

PSY201H1 S LEC5101: STATISTICS I

WINTER 2024

January 8 – April 8, 2024

Course Information

Lectures: Tuesday, 6:00 PM – 8:00 PM Eastern Time (ET)
Thursday, 6:00 PM – 7:00 PM Eastern Time (ET)
Lecture Type: In-person
Lecture recordings is be made available to support course accessibility
Lecture FE 114
Location: 371 Bloor Street West, Room 114

Course Quercus, at <https://q.utoronto.ca/courses/339069>
Websites: MindTap, at <https://student.cengage.com/course-link/MTPPPP43L07R>

Instructor/TA Contact Information:

Course Instructor: Grace Wang (she/her)
Contact email: gr.wang@mail.utoronto.ca
Office Hour: By appointment through <https://calendly.com/gr-wang/office-hour>

TA Team: Anisha Khosla, Liliana Wu, Ariana Youm, Ann Zhang
Course Email: psy201.winter2024@gmail.com

Prerequisite: PSY100H1/ PSY100Y5/(PSYA01H3 + PSYA02H3)/ COG250Y1

Exclusion: ECO220Y1/ EEB225H1/ GGR270H1/ IRW220H1/ POL222H1/ SOC202H1/ STA220H1/ STA238H1/ STA248H1/ STA288H1/ STA215H5/ STA220H5/ PSYB07H3/ STAB22H3/ STAB23H3/ STAB57H3

**Please ensure that you have met the prerequisites listed in the Psychology section of the A&S Calendar for this course. If you lack any prerequisites you will be removed from the course

Required Course Material:

Gravetter, F. J., & Wallnau, L. B. (2017). *Statistics for the Behavioral Sciences* (10th Ed.). Boston, MA: Cengage Learning.

MindTap® Psychology, ISBN: 978-1-337-36622-9

- MindTap Course Key: **MTPPPP43L07R**

I encourage you to shop around for the best price on the course material. Previous instructors have negotiated for the lowest price possible for the course material at the UofT bookstore:

- **\$69.95** – MindTap®, includes the MindTap Access Code and an eBook version of our textbook
- **\$139.95** – MindTap® bundled with MindTap Access Code and eBook access and print loose leaf version of the textbook

Purchasing the MindTap® through the bookstore will come with 12 months of access, which is something to consider if you will be taking PSY202 in the following semesters. Below is the link to purchase the MindTap® access code with ebook from the U of T bookstore:

<https://www.uoftbookstore.com/adoption-search-results?ccid=2828688&itemid=82989>

If your current financial situation will prevent you from being able to purchase access to MindTap, please send me an email (gr.wang@mail.utoronto.ca). I am dedicated to ensuring that all students will have access to the course material.

Course Description

Statistics is the science of collecting, analyzing, interpreting, and presenting data. A fundamental knowledge of statistics is needed to practice and evaluate research through a critical lens. This knowledge will also allow you to recognize and evaluate different statistical claims in your everyday life. 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.

By the end of this course, you will be able to:

Goal 1. Interpret basic statistical results

- Calculate and interpret the meaning of basic measures of central tendency and variability.
- Distinguish between causal and correlational relationships.
- Interpret data displayed as statistics, graphs, and tables.

Goal 2. Apply appropriate statistical strategies to test hypotheses

- Recognize the difference between a research hypothesis and a statistical hypothesis.
- Select and implement an appropriate statistical analysis for a given research design, problem, or hypothesis.
- Identify the correct strategy for data analysis and interpretation when testing hypotheses.
- Recognize the limitations of hypothesis testing and identify some of the remedies recommended by the field.

Goal 3. Apply appropriate statistical and research strategies to collect, analyze and interpret data, and report research findings

- Select, apply, and interpret appropriate descriptive and inferential statistics.
- Identify and operationally define variables.
- Limit cause-effect claims to research strategies that appropriately rule out alternative explanations.
- Produce and interpret reports of statistical analyses using APA style.

Goal 4. Distinguish between statistical significance and practical significance

- Distinguish between statistically significant and chance findings in data.
- Calculate and interpret the meaning of basic tests of statistical significance.
- Calculate and interpret the meaning of confidence intervals.
- Calculate and interpret the meaning of basic measures of effect size statistics.
- Recognize when a statistically significant result may also have practical significance.

Goal 5. Evaluate the public presentation of statistics

- Recognize when statistics are presented inaccurately or misleadingly, either intentionally or unintentionally.
- Assess the validity of statistical conclusions made in popular research reporting (i.e., in blogs or newspapers).

Course Structure

Lectures

This course has 22 in-person lectures that occur on Tuesdays, 6:00 – 8:00 PM and Thursdays, 6:00 PM – 7:00 PM Eastern Time. Lectures will take place at FE 114, located at 371 Bloor Street West.

We will introduce and discuss important concepts of the course and their real-world applications and will be covering a wide range of difficult material with many concepts building upon each other. This means that it is critical to stay on pace to succeed in this course. I strongly encourage you to ask any questions you have to clarify and expand on the material covered. The TAs and I will also be available to answer any questions you have about content covered outside of lectures via email or office hours.

Lectures will be recorded and posted for asynchronous viewing on Quercus. The Opencast Content Capture system (OCCS) will be used in this class to capture lecture recordings but please note that these lecture recordings are not guaranteed as technology can fail.

Textbook Readings

To get the most out of this class, I suggest completing all readings before or immediately after the lectures. 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. 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 to succeed 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 the remaining types of activities (Mastery Training, End of Chapter Problems, Exam Reviews) are recommended for extended practice.

Course Communication

Quercus Discussion Board:

- General inquiries related to course content, policies, or assessments should first be posted to the relevant Quercus Discussion Board.
- You are encouraged to both **ask and answer** questions about course content and administration on the Quercus Discussion Board.
- The instructor and the TAs will also monitor the board and provide answers or input when needed.
- The discussion board is a perfect place to ask for questions and clarification, where everyone can benefit from the response.
- Before posting a question, please check to see whether it has already been answered/discussed.

Emailing:

- Scheduling appointments to review content, get study advice, or view tests – please email TAs directly at psy201.winter2024@gmail.com
- Personal questions related to illness, accessibility, accommodations, class concerns – please email the me directly at gr.wang@mail.utoronto.ca
- Please include “**PSY201**” in the subject line with the topic of your email, a descriptive subject line, also your full name.
 - We will try to respond to all emails within 48 hours (or 2 business days).
 - We may not respond to emails between the hours of 8pm and 8am.

Course Assessments

Tests – 70%

There will be a total of 2 term tests (worth 20% each) and a final assessment (worth 30%). Each of these tests is cumulative and will consist of multiple choice, short answer, and long answer/computation 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.

All tests are in-person and closed book exams. You are expected to be present and in-person for these tests and the tests must be taken as scheduled. Students are advised not to make work, holiday, or travel arrangements that might conflict with their taking of these tests as scheduled.

It is the responsibility of the student to inform the instructor of any absences. Last minute medical excuses or notifications of personal emergencies must be emailed to the instructor by the date of the test, otherwise a grade of "0" will be entered for the test. If you miss a test, you must also follow the procedures described below (see Missed Test/Exam Policy).

MindTap Problem Sets – 10%

Using MindTap®, you will complete problem sets for each of the assigned chapters (Chapters 1 – 12 & 14) in order to practice the concepts covered in the course.

Weekly problem sets will be due each week on Sunday by 11:59pm (See Course Calendar for specific deadlines). The problem sets are set up for three possible attempts and your grade will be calculated as the average of the attempts. The two chapters with the lowest problem set score will be dropped when computing your final grade.

Statistical Literacy Assignment – 15%

The statistical concepts we learn 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 real-world concepts and build your statistical literacy.

You will be given the opportunity to choose from particular topics related to statistics in psychology and will complete assigned readings and videos on that topic. Then, you will engage in a facilitated discussion with your topic group members. Further details about this project will be provided later in the course.

Reflective Learning Activity – 5%

Reflective learning activity is a great way to be introspective about your learning process as you engage with the course materials throughout the semester. Thinking about your thinking – or 'metacognition' – can help you become a better learner. Statistics in particular can be a challenging class because for many it is associated with a lot of anxiety. Reflecting on your feelings and learning throughout the course may help you understand how you best learn and improve your way of learning. Reflective learning practice can also help monitor your progress, problem-solve, and track your learning goals and priorities.

The reflective learning activities may include reading the benefits of reflective practice and answering brief multiple-choice questions about the reading or writing open-ended or guided reflective learning journal entries. To earn marks for your reflective activities, you must complete the assigned **5 activities by 11:59 PM on April 5th**. Because the purpose is to encourage you to be actively aware of your learning throughout the course, each activity must be submitted at least five days apart from one another (so you cannot complete all of your activities in the first or last week of class!).

Course Assessment Breakdowns:

Exams (70%)

- Term Test 1 – 20%
- Term Test 2 – 20%
- Final – 30%

Application (30%)

- Statistical Literacy Assignment – 15%
- MindTap Problem Sets – 10%
- Reflective Learning Activity – 5 %

Bonus (1%)

- Mid semester course feedback – 0.5%
- End semester course feedback – 0.5%



48-Hours Late Tickets

In order to provide some flexibility for minor illness, technological difficulties, outside obligations, and other extenuating circumstances, you will be given **two 48-hours late tickets to extend the two application assignment deadlines** (i.e., the Problem Sets or the Statistical Literacy Assignment). These late tickets can be used no questions asked and no documentation necessary.

Some rules for these 48-hours late tickets:

- Only one ticket could be used for each deadline
- On the weeks when two Chapters Problem Sets are due, you can get the extension for both chapters with just one 48-hours late ticket
- Please note that these tickets **do not** apply to the term tests or final test

Please use them wisely, as once they're gone, there will be no further opportunities for extensions (see Late and Extension Policy).

In order to use a ticket, send a message to the course email (psy201.winter2024@gmail.com) **before the time of the original deadline** to indicate your intent to use a late ticket, and then submit the assignment in the usual way no later than 48 hours past the deadline.



Course Calendar

Week	Date	Topic	Readings	Assignments
1	Jan 9	Lecture 1: Introductions, Variables & Measurement	Ch. 1	Ch. 1 Problem Sets Due Sun, Jan 14th
	Jan 11			
2	Jan 16	Lecture 2: Frequency Distributions & Data Visualization	Ch. 2	Ch. 2 Problem Sets Due Sun, Jan 21st <small>*Jan 21 Last Day to Enrol Courses</small>
	Jan 18			
3	Jan 23	Lecture 3: Central Tendency & Variability	Ch. 3 & 4	Ch. 3 & 4 Problem Sets Due Sun, Jan 28th
	Jan 25			
4	Jan 30	Lecture 4: z-scores, Probability & Normal Distribution	Ch. 5 & 6	Ch. 5 & 6 Problem Sets Due Sun, Feb 4th
	Feb 1			
5	Feb 6	Lecture 5: Sampling & Intro to Hypothesis Testing	Ch. 7 & 8	Ch. 7 & 8 Problems Sets Due Sun Feb 11th
	Feb 8			
6	Feb 13	Lecture review on Tuesday In class, Term Test 1 on Thursday (Feb 15, 6 – 9 PM)		
	Feb 15			
7	Feb 20	No Class – Reading Week (Feb 19 – 23)		
	Feb 22			
8	Feb 27	Lecture 6: Hypothesis Testing with the t-statistic	Ch. 9	Ch. 9 Problem Sets Due Sun Mar 3rd
	Feb 29			
9	Mar 5	Lecture 7: T-tests with Two Samples	Ch. 10 & 11	Ch. 10 & 11 Problems Sets Due Sun Mar 10th <small>*Mar 11 Last Day to Drop Course</small>
	Mar 7			
10	Mar 12	Lecture review on Tuesday In class, Term Test 2 on Thursday (Mar 14, 6 – 9 PM)		
	Mar 14			
11	Mar 19	Lecture 8: One-way ANOVA	Ch. 12	Ch. 12 Problem Sets Due Sun Mar 24th
	Mar 21			
12	Mar 26	Lecture 9: Correlations and Regressions	Ch. 14	Ch. 14 Problem Sets Due Sun Mar 31st
	Mar 28			
13	Apr 2	Exam Review		Stat Lit Assignment Due Sun Apr 7th
	Apr 4			
Finals	Date TBD	In person, Final Exam Between Apr 10 – 30		

Course Policies

Late and Extension Policy

48-Hours Late Tickets – As mentioned above, to provide some flexibility in the course, you will be given two 48-hours late tickets to extend the two application assignment deadlines (i.e., the Problem Sets or the Statistical Literacy Assignment). On the weeks when two Chapters Problem Sets are due, you can get an extension for both chapters with just one 48-hours late ticket. Only one ticket could be used for each deadline.

Please note that these tickets **do not apply to the term tests or the final test** (or the reflective activity since the deadline is self-paced). These late tickets can be used with no questions asked and no documentation necessary. Please use them wisely, as once they're gone, there will be no further opportunities for extensions. To use a ticket, please send a message to the course email (psy201.winter2024@gmail.com) **before the time of the original deadline** to indicate your intent to use a late ticket, and then submit the assignment in the usual way no later than 48 hours past the deadline.

Otherwise, late assignments will not be accepted – you will receive a 0 without the proper use of a 48-hours late ticket, registered accommodations, or extraordinary circumstances.

Extraordinary circumstances extensions will be granted rarely, and will only be accepted with the accompanying documentation. Please alert the course instructor to these extraordinary circumstances by email within 12 hours of the missed deadline (or as soon as possible), and we will set up a time to discuss these on a case-by-case basis.

Missed Test Policy

If you miss a term test, you must submit documentation that demonstrates your inability to complete that assessment, this includes: the ACORN illness self-declaration tool, verification of illness (VOI) form, or an email from your college registrar or accessibility counsellor. Documentation must be submitted to the instructor via email within 7 calendar days of the missed test. **If you do not provide appropriate documentation, you will receive a 0 for the missed test.**

As a rule, makeup tests will not be issued. With the appropriate documentation submitted, your missed test will be **reweighted**:

- If you miss **one** term test, your other term test will be reweighted at 25% and the final exam reweighted at 45%.
- If you miss **both** term tests, your final exam assessment will be reweighted to 60%, with an additional 3% allocated to your MindTap and an additional 7% to your Statistical Literacy Assignment grades.

If you miss the final exam assessment, you will need to contact your College Registrar to file a petition for late-term work (<https://www.artsci.utoronto.ca/current/faculty-registrar/petitions>) or work out an alternative plan.

Grading Dispute Policy

If you believe that your assignment was graded unfairly, please wait for at least 24 hours after the return of the assignment before contacting us. Please contact the TA who graded your assignment with specific details on where you think something was overlooked to discuss reviewing your assignment. This may be able to be resolved via email, or you may decide to set up a meeting to discuss this in more detail.

If you still feel as if your assignment was graded unfairly following a meeting with the TA, you can email the course instructor with a short paragraph detailing your grade concern to request a regrade – grade disputes are not to be directed to your TAs. Only reasonable and well-justified concerns will be considered, and by submitting a request you are consenting to a full regrade of the assignment. Keep in mind that the regrade is final and your mark could go up, go down, or stay the same.

Any grade concerns must be raised within 14 days of the return of the assignment.

Academic Misconduct

All students, faculty and staff are expected to follow the University's guidelines and policies on academic integrity. For students, this means following the standards of academic honesty when writing assignments, collaborating with fellow students, and writing tests and exams. Ensure that the work you submit for grading represents your own honest efforts. Plagiarism—representing someone else's work as your own (whether in part or in whole) or submitting work that you have previously submitted for marks in another class or program—is a serious offence that can result in sanctions. Additional serious academic offenses include possessing prohibited materials while writing tests and providing or receiving assistance from another student unless explicitly permitted to do so. **Unless explicitly stated, all homework, writing, and assessments submitted for a grade for this class must be done independently.**

All suspected cases of academic dishonesty will be investigated following procedures outlined in the Code of Behaviour on Academic Matters (<https://governingcouncil.utoronto.ca/secretariat/policies/code-behaviour-academic-matters-july-1-2019>). If you have questions or concerns about what constitutes appropriate academic behaviour or appropriate research and citation methods, please reach out to me. Note that you are expected to seek out additional information on academic integrity from me or from other institutional resources. For example, to learn more about how to cite and use source material appropriately and for other writing support, see the U of T writing support website at <http://www.writing.utoronto.ca>. Consult the Code of Behaviour on Academic Matters for a complete outline of the University's policy and expectations. For more information, please see A&S Student Academic Integrity (<https://www.artsci.utoronto.ca/current/academic-advising-and-support/student-academic-integrity>) and the University of Toronto Website on Academic Integrity (<https://www.academicintegrity.utoronto.ca>).

Normally, students will be required to submit their course essays to the University's plagiarism detection tool for a review of textual similarity and detection of possible plagiarism. In doing so, students will allow their essays to be included as source

documents in the tool's reference database, where they will be used solely for the purpose of detecting plagiarism. The terms that apply to the University's use of this tool are described on the Centre for Teaching Support & Innovation web site (<https://uoft.me/pdt-faq>).

Generative AI

Please note that the use of generative artificial intelligence tools and apps is strictly prohibited in all course assessments (i.e., Problem Sets, Statistics Assignment) unless explicitly stated otherwise by the instructor in this course. This includes ChatGPT and other AI writing and coding assistants. The use of generative AI in this course may be considered the use of an unauthorized aid, which is a form of cheating.

Equity, Diversity and Inclusion

The University of Toronto is committed to equity, human rights and respect for diversity. All members of the learning environment in this course should strive to create an atmosphere of mutual respect where all members of our community can express themselves, engage with each other, and respect one another's differences. U of T does not condone discrimination or harassment against any persons or communities.

Religious Accommodation

As a student at the University of Toronto, you are part of a diverse community that welcomes and includes students and faculty from a wide range of cultural and religious traditions. For my part, I will make every reasonable effort to avoid scheduling tests, examinations, or other compulsory activities on religious holy days not captured by statutory holidays. Further to University Policy, if you anticipate being absent from class or missing a major course activity (such as a test or in-class assignment) due to a religious observance, please let me know as early in the course as possible, and with sufficient notice (at least two to three weeks), so that we can work together to make alternate arrangements.

Accessibility Services

Students with diverse learning styles and needs are welcome in this course. If you have an acute or ongoing disability issue or accommodation need, you should register with Accessibility Services (AS) at the beginning of the academic year by visiting <https://studentlife.utoronto.ca/departments/accessibility-services/>. Without registration, you will not be able to verify your situation with your instructors, and instructors will not be advised about your accommodation needs. AS will assess your situation, develop an accommodation plan with you, and support you in requesting accommodation for your course work. Remember that the process of accommodation is private: AS will not share details of your needs or condition with any instructor, and your instructors will not reveal that you are registered with AS.

Class Attendance/Lecture Capture

Although there is no assessment for attendance or class participation, students are strongly encouraged to attend all in-person lectures.

To ensure accessibility, the OCCS will be used in this class to capture lecture recordings and publish them to Quercus. Please note that these lecture recordings are not guaranteed as technology can fail. The lecture recordings are for the exclusive use of enrolled students, for their personal learning and not to be shared in any way beyond enrolled students.

Audio Recording and Lecture Materials Usage Policy

Materials provided by the course instructor and the TAs (including, but not limited to, the syllabus, lecture slides, handouts, recordings, etc.) are to be used by yourself and the other class members only. They are not to be posted in any public access forum (i.e. online or on a shared server), shared with others not enrolled in this course, or otherwise distributed without explicit permission from your instructor. Students are not permitted to record or distribute live office hours or review sessions.

This course, including your participation, will be recorded on video and will be available to students in the course for viewing remotely and after each session.

Course videos and materials belong to your instructor, the University, and/or other sources depending on the specific facts of each situation and are protected by copyright. In this course, you are permitted to download session videos and materials for your own academic use, but you should not copy, share, or use them for any other purpose without the explicit permission of the instructor.

For questions about the recording and use of videos in which you appear, please contact your instructor.