
PSYC*1010 - Making Sense of Data in Psychological Research

Winter 2026 Course Outline

Section: 04

Credits: 0.50

Land Acknowledgement: Guelph

The University of Guelph resides on the ancestral lands of the Attawandaron people and the treaty lands and territory of the Mississaugas of the Credit. We recognize the significance of the Dish with One Spoon Covenant to this land and offer respect to our Anishinaabe, Haudenosaunee and Métis neighbours. Today, this gathering place is home to many First Nations, Inuit, and Métis peoples and acknowledging them reminds us of our important connection to this land where we work and learn.

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

Course Description

"Statistical thinking will one day be as necessary a qualification for efficient citizenship as the ability to read and write", H.G. Wells

Statistics is the science of collecting, analyzing, interpreting, and presenting data. It can be initially surprising to encounter a statistics course in a psychology program—however, a fundamental understanding of statistics is invaluable to understanding and evaluating psychology with a critical lens. The goal of this course is to provide you with the fundamentals of descriptive and inferential statistics to better understand, assess, and apply different statistical arguments both in psychological research and in your everyday life.

Lecture Schedule

MonWedFri 1:30pm-2:20pm in ROZH*103 (1/5 to 4/21)

Instructor Information

Bryan Hong, PhD

Assistant Professor

Email: bryan.hong@uoguelph.ca

Office Hours:

By appointment (<https://calendly.com/bryan-hong/office-hours>)

My name is Dr. Bryan Hong (he/him), and I am looking forward to being your course instructor this semester! You can call me Dr/Professor Hong or by my first name, Bryan.

Additional Support

In addition, we have a terrific team of graduate teaching assistants (GTA) to support your learning during the course. You can reach the GTA team via e-mail (TBD). The GTAs will be your main point of contact for scheduling appointments to answer questions on course content, review assessments, and provide studying advice.

Graduate Teaching Assistants: Alessandra Mangialardi, Sara Mansueto, Ralitza Dimova, Yang Ge

When contacting us via email, please include the course code and section (“PSYC1010*04”) in the subject line, in addition to the topic of the email. We will try to respond to all emails within 2 business days. All course communication should be sent from your official UofGuelph email.

Learning Resources

Required Resources

We will be using the following textbook and MindTap for this course—both are **required** materials.

Gravetter, F.J., & Wallnau, L.B., (2017). *Statistics for the Behavioral Sciences (10E) with MindTap*. Cengage Learning. ISBN: 9781337280754

The MindTap page for our course can be accessed at: <https://student.cengage.com/course-link/MTPN5GP5T03S> (<https://student.cengage.com/course-link/MTPN5GP5T03S/>)

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

Your textbook is available at both the University of Guelph Bookstore, the Co-Op Bookstore, and online, in both digital and paper formats. I was able to negotiate a discounted pricing of \$86.95 for the eBook and Access Code—however, I encourage you to take a moment to search around for the best deal.

Textbook / Learning Resource	Required / Recommended	Cost
Gravetter, F.J., & Wallnau, L.B., (2017). <i>Statistics for the Behavioral Sciences (10E) with MindTap</i> . Cengage Learning. ISBN: 9781337280754	Required	\$86.95

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

Course Level Learning Outcomes

By the end of this course, a successful student will be able to:

- Describe and interpret core concepts of the scientific method, research methods, and statistics
 - Define key statistical terms and research designs
 - Calculate and interpret different measures of central tendency and variability
 - Interpret data displayed as statistics, figures, and tables
- Apply appropriate statistical and research methods to collect, analyze, interpret, and report research findings in relation to testing hypotheses
 - Formulate hypotheses to address a given research question
 - Apply and identify appropriate research designs and statistical tests to evaluate a given hypothesis
 - Produce and interpret reports of statistical analyses in APA format
 - Effectively communicate the results and meaning of statistical information to different audiences (e.g., layperson, scientists, etc.)
- Evaluate the public presentation of statistics
 - Recognize when statistics are presented in an inaccurate or misleading manner (whether intentional or not)
 - Understand the limitations of hypothesis testing and identify recommended remedies by the field
 - Understand the potential ethical implications of using statistics inappropriately
 - Understand the subjectivity involved in research, including the decisions that researchers must make when analyzing data and reporting results

This will help you achieve the following specific learning outcomes:

1. **Critical and creative thinking**
 - a. Depth and breadth of knowledge
 - b. Inquiry and analysis
 - c. Problem solving

2. **Literacy**
 - a. Methodological literacy
 - b. Quantitative literacy
 - c. Visual literacy
3. **Communication**
 - a. Reading comprehension
 - b. Listening skills
 - c. Written communication
4. **Personal and ethical behaviour**
 - a. Ethical issues in research
 - b. Personal organization and time management

Schedule of Topics and Assignments

Week of	Topic	Activities	Due
1/5	Introductions, Variables + Measurement (Chapter 1)		
1/12	Frequency Distributions + Data Visualization (Chapter 2)	Ch. 1 Problem Set due	Sun, Jan 11 @ 11:59PM ET
1/19	Central Tendency + Variability (Chapters 3/4)	Ch. 2 Problem Set due	Sun, Jan 18 @ 11:59PM ET
1/26	z-scores + Probability (Chapters 5/6)	Ch. 3/4 Problem Sets due	Sun, Jan 25 @ 11:59PM ET
2/2	The Normal Distribution + Sampling Distributions (Chapters 6/7)	Ch. 5/6 Problem Sets due	Sun, Feb 1 @ 11:59PM ET
2/9	Midterm 1 Review + Test (Thurs, Feb 12 @ 4:00PM – 5:20PM ET)	Ch. 7 Problem Set due	Sun, Feb 8 @ 11:59PM ET
2/16		Winter Break	
2/18		Winter Break	
2/20		Winter Break	
2/23	Introduction to Hypothesis Testing (Chapter 8)		
3/2	The t-statistic (Chapter 9)	Ch. 8 Problem Set due	Sun, Mar 1 @ 11:59PM ET
3/9	The t-test (Chapters 10/11)	Ch. 9 Problem Set due	Sun, Mar 8 @ 11:59PM ET
3/16	Midterm 2 Review + Test (Thurs, Mar 19 @ 4:00PM – 5:20PM ET)	Ch. 10/11 Problem Sets due	Sun, Mar 15 @ 11:59PM ET
3/23	One-way ANOVA (Chapter 12)		
3/30	Correlations and Regressions (Chapters 15/16)	Ch. 12 Problem Set due	Sun, Mar 29 @ 11:59PM ET
4/3		Holiday	
4/6	Correlations and Regressions (Chapters 15/16)	Statistical Literacy Project due	Sun, Apr 5 @ 11:59PM ET
4/13	Final Exam (Thurs, Apr 16 @ 11:30AM – 1:30PM ET)		

Teaching and Learning Activities

Lectures

Lectures will take place in person every week, Mondays, Wednesdays, and Fridays between 1:30PM and 2:20PM in ROZH103 (Rozanski Hall 103). Each lecture, we will introduce and discuss important concepts of the course and their application in both research and everyday settings. I strongly

encourage you to take notes, and to ask any questions you have to clarify and expand on the material covered. You will be responsible for material covered during the lectures for the tests.

Textbook readings

The textbook is used to supplement the content that is covered in class. Assigned chapters will review or expand on concepts we cover during lectures – there may also be important topics that are not covered in class. To get the most out of this class, I suggest completing all assigned readings before each lecture. You will be responsible for assigned chapters for all tests.

Independent practice with MindTap

Regular practice of the concepts learned in the class will be critical for success in this class. MindTap was selected for this class because it provides multiple research-based methods of review to support you through this course. Only the Problem Sets will be completed for a grade in this course, but time spent on the remaining types of activities (e.g. Mastery Training, End of Chapter Problems, Exam Reviews) will likely pay off in test performance. I recommend that you create a regular study plan to help keep on track with all of the assigned activities.

Assessment Breakdown

Problem sets – 10%

Using MindTap, you will complete problem sets for each of the assigned chapters to practice the concepts covered in the course. Problem sets will be due each week on Sundays at 11:59PM ET (see the Course Schedule below for specific dates). Problem sets submitted after the deadline (even by a few minutes) will be given a 0. Extensions for technical difficulties will only be given in the case of a system-wide error, so please plan accordingly. The lowest two scores from your problem sets will be dropped when computing your final grade.

Statistical literacy project – 10%

The statistical concepts that we learned in class are seen everywhere in our day-to-day lives. This project is designed as an opportunity to apply what we've learned in class to assess statistical claims that you might encounter. More details about the Statistical Literacy Project will be made available on CourseLink.

Research participation – 5%

One of the best ways to learn about statistics in psychology research is to participate in studies first-hand. In this course, you will be asked to take part in actual psychology research projects that are being carried out in the department at the University of Guelph, as advertised in SONA. Specifically, you will be asked to earn four credits (1.25% each, making up 5% of your final grade) by participating in experiments and reading the corresponding debriefing sheet to learn more about the rationale for the study.

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 completing an alternative assignment for a credit. Specifically, you will need to read a published journal article from the list available on the SONA website and write a corresponding summary and reflection. Note that these must be written in your own words, not ones from the article or ones written by your classmates.

Thus, there are two types of research participation: (1) those based on actual research participation, and (2) those based on reading a published article and writing the required summary. Many of you will find that you end up doing both types of assignments to make up your 5% for the Research Participation mark. For example, you may have 3% based on participating in 3 hours-worth of experiments and 2% based on summaries from 2 of the articles posted on the SONA website. All research participation and design papers are due no later than midnight on the last day of scheduled classes. It is a good idea to spread these out over the term to prevent you from being overwhelmed at the end of the year.

Tests - 75%

There will be a total of 2 midterm tests (worth 22.5% each) and a final exam (worth 30%). Each of these tests are cumulative and will consist of multiple choice, short answer, and/or long answer questions covering all the lecture and textbook material up to the date of the test. The questions are designed to not only test your knowledge of the course material, but also your ability to apply the concepts in novel situations. Midterm tests are scheduled to take place during our regular class period. All tests will take place in-person and will require hand-written responses.

Final Exam

Date: Apr 16

Time: Th 11:30am-1:30pm

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.

Last Day to Drop Course

The final day to drop Winter 2026 courses without academic penalty is the last day of classes: April 06

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.

Course Grading Policies

Missed test policy

If you miss a term test due to illness or compassionate reasons, please advise me within a week of the missed test for academic consideration with appropriate details—otherwise, you will receive a 0 for that test. See the Undergraduate Calendar for additional information on regulations and procedures: Academic Consideration (<https://calendar.uoguelph.ca/undergraduate-calendar/undergraduate-degree-regulations-procedures/academic-consideration-appeals-petitions/>)

As a rule, makeup tests will not be issued. If you miss one term test, your other term test and the final assessment will be reweighted, with the term test weighted at 30% and your final assessment at 45%. If you miss both tests, your final assessment will be weighted at 65%, with an additional 5% allocated to both your Problem Sets and Statistical Literacy Project.

Late and extension policy

MindTap problem sets submitted after the deadline (even by a few minutes) will be given a 0. Late assignments (not including tests) will be penalized by 5% per day, for up to 3 days (i.e., assignments that are submitted 25 hours past the deadline will receive a 10% late penalty). Assignments will not be accepted after 3 days – you will receive an automatic 0 on these assignments. In the case of extraordinary circumstances, please email me with the appropriate details to set up a time to discuss these on a case-by-case basis.

Extensions will only be granted for rare circumstances—please email me at least 72 hours before an assignment is due to request an extension.

In addition, I recognize that sometimes life happens—you will have TWO late tickets for your assignments (i.e., Problem Sets and Statistical Literacy Project). These late tickets can be used to extend the deadlines for these assignments by 24 hours, with no questions asked and no documentation necessary. To use the ticket, please email the GTA team in advance and then submit the assignment in the usual way no later than 24 hours past the original deadline.

Grading dispute policy

If you believe that your assignment was graded unfairly, please first wait for at least 24 hours following the return of the assignment before contacting us. Then contact the GTA team with details on where you think something was overlooked to set up a meeting to review your assignment. If you still feel as if your assignment was graded unfairly following this meeting, you can email me a short paragraph detailing your grade concern to request a regrade—grade disputes are not to be directed to your GTAs. Keep in mind that the regrade is final and your mark could go up, go down, or stay the same.

Course Standard Statements

Attendance policy

Attendance is not mandatory; however, some of the material presented in lecture is not in the text and there will be questions based off lecture material on exams. You are responsible for material in the lecture as well as the text. While attendance is not graded, evidence shows that it is strongly related to class grades. Effective note taking is also one of the learning outcomes that we are trying to achieve in this course. If you do need to miss a class, you should arrange to collect notes from one (or more) of your classmates.

Lecture recordings and course materials usage policy

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 expressed written consent of the instructor.

Similarly, any course materials provided by the course instructor or GTAs (including, but not limited to, the syllabus, lecture slides, handouts, recordings, etc.) are intended for those enrolled in this course solely. Under no circumstances are you allowed to disseminate course materials to

external parties. Non-compliance with these terms violates an instructor's intellectual property rights and the Canadian Copyright Act—students violating this agreement will be subject to disciplinary actions.

Generative AI policy

The course is designed to help you build formative knowledge and skills in statistics and research methods. As such, the use of generative AI tools (e.g., ChatGPT, Gemini, etc.) is not permitted for assignments in this course, unless otherwise stated. Under no circumstances are generative AI tools to be used during midterm or final exams, or to create something in lieu of original work. Note that generative AI tools have limitations and can produce outputs that are incomplete, inaccurate, and/or reflect biases—it is your responsibility to critically assess and evaluate the contents of anything you submit. You should be able to readily support and demonstrate knowledge of your submissions. You may not earn full credit if inaccurate or invalid information is found in your work. Unauthorized use of these tools will be considered a violation of the university's academic misconduct policy.

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

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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/>)