz #10	Quiz #10 Opens
Mon	11/24	FINAL EXAM PREPARATION	FINAL EXAM PREPARATION	FINAL EXAM PREPARATION
Wed	11/26	FINAL EXAM PREPARATION	FINAL EXAM PREPARATION	FINAL EXAM PREPARATION
Fri	11/28	FINAL EXAM PREPARATION	FINAL EXAM PREPARATION	FINAL EXAM PREPARATION
Mon	12/1	No Class		
Wed	12/3	No Class		
Fri	12/5	No Class		
Mon	12/8	No Class		
Wed	12/10	No Class		
Fri	12/12	No Class		

Assessment Breakdown

Description	Weighting (%)	Due Date
Progress Check Quizzes @ 5% Each	50	End of Class on Last Day of Classes
Mid-Term Exam	25	October 17th
Final Exam	25	TBD

Final Exam

Date: Dec 1

Time: Mon 2:30pm-4:30pm

Location: TBA *Please see Web Advisor closer to the date of scheduled final for location.*

To understand rules and regulations regarding Examinations students are encouraged to read Student's Responsibilities (<https://calendar.uoguelph.ca/undergraduate-calendar/undergraduate-degree-regulations-procedures/examinations/>)

If the student is unable to meet the final exam requirements due to medical, psychological or compassionate circumstances they are encouraged to review Student's Responsibilities in the Academic Consideration, Appeals and Petitions (<https://calendar.uoguelph.ca/undergraduate-calendar/undergraduate-degree-regulations-procedures/academic-consideration-appeals-petitions/>) section of the Academic Calendar.

How Grading Will Work

Progress Check Quizzes

To help you stay up to date, a weekly progress check quiz will be made available to you on-line immediately after most Friday classes. The quizzes are mastery quizzes. You can take them as many times as you like.

You will receive 5% toward your final grade for each quiz that you take (i.e., the quizzes comprise 50% of your final mark). There are ten quizzes in total.

PLEASE NOTE: The quizzes will no longer be available after class on the last day of classes.

PLEASE NOTE: Your performance on the quizzes does not influence your mark. Just take them.

Exams

There will be a mid-term exam and there will be a final exam. Each exam will be worth 25% of your final grade. The mid-term exam will concern the first half of the course, and the final exam will focus on the entirety of the course, with an emphasis on material covered after the mid-term exam. You are strongly advised to review your mid-term exam after it is marked so that you do not repeat errors on the final exam. Both exams will be a combination of multiple choice and short answer questions. Well-prepared students will have ample time to complete the exams. There will be one make-up date and time for students who miss the mid-term exam. Medical notes etc. will not be required. If you do not write the mid-term exam at the designated date and time, your final exam will be worth 50% of your final grade.

Last Day to Drop Course

The final day to drop Fall 2025 courses without academic penalty is the last day of classes: November 28

After this date, a mark will be recorded, whether course work is completed or not (a zero is assigned for missed tests/assignments). This mark will show on the student's transcript and will be calculated into their average.

CSAHS Academic Misconduct Policy

The *Academic Misconduct Policy* is detailed in the Undergraduate Calendar. 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.

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.

Instructors **shall not** determine if academic misconduct has occurred. This is up to the Associate Dean Academic's office. Instructors shall not assign a grade of zero even if they believe that the student has committed some form of academic misconduct (e.g., copied material from a website like CourseHero) on an assignment or exam.

Instructors **can** determine if a student has poorly paraphrased and/or improperly cited material and can provide a grade accordingly as long as this is clearly identified as part of the assessment criteria via a rubric or other assessment tools.

For more information about Academic Integrity resources and how to prevent Academic Misconduct.

Standard Statements for Undergraduate Courses

Academic Integrity

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 (<https://calendar.uoguelph.ca/undergraduate-calendar/undergraduate-degree-regulations-procedures/academic-misconduct/>) is outlined in the Undergraduate Calendar.

Accessibility

The University promotes the full participation of students who experience disabilities in their academic programs. To that end, the provision of academic accommodation is a shared responsibility between the University and the student.

When accommodations are needed, the student is required to first register with Student Accessibility Services (SAS). Documentation to substantiate the existence of a disability is required; however, interim accommodations may be possible while that process is underway.

Accommodations are available for both permanent and temporary disabilities. It should be noted that common illnesses such as a cold or the flu do not constitute a disability. Use of the SAS Exam Centre requires students to make a booking at least 10 days in advance, and no later than the first business day in November, March or July as appropriate for the semester. Similarly, new or changed accommodations for online quizzes, tests and exams must be approved at least a week ahead of time. For students at the Guelph campus, information can be found on the SAS website. (<https://www.uoguelph.ca/sas/>)

Accommodation of Religious Obligations

If you are unable to meet an in-course requirement due to religious obligations, please email the course instructor within two weeks of the start of the semester to make alternate arrangements.

See the Academic calendar for information on regulations and procedures for Academic Accommodations of Religious Obligations (<https://calendar.uoguelph.ca/undergraduate-calendar/undergraduate-degree-regulations-procedures/academic-accommodation-religious-obligations/>).

Copies of Out-of-class Assignments

Keep paper and/or other reliable back-up copies of all out-of-class assignments: you may be asked to resubmit work at any time.

Drop Date

Students will have until the last day of classes to drop courses without academic penalty. The deadline to drop two-semester courses will be the last day of classes in the second semester. This applies to all undergraduate students except for Doctor of Veterinary Medicine and Associate Diploma in Veterinary Technology (conventional and alternative delivery) students. The regulations and procedures for course registration are available in the Undergraduate Calendar - Dropping Courses (<https://calendar.uoguelph.ca/undergraduate-calendar/undergraduate-degree-regulations-procedures/dropping-courses/>).

Email Communication

As per university regulations, all students are required to check their <uoguelph.ca> e-mail account regularly: e-mail is the official route of communication between the University and its students.

Health and Wellbeing

The University of Guelph provides a wide range of health and wellbeing services at the Vaccarino Centre for Student Wellness (<https://wellness.uoguelph.ca/>). If you are concerned about your mental health and not sure where to start, connect with a Student Wellness Navigator (<https://wellness.uoguelph.ca/navigators/>) who can help develop a plan to manage and support your mental health or check out our mental wellbeing resources (<https://wellness.uoguelph.ca/shine-this-year/>). The Student Wellness team are here to help and welcome the opportunity to connect with you.

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).

Recording of Materials

Presentations that are made in relation to course work—including lectures—cannot be recorded or copied without the permission of the presenter, whether the instructor, a student, or guest lecturer. Material recorded with permission is restricted to use for that course unless further permission is granted.

Resources

The Academic Calendars (<http://www.uoguelph.ca/registrar/calendars/?index>) are the source of information about the University of Guelph's procedures, policies and regulations which apply to undergraduate, graduate and diploma programs.

When You Cannot Meet a Course Requirement

When you find yourself unable to meet an in-course requirement because of illness or compassionate reasons please advise the course instructor (or designated person, such as a teaching assistant) in writing, with your name, id#, and e-mail contact. See the Undergraduate Calendar for information on regulations and procedures for Academic Consideration. (<https://calendar.uoguelph.ca/undergraduate-calendar/undergraduate-degree-regulations-procedures/academic-consideration-appeals-petitions/>)