# PSYCH 413: Design and Analysis in Experimental Psychology
# 800 — Fall 2025


**Instructor Information**

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**Office Hours:** Fridays 09:00 - 10:00 (via zoom)


**Class Information**

**Class Dates:** September 2 - December 8
**Lecture Days and Times:** Tue/Thu – 12:30 (80-min)
**Lab Days and Times:** Tue/Thu – 14:00 (80-min)
**Classroom:** Online asynchronous lecture videos via course website.
**Course Website:** https://jpisklak.github.io/courses/PSYCH_413_fa2025/index.html


**Teaching Assistant**

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## 1 Territorial Acknowledgement

The University of Alberta, its buildings, laboratories, and research stations are primarily located on the territory of the Néhiyaw (Cree), Niitsitapi (Blackfoot), Métis, Nakoda (Stoney), Dene, Haudenosaunee (Iroquois) and Anishinaabe (Ojibway/Saulteaux), lands that are now known as part of Treaties 6, 7 and 8 and homeland of the Métis. The University of Alberta respects the sovereignty, lands, histories, languages, knowledge systems, and cultures of all First Nations, Métis, and Inuit nations whose cultures continue to influence our vibrant community.

## 2 Course Calendar Description

Provides the background necessary to design and analyze data in any area of experimental psychology and prepares students to conduct original research. Topics include sampling distributions and hypothesis testing; issues in and analysis of between-subjects, within-subjects, and mixed designs; trend analysis; planned and post hoc comparisons; fixed and random effects factors; and efficiency and power of various experimental designs.

**Prerequisites**

PSYCH 212, PSYCH 213 or STAT 151 or 161, and PSYCH 313 or STAT 252 or permission of the department. [Faculty of Science]

# 3 Course Objectives & Expected Learning Outcomes

This course provides an introduction to the statistical methodologies that support a wide range of experimental designs in Psychology. Particular emphasis is placed on understanding the underlying principles and assumptions of these methods, alongside guidance on best practices in modern research—such as the use of robust measures of central tendency. The course also introduces students to statistical computing using the R programming language, a key tool in contemporary scientific research across disciplines. This programming-based approach not only equips students with practical skills but also reflects a commitment to ethical, transparent research practices. In keeping with the ideals of Open Science, the course avoids reliance on costly proprietary software or restrictive file formats, ensuring accessibility and reproducibility.

## 3.1 By the end of this course, you should . . .

- **Overcome statistical anxiety:** Develop confidence in working with data and understand how to leverage R as a user-friendly and powerful tool.
- **Master data handling:** Learn to manage, organize, and summarize large and diverse datasets effectively.
- **Understand behavioural research:** Appreciate core principles of data analysis and how they are applied to study human and animal behavior.
- **Design effective studies:** Gain the ability to create experiments and studies that are coherent, analyzable, and methodologically sound.
- **Build analytical foundations:** Acquire foundational skills to approach more advanced statistical methods in psychology and related fields.
- **Embrace robust science:** Appreciate the utility of robust statistical methods and lament at their lack of inclusion in a lot of modern research.
- **Enhance computer literacy:** Improve your ability to use computational tools to solve real-world problems.
- **Feel confident learning new statistical concepts:** Feel more confident that you have the tools and background to learn new statistical concepts when the need arises.
- **Worship at the altar of R**: Give in to the majesty that is open-access statistical computing — an essential element of all modern research.

# 4 OMG! WHY DOES THIS COURSE USE R?!

**(My friend didn't have to learn that in their stats course!)**

The decision to use R (a programming language) in a Psychology focused course may seem strange, but there are many compelling reasons to learn it in place of the kinds of proprietary software (e.g., SPSS) that have been traditionally employed (and justifiably disliked by students) in these types of courses.

- **Free and Open Source:** R is open-source software, meaning students can not only access it for free, there is a wealth of complementary open-source packages freely available for specialized analyses and tasks.
- **Versatility in Data Analysis:** R is a powerful tool and was literally developed for conducting statistical analysis, data visualization, and data manipulation. It is used widely across academia and various other fields such as business, healthcare, and government.
- **Strong Community Support:** R has a large and active community that contributes to a vast array of impressive packages, tools, and resources. This means students can easily source help, tutorials, and code examples for almost any task.

- **Reproducible Research:** Aligned with open-science principles, R is built for reproducible research—a crucial aspect in both academic and professional environments. It enables students to create scripts that can be easily shared, reviewed, and rerun, ensuring their work is transparent, accurate, and reliable.
- **Integration with Other Tools:** R can easily integrate with other software and programming languages, such as Python, SQL, HTML, LaTeX, and even (ugh) Excel. This makes it a valuable tool for working in diverse computational environments.
- **Growing Demand in the Job Market:** R is highly valued in the job market, especially in data science, analytics, and research roles. Learning R can open up numerous career opportunities for students.
- **Advanced Statistical Capabilities:** Many of R's packages make it easy to apply best practices in statistics (e.g., the use of robust methodologies) and can readily employ newer and more complex types of analyses.
- **Enhanced Data Visualization:** R offers powerful and intuitive packages like ggplot2 for sophisticated and customizable data visualizations, helping students communicate their findings effectively.
- **Learning Curve and Educational Value:** While R has a learning curve, it is no steeper than expensive proprietary point and click programs like SPSS. Moreover, working with R teaches valuable problem-solving and programming skills that generalize to (and thus are an excellent first step towards learning) other programming languages.

# 5 Math, Stats, and Programming Help

If you need assistance, many resources are available to support you, but it is up to you to take the initiative to seek them out. Your primary point of contact is the instructor. If you are facing challenges, do not hesitate to attend office hours or send an email. It is important to address any issues, whether course-related or not, *as soon as they arise*. If you cannot attend office hours, reach out via email or Discord.

With respect to R programming specifically, the most time efficient way to seek help is to email the instructor with a brief description of the problem you are having and ensure that you have shared a copy of your R code (i.e., the .IPYNB file). This will allow the instructor to quickly run and spot issues with the code.

# 6 Minimum Technology Requirements

This course introduces students to both statistics and statistical computing using the R programming language for statistical computing. To successfully participate in this course, it is recommended that students have, at a minimum, access to a computer with an internet connection that can support the tools and technologies the University uses to deliver content, engage with instructors, teaching assistants, fellow students, and facilitate assessments. Student access of the UofA library computer laboratories is more than sufficient in this respect. For more details about technology access through the UofA libraries visit: https://www.library.ualberta.ca/services/technology

For an optimal learning experience, please review the University's minimum technology specifications.

Please note that while tablets and Chromebooks can be used, they are not recommended, as they may impose limitations that make completing course tasks more challenging.

If students have questions or concerns about these requirements, they should reach out to the instructor at the start of the term. Not addressing these issues promptly may result in a zero for assessments requiring the specified technology.

# 7 Recommended Course Materials

1. **Textbook: Discovering Statistics Using R by Andy Field**
    - Recommend hard copy (not eBook) - a second edition of the book is pending but not yet available (so it may be difficult to find hard copies).
    - This book walks through many of the statistical methods we will discuss in class in a clear manner and works as an excellent reference that will serve you well throughout your university career. It covers many topics we will not have the time to cover. The book is also a hilarious read. A couple of the  functions at the start of the book are a bit outdated, though that shouldn't impact its usefulness to you.
    - Note that the UofA library has many different introductory stats textbooks which are probably as good as this one in terms of the statistical information provided. Do not feel as though purchasing this book is a requirement for the course. Students often ask for a recommended textbook so they have easy access to supplementary explanations. There is no ideal book for this course, but if I have to recommend one to you, "Discovering Statistics" is the one I would. Other helpful statistics and R resources can be found on the course webpage "Useful Student Links" section.
2. **Textbook: R for Data Science (2e) by Hadley Wickham & Garrett Grolemund**
    - Free (open source) eBook version available at https://r4ds.hadley.nz/
    - A useful textbook for learning R and the tidyverse specifically. It's also free.

# 8 Tentative Lecture Schedule

See the current Calendar for the Academic Schedule, Dates, and Deadlines, which include the Registration Add/Drop deadline and Withdrawal date: https://calendar.ualberta.ca/content.php?catoid=56&navoid=17524

| Week | Dates | Topic |
|---|---|---|
| 1 | Sep 01 - 05 | *Labour Day (Canada) (Mon)*<br>- 1. Introduction to R |
| 2 | Sep 08 - 12 | - 1. Introduction to R |
| 3 | Sep 15 - 19 | *Fall add/drop deadline*<br>- 2. Descriptive Statistics |
| 4 | Sep 22 - 26 | - 3. Hypothesis Testing |
| 5 | Sep 29 - Oct 03 | *National Day for Truth and Reconciliation (Tues)*<br>- 4. Comparing a sample mean to a reference value |
| 6 | Oct 06 - 10 | - 5. Comparing two independent group means |
| 7 | Oct 13 - 17 | *Thanksgiving (Mon)*<br>- 6. Comparing two dependent group means |
| 8 | Oct 20 - 24 | **Midterm Exam (Tues - No Lecture)**<br>- 7. Predicting an outcome from one variable |
| 9 | Oct 27 - 31 | - Plotting Assignment Instructions<br>- 8. Predicting an outcome from multiple variables |
| 10 | Nov 03 - 07 | - 8. Predicting an outcome from multiple variables |
| 11 | Nov 10 - 14 | *Reading Week* |
| 12 | Nov 17 - 21 | - 9. Comparing multiple independent group means |
| 13 | Nov 24 - 28 | **Plotting Assignment Due (Fri by Midnight)**<br>- 10. Comparing group means across two factors |
| 14 | Dec 01 - 05 | - 11. Analysing categorical variables |

| | | |
|---|---|---|
| | Dec 18 | **Final Exam at 08:30** |

*It is the student's responsibility to stay up to date with lectures to ensure they do not miss important announcements about upcoming assessments, deadlines, and schedule changes.*

## 8.1 Midterm and Final Exam Conflicts with Regularly Scheduled Classes

Time conflicts between regularly scheduled class periods (as listed on BearTracks) and term exams from other courses will not be accommodated. If a term exam from another course overlaps with a scheduled class time, it is the student's responsibility to contact the instructor of the intruding course to request an accommodation. As noted in the University Calendar:

> "...Students have the right to attend regularly scheduled class activities. Therefore, if a student has a conflict between a regularly scheduled class and a scheduled term examination, the instructor of the class in which there was a scheduled term examination will be required to make an accommodation for the student."

## 8.2 Topic Breakdown

***Introduction to*** 

**Topics:** Google Colaboratory, R basics, introductory plotting

***Descriptive Statistics***

**Basic concepts:** key terms, summation notation, loading data into R
**Central tendency:** mean, median, mode; merits and limitations
**Spread:** range, IQR, standard deviation, boxplots
**Distributions:** normal distribution, standardization and linear transformation
**Data checks:** assessing normality, non-linear transformations
**Robust statistics:** trimmed means, Winsorized spread, robust outlier detection

***Hypothesis Testing***

**Core concepts:** sampling distributions, t-distributions, logic of confidence intervals, logic of p-values

***One-sample t-test: Comparing a sample mean to a reference value***

**Variants:** two-tailed and one-tailed classic t-tests
**Effect sizes:** Cohen's $d$, Hedge's $g$ for a single sample
**Considerations:** statistical error, power
**Robust methods:** trimmed one-sample t-test

***Independent-samples t-test: Comparing two independent group means***

**Variants:** classic independent-samples t-test
**Visuals:** plotting two independent means
**Effect sizes:** Cohen's $d$, Hedge's $g$ for two independent means
**Robust methods:** Welch's independent-samples t-test, Yuen's independent-samples t-test

***Paired-samples t-test: Comparing two dependent group means***

**Variants:** classic paired-samples t-test
**Visuals:** plotting two dependent means
**Effect sizes:** Cohen's $d$, Hedge's $g$ for two dependent means
**Robust methods:** trimmed paired-samples t-test

***Simple Linear OLS Regression: Predicting an outcome from one variable***

**Core concepts:** drawing a line, Pearson correlation, least squares regression
**Visuals:** plotting a linear model
**Model evaluation:** $R^2$, inferential statistics, testing Pearson's correlation coefficient
**Considerations:** assumptions, outliers

***Multiple Linear OLS Regression: Predicting an outcome from multiple variables***

**Core concepts:** building and comparing models, assumptions
**Special topics:** categorical predictors
**Model comparison:** Hierarchical regression: f-tests, bayes factor approximation
**Robust methods:** M-estimation, IRLS

***One-Way Independent ANOVA: Comparing multiple independent groups***

**Core logic:** regression/general linear model, Fisher's variance-ratio method
**Implementation:** fitting the model in R
**Assumptions:** normality, homogeneity of variance
**Planned analyses:** planned contrasts, polynomial trend analysis
**Post-hoc analyses:** multiple comparison methods
**Effect sizes:** $\eta^2$, $\omega^2$
**Considerations:** power and sample size

***Two-Way Independent ANOVA: Comparing groups across two factors***

**Core logic:** general linear model, variance-ratio method
**Planned analyses:** planned contrasts, simple effects
**Technical details:** sum of square types
**Effect sizes:** partial $\eta^2$, $\omega^2$
**Robust methods:** robust ANOVA approaches

***Analysing Categorical Variables***

**Core tests:** goodness-of-fit, Pearson chi-squared test of independence
**Effect measures:** odds, odds ratios

# 9 Grade Evaluation

To ensure fairness across assessments of varying difficulty, and to give students an accurate and intuitive sense of their standing, each assessment's score is rescaled using a robust standardization method that sets a consistent centre and spread. Specifically:

- The **median** score, a robust measure of the class average, is set to $50$. By design, this corresponds to a B$-$ letter grade (see Table 2). The University of Alberta employs a 12-letter grading system, whose midpoint lies between C$+$ and B$-$; anchoring the median here aligns with University expectations.
- Scores are then scaled by the **normalized median absolute deviation (MADN)**, a measure of variability analogous to the standard deviation but less affected by outliers. On this standardized scale, one MADN equals 25 points.
- This process is mathematically similar to converting raw scores into $z$-scores, but it uses the median and MADN instead of the mean and standard deviation, making it more stable under skewed or irregular distributions.
- The resulting scale is designed to feel intuitive: values near $0$ represent very low performance, values near $100$ represent very high performance, and $50$ represents the class average. Thus, scores above 50 indicate above-average performance; scores below 50 indicate below-average performance.

After rescaling, assessments are combined according to the weights listed in Table 3. The overall course total is then rescaled one final time so that the class median is again anchored at $50$ (B$-$), with the same spread convention. This prevents natural drift in the weighted totals.

Your final letter grade is determined by comparing your overall standardized score to a fixed set of grade boundaries (see Table 2). These boundaries were established in advance, informed by historical student performance and instructor judgment. They **do not** and **cannot** enforce a predetermined distribution of grades. Each student's grade depends only on their own performance relative to the class median and spread, not on how many classmates fall into each category.

| Standardized Score | Interpretation | Grade Points | Letter Grade |
|---|---|---|---|
| $91.12 < \infty$ | Outstanding | 4.0 | A+ |
| $82.04 < 91.12$ | Excellent | 4.0 | A |
| $75.91 < 82.04$ | Very Good | 3.7 | A– |
| $66.86 < 75.91$ | Good | 3.3 | B+ |
| $59.63 < 66.86$ | Above Average | 3.0 | B |
| $50.00 < 59.63$ | Average | 2.7 | B– |
| $40.37 < 50.00$ | Satisfactory | 2.3 | C+ |
| $33.14 < 40.37$ | Acceptable | 2.0 | C |
| $24.09 < 33.14$ | Marginal | 1.7 | C– |
| $17.96 < 24.09$ | Poor | 1.3 | D+ |
| $8.88 < 17.96$ | Minimal Pass | 1.0 | D |
| $-\infty < 8.88$ | Failure | 0.0 | F |

Table 2: Letter Grade Boundaries. Each grade covers scores from its listed lower limit up to (but not including) the upper limit. Table values are displayed rounded to two decimal places. Actual cutoffs are more precise.

This table contains an approximate guideline for the course; however, the instructor reserves the right to adjust this table to correspond to University-suggested ranges and assign appropriate grades based on relative performance.

Grades are unofficial until approved by the Department and/or Faculty offering the course.

## 🤔 FAQ about Grade Evaluation

- **Q: Is this the same as "grading on a curve"?**
  **A:** No. A curve predetermines how many students can receive each letter grade, often based on a fixed distribution (e.g., only the top 5% of students get an A+). This course uses no quotas. The number of A's, B's, C's, etc., emerges from the class's actual performance, not an imposed formula — fully in line with University policy prohibiting mandatory curves. See University of Alberta Assessment and Grading Policy.

- **Q: Why don't you just use the percentage scores like most classes?**
  **A:** Raw percentages can be misleading, because the same number can mean very different things depending on how hard the assessment is. For example, a score of 60% might be excellent on a very difficult exam, while 85% might be only average on an easier one. Using raw percentages would then force the instructor to set arbitrary and sometimes confusing letter boundaries. By standardizing scores instead, the scale is consistent and unambiguous: 50 always represents the class average, higher values reflect above-average performance, and lower values reflect below-average performance. This ensures that a very hard exam does not drag the entire class down, and an easy exam does not inflate everyone's grades—the standardized scale keeps grades tied to their intended meaning.

- **Q: Is this grading system competitive?**
  **A:** Not in the sense of fixed quotas or forced scarcity. Your grade does not depend on "beating" a certain number of classmates, and there is no preset limit on how many A's, B's, or C's can be awarded. That being said, strong performance is still rewarded: students who consistently perform well above the average earn higher standardized scores and thus higher letter grades.

- **Q: Can everyone get an A?**
  **A:** Not realistically. An A or A+ is meant to signal *extra*ordinary performance — achievement that clearly stands out from the rest of the class. If everyone earned the same top grade, then by definition no one's performance would be extraordinary (it would be ordinary), and the grade would lose its meaning. Because scores are standardized around the class median, only those who perform well above that benchmark end up in the A range. In practice, this means that while many students can do well, top grades remain a mark of truly exceptional achievement.

- **Q: If the median is always set to 50 (B−), does that mean half the class will fail?**
  **A:** No. The median is simply an anchor point for the scale. Students above 50 are above average and may receive grades ranging from B− to A+; students below 50 are below average but may still earn passing grades (C's and D's). In most classes, the majority of students pass. The exact distribution of grades depends on how the whole class performs, not on a fixed quota.

- **Q: Does this system disadvantage strong students?**
  **A:** No. Because ranks are preserved, students who perform well compared to their peers will always receive higher standardized scores and higher letter grades.

- **Q: What does it mean that the grading method is "robust"?**
  **A:** In statistics, "robust" means that the method is not thrown off by unusual values or outliers. For example, if one student happens to score extremely low or extremely high, a robust method won't let that single score shift the whole class's average or spread. That's why this system uses the median (the middle score) instead of the mean (the arithmetic average), and the MADN (a spread measure based on the median) instead of the standard deviation. These choices make the standardized scale more stable and fair, especially in classes where exams or assignments occasionally produce extreme results.

- **Q: How can I estimate my standing during the term?**
  **A:** After each assessment, you will receive both your raw score and your standardized score. The standardized score is the one that counts toward your final grade. By comparing your standardized score to the published letter grade boundaries in Table 2, you can track your progress throughout the term.

- **Q: What is the formula to convert a raw score to a standardized value? Can you show an example?**
  **A:** Yes. The standardized score is calculated in a way similar to a $z$-score, but it uses the class median and the normalized median absolute deviation (MADN). The formula is:

$$s = \left( \frac{x - m}{\text{MADN}} \right) \times 25 + 50$$

  where $x$ is the raw score, $m$ is the class median, and MADN measures the spread. The constants 25 and 50 set the scale so that one MADN corresponds to 25 points, and the class median corresponds to 50.

  1. Suppose the class median on an assignment is $m = 72$.
  2. Suppose MADN $= 11.9$.
  3. For a student with a raw score of $x = 88$, we compute:

$$s = \left( \frac{88 - 72}{11.9} \right) \times 25 + 50$$

$$\approx 83.6$$

  So in this example, a raw score of 88 converts to a standardized score of about 83.6. This indicates performance well above the class average (50), and it would then be compared to the fixed letter grade boundaries in Table 2.

## 9.1 Components of Course Grade

| Assessment | Weight | Date Provided | Date Due |
|---|---|---|---|
| Homework Assignments (all) | 35% | Fridays by 17:00 | Fridays by 23:59 |
| Plotting Assignment | 8% | Oct 30$^{th}$ at 23:59 | Nov 28$^{th}$ by 23:59 |
| Midterm | 25% | Oct 21$^{st}$ at 12:30 | Oct 22$^{nd}$ by 12:30 |
| Final Exam* | 32% | Dec 18$^{th}$ at 08:30 | Dec 19$^{th}$ by 08:30 |

Table 3: Assignment and Exam Weightings and Due Dates

- *Students must verify this date on BearTracks when the Final Exam Schedule is posted.
- Unless otherwise specified by the instructor, exams will cover all content completed up to the date of the exam.
- Deadlines marked as “by” a specific time mean that submissions must be completed before that time. Any submission made *at* the specified time or *after* it will be considered late.
- The relative weight of individual homework assignments may vary based on the estimated workload involved.

## 9.2 Re-examination

There is no possibility of a re-examination in this course.

# 10 Format of Assessments

## 10.1 Format of Weekly Homework Assignments

Homework assignments will be posted each Friday by 17:00 (often earlier) in the homework section of the course website. These will consist of take-home questions and datasets designed to reinforce key concepts from lectures. Completed assignments must be submitted via the Canvas portal (linked on the course website) by 23:59 the following Friday.

Individual questions within each assignment may carry different weights, reflecting their ability to differentiate levels of student understanding. Similarly, the weight of each assignment toward your final grade may vary depending on the scope and workload involved. Collectively, homework accounts for 35% of your overall course grade.

Mastering statistics requires consistent, hands-on engagement. These assignments are your primary opportunity to apply what you've learned, diagnose areas needing improvement, and stay aligned with the pace of the course. Regular completion is not only recommended—it is essential for success.

### *10.1.1 Late Penalties*

*Be aware that there are no late penalties for assignments in this course.* Failing to submit before a due date will result in a mark of 0. For details surrounding missed deadlines, see section 12 of the syllabus.

## 10.2 Format of Exams

Both the midterm and the final will consist of take-home questions and data provided to students via the exam section of the course website. Questions will be made available to the student at the appointed exam time listed in Table 3. Students will be permitted 24 hours to complete and submit the exam. Exams should be submitted via the Canvas link provided on the course website, in a similar manner to that of homework assignments. Questions may carry different weights based on their significance in evaluating student performance within the course.

The take-home nature of the exams does not permit collaboration with other students. You are expected to produce your own code and results. Violation of this will constitute a form of academic misconduct.

Should technical issues arise with Canvas, the student's computer, or their internet access, it is recommended that students *share* their completed exam (using Google Colaboratory's share function) with the instructor along with a detailed explanation and corroborating photo or video evidence of the issue (as taken with a cell phone). In these instances, late penalties incurred will be at the discretion of the instructor.

Unless specified otherwise by the instructor, the exams will cover all content completed up to the date of the exam.

### *10.2.1 Representative Evaluative Material*

Homework assignments offer the most accurate preview of the question formats and material that students can expect on both the midterm and final exams.

# 11 Statement of Expectations for the use of Artificial Intelligence (AI)

In this course, the use of AI tools (e.g., GPT-5, DALL-E, Stable Diffusion) is permitted, provided it is **ethical, transparent, and responsible**. If AI has contributed in a *significant* way to your submitted work—such as

drafting text, generating substantial code, or outlining a problem solution—you must acknowledge that contribution. Minor or incidental uses (e.g., asking for a syntax reminder, checking a small calculation) do not require formal citation, but you are still responsible for the accuracy and integrity of the result. For guidance on formal citation when needed, see the U of A Library's How to Cite AI.

Using AI to gain an unfair advantage undermines both your learning and the integrity of the academic community, and may violate U of A policy. See Section 3, Student Academic Integrity Policy Appendix A: Academic Misconduct.

Be appreciative of the fact that, while AI is a powerful and highly useful tool, it does have many limitations. It may not always fully "understand" context or nuance, and all its outputs should be critically reviewed to ensure accuracy and relevance to the task at hand. This means that, while AI can enhance our capabilities, it should be used judiciously to maintain the integrity and quality of a persons academic work. Please note that students will be held responsible for any confusing, erroneous, false, offensive, plagiarised, or unethical content provided by AI within their work, so exercise caution and diligence in its use.

## 11.1 Using AI in This Course: Guidelines and Best Practices

AI can support and enhance your learning if used wisely. It should **complement** your own thinking, not replace it.

### The Wrong Way to Use AI

Relying on AI solely to "get the answer" for coding, math problems, or other assignments will:

- Create gaps in your understanding, making future learning harder.
- Leave you unprepared for exams or other assessments where AI is not permitted.
- Prevent you from spotting or correcting AI-generated mistakes.
- Constitute a form of academic misconduct.

Your focus should be on ***learning***, not just earning a grade.

### The Right Way to Use AI

AI works best as a tutor or guide. For example:

> *"Can you explain how to create a dataframe in R?"*

Such targeted questions can clarify concepts, reinforce understanding, and help you develop problem-solving skills.

Use AI to deepen your engagement with the material. The more you practice independently, the more confident you will be when it matters.

*AI use is permitted in this course, but with important conditions: all submitted work must reflect your own understanding and abilities. Occasional, well-judged use of AI to support your learning is fine; relying on it to produce your work is not. If it appears that AI has completed most or all of a submission, marks may be reduced—potentially to zero. If you believe this determination is incorrect, you may request a reassessment by meeting with the instructor or marker* ***in person*** *to demonstrate your grasp of the material. This ensures you can explain and apply the concepts independently.*

# 12 Policies for Missed Term Work

Failure to submit homework assignments or course projects through the designated channels by the specified due dates will result in a grade of 0. However, students unable to complete these tasks due to incapacitating illness, severe domestic circumstances, or other compelling reasons may apply for an excused absence. To apply for an excused absence, a student must contact the instructor in a timely manner (see section 12.1 and 12.2 below). IF an excused absence is granted, then the weight of the assessment will be transferred to the final exam. Should a shift in weighting to the final exam increase its weight to > 40%, this does not change the original 'syllabus weight', meaning the student does not now qualify for possible re-examination. This also means that the cumulative weight of the assessment will be lower than the percentage stated in Table 3 above.

Please be aware that transferring the weight of missed work to the final exam might disqualify a student from being eligible for a deferred final examination if they have not completed at least 50% of the term's coursework.

In all cases, instructors may request adequate documentation to substantiate the reason for the absence, at their discretion. Deferral of term work is a privilege and not a right; there is no guarantee that a deferral will be granted. Misrepresentation of Facts to gain a deferral is a serious breach of the Student Academic Integrity Policy.

Deferral of term work/tests is under the discretion of the instructor; however, deferral of a final exam is determined at the Faculty level. A student must apply to their home Faculty for a deferral of a final exam, not the Faculty the course is listed in (see section 16).

## 12.1 Exemption Requests Relating to Non-technical Issues

Baring extreme circumstances (e.g., unexpected hospitalization or immediate death in the family), requests for exemptions related to known chronic or prolonged conditions and events (e.g., mourning, recuperation, general illness, etc.) must be submitted to the instructor at least **24 hours** before the specified due date for consideration. i.e., students are expected to be proactive about notifying the instructor in a timely manner when the circumstances allow it.

> *With rare exception, requesting exemptions moments before or after a deadline is unacceptable behaviour. People are rarely so incapacitated that they cannot send an email.*

It is important to note that it is neither within the purview nor the responsibility of the instructor to verify or handle claims related to enduring physical or psychological medical conditions (e.g., ADHD, clinical anxiety or depression, etc.). Students seeking accommodations for such reasons must do so through appropriate university channels (i.e., Academic Success Centre).

## 12.2 Exemption Requests Relating to Technical issues

If students experience technical issues in the process of submitting an assignment, they are expected to document the issue by taking an appropriate video or photo with their phone or computer. Do not expect clemency for technical issues without providing at least this. They must ensure that the photo or video provides reasonable evidence of the date and time in addition to the technical issue.

A generous time frame is allotted for assignment submissions. Exemption requests related to technical issues made within the last 12 hours before a deadline will not be deemed reasonable, regardless of circumstances such as internet outages, computer crashes, or hardware failure. Assignments are expected to be completed in a timely fashion with due precautions taken, such as file backups.

*Procrastination and last-minute completion carry inherent risks, for which responsibility rests with the student.*

## 13 Missed Midterm

Students are required to complete the midterm exam as scheduled. If a student is unable to complete the midterm for any reason, they need to notify the instructor within $\pm 48$ hours of the exam deadline. If an exemption is granted then the weight of the assessment will be transferred to the final exam.

As with term work, the instructor may request adequate documentation to substantiate the reason for the absence, at their discretion. Deferral of term work is a privilege and not a right; there is no guarantee that a deferral will be granted. Misrepresentation of Facts to gain a deferral is a serious breach of the Student Academic Integrity Policy.

## 14 Missed Term Work or Final Exam Due to Non-medical Protected Grounds (e.g., religious beliefs)

When a term assessment or final exam presents a conflict based on non-medical protected grounds, students must apply to the Academic Success Centre for accommodations via their Register for Accommodations website. Students can review their eligibility and choose the application process specific for **Accommodations Based on Non-medical Protected Grounds**.

It is imperative that students review the dates of all course assessments upon receipt of the course syllabus, and apply **AS SOON AS POSSIBLE** to ensure the timely application of the accommodation. Students who apply later in the term may experience unavoidable delays in the processing of the application, which can affect the accommodation.

## 15 Re-evaluation of Term Work

Students who wish to request a re-evaluation of their graded term work must do so in a timely manner (e.g., within a week) after the grade has been posted and *before* final course grades are submitted.

Requests must include a clear and specific justification. Re-evaluations will only be considered if the rationale provided is deemed reasonable by the marker. General requests for "another look" without a substantive explanation will not be granted.

## 16 Deferred Final Examination

A student who cannot write the final examination due to incapacitating illness, severe domestic affliction or other compelling reasons can apply to their Faculty for a deferred final examination. Such an application must be made to the student's Faculty office within **two** working days of the missed examination and must be supported by appropriate documentation or a Statutory Declaration (see University Calendar for information on Attendance).

Students who cannot write a final exam due to non-medical protected grounds (e.g., religious beliefs), must apply to the Academic Success Centre **AS SOON AS POSSIBLE** for accommodations via their *Register for Accommodations* website.

Deferred examinations are a privilege and not a right; there is no guarantee that a deferred examination will be granted. The Faculty may deny deferral requests in cases where less than 50% of term work has been

completed. Misrepresentation of Facts to gain a deferred examination is a serious breach of the Student Academic Integrity Policy.

# 17 Student Responsibilities

## 17.1 Guidelines for Respectful Online Engagement

Students from many different backgrounds participate in courses at the University of Alberta. Sexist, racist, homophobic comments and other inflammatory remarks are not conducive to learning in our courses, and are absolutely not permitted. All participants are governed by the Student Academic Integrity Policy. Be mindful when discussions involve controversial topics or issues, and consider the possibility that members of our community have themselves experienced some of these issues and/or very different realities because of these issues. Participate in a respectful and considerate manner.

If you are witness to or the target of abusive or offensive behaviour in any course, please inform your instructor immediately. You may also contact the Psychology Undergraduate/Graduate Advisor, Associate Chair of Undergraduate/Graduate, or Chair.

## 17.2 Academic Integrity and Student Conduct

The University of Alberta is committed to the highest standards of academic integrity and honesty, as well as maintaining a learning environment that fosters the safety, security, and inherent dignity of each member of the community, ensuring students conduct themselves accordingly. Students are expected to be familiar with the standards of academic honesty and appropriate student conduct, and to uphold the policies of the University in this respect.

Students are particularly urged to familiarize themselves with the provisions of the Student Academic Integrity Policy and the Student Conduct Policy, and avoid any behaviour that could potentially result in suspicions of academic misconduct (e.g., cheating, plagiarism, misrepresentation of facts, participation in an offence) and non-academic misconduct (e.g., discrimination, harassment, physical assault). Academic and non-academic misconduct are taken very seriously and can result in suspension or expulsion from the University.

All students are expected to consult the Student Academic Integrity Policy for clarification on the various academic offences. All forms of academic dishonesty are unacceptable at the University. Unfamiliarity of the rules, procrastination or personal pressures are not acceptable excuses for committing an offence. Listen to your instructor, be a good person, ask for help when you need it, and do your own work – this will lead you toward a path to success. Any academic integrity concern in this course will be reported to the College of Natural and Applied Sciences.

Suspected cases of non-academic misconduct will be reported to the Dean of Students. The College, the Faculty, and the Dean of Students are committed to student rights and responsibilities, and adhere to due process and administrative fairness, as outlined in the Student Academic Integrity Policy and the Student Conduct Policy. Please refer to the policy websites for details on inappropriate behaviours and possible sanctions.

The College of Natural and Applied Sciences (CNAS) has created an Academic Integrity for CNAS Students eClass site. Students can self enroll and review the various resources provided, including the importance of academic integrity, examples of academic misconduct and possible sanctions, and the academic misconduct and appeal process. They can also complete assessments to test their knowledge and earn a completion certificate.

*"Integrity is doing the right thing, even when no one is watching"* – C.S. Lewis

## 17.3 Inappropriate Collaboration:

Students need to be able to recognize when they have crossed the line between appropriate collaboration and inappropriate collaboration. If students are unsure, they need to ask instructors to clarify what is allowed and what is not allowed. Here are some tips to avoid copying on assessments:

- Do not write down something that you cannot explain to your instructor.
- When you are helping other students, avoid showing them your work directly. Instead, explain your solution verbally. Allowing your work to be copied is also considered inappropriate collaboration.
- It is also possible that verbally discussing the solution in too much detail may result in written responses that are too similar. Try to keep discussions at a general or higher level.
- If you find yourself reading another student's solution, do not write anything down. Once you understand how to solve the problem, remove the other person's work from your sight and then write up the solution to the question yourself. Looking back and forth between someone else's work and your own work is almost certainly copying and considered inappropriate collaboration.
- If the instructor or TA writes down part of a solution in order to help explain it to you or the class, you cannot copy it and hand it in for credit. Treat it the same way you would treat another student's work with respect to copying, that is, remove the explanation from your sight and then write up the solution yourself.
- There is often more than one way to solve a problem. Choose the method that makes the most sense to you rather than the method that other students happen to use. If none of the ideas in your solution are your own, there is a good chance it will be flagged as copying.

## 17.4 Contract Cheating and Misuse of University Academic Materials or Other Assets

Contract cheating describes the form of academic dishonesty where students get academic work completed on their behalf, which they submit for academic credit as if they had created it themselves. Contract cheating may or may not involve the payment of a fee to a third party, who then creates the work for the student.

Examples include:

- Getting someone to write an essay or research paper for you.
- Getting someone to complete your assignment or exam for you.
- Posting an essay, assignment, or exam question to a tutorial or study website; the question is answered by a "content expert", then you copy it and submit it as your own answer.
- Posting your solutions to a tutorial/study website, public server, or group chat and/or copying solutions that were posted to a tutorial/study website, public server, or group chat.
- Sharing your login credentials to the course management system (e.g., Canvas) and allowing someone else to complete your assignment or exam remotely.
- Using an artificial intelligence bot or text generator tool to complete your essay, research paper, assignment, or exam solutions for you (without the instructor's permission).
- Using an online grammar checker to "fix" your essay, research paper, assignment, or exam solutions for you (without the instructor's permission).
- Contract cheating companies thrive on making students believe that they cannot succeed without their help; they attempt to convince students that cheating is the only way to succeed.

Uploading the instructor's teaching materials (e.g., course outlines, lecture slides, assignment, or exam questions, etc.) to tutorial, study, or note-sharing websites or public servers is a copyright infringement and constitutes the misuse of University academic materials or other assets. Receiving assignment solutions or answers to exam questions from an unauthorized source puts you at risk of receiving inaccurate information.

### 17.5 Recordings

Audio or video recording, digital or otherwise, of lectures, labs, seminars or any other teaching environment by students is allowed only with the prior written consent of the instructor or as a part of an approved accommodation plan. Student or instructor content, digital or otherwise, created and/or used within the context of the course is to be used solely for personal study, and is not to be used or distributed for any other purpose without prior written consent from the content authors.

## 18 Student Supports

### 18.1 Accommodations for Students

In accordance with the University of Alberta's Discrimination, Harassment, and Duty to Accommodate policy, accommodation support is available to eligible students who encounter limitations or restrictions to their ability to perform the daily activities necessary to pursue studies at a post-secondary level due to medical conditions and/or non-medical protected grounds. Accommodations are coordinated through the Academic Success Centre, and students can learn more about eligibility on the Register for Accommodations website.

It is recommended that students apply ***AS SOON AS POSSIBLE*** in order to ensure sufficient time to complete accommodation registration and coordination. Students are advised to review and adhere to published deadlines for accommodation approval and for specific accommodation requests (e.g., exam registration submission deadlines). Students who request accommodations less than a month in advance of the academic term for which they require accommodations may experience unavoidable delays or consequences in their academic programs, and may need to consider alternative academic schedules.

### 18.2 The Student Service Centre

The Student Service Centre provides students with information and access to services to support academic, financial, mental, and physical well-being. Information about various student resources, including academic, financial, and health and wellness, can also be found on the Campus Life website.

### 18.3 Academic Success Centre

The Academic Success Centre provides professional academic support to help students strengthen their academic skills and achieve their academic goals. Individual advising, appointments, and group workshops are available year round in the areas of Accessibility, Communication, Learning, and Writing Resources. Modest fees may apply for some services.

### 18.4 Writing Services

Writing Services offers free one-on-one writing support to students, faculty, and staff. Students can request a consultation for a writing project at any stage of development. Instructors can request class visits and presentations.

### 18.5 First Peoples' House

First Peoples' House provides an environment of empowerment for First Nations, Métis, and Inuit learners to achieve personal and academic growth.

### 18.6 Student Self-Care Guide

This Self-Care Guide, originally designed by the Faculty of Native Studies, has broader application for use during students' learning. It provides some ideas and strategies to consider that can help navigate emotionally challenging or triggering material.

### 18.7 Health and Wellness Support

There are many health and community services available to current students. For more information, visit the Health and Wellness Support for Students website.

### 18.8 Feeling Stressed, Anxious, or Upset?

It's normal for us to have different mental health experiences throughout the year. Know that there are people who want to help. You can reach out to your friends and access a variety of supports available on and off campus at the Need Help Now webpage or by calling the 24-hour Distress Line: 780-482-4357 (HELP). The Health and Wellness Support for Students website also contains mental and physical health resources, which are offered on-campus and in the community.

## 19 Learning and Working Environment

The Department of Psychology, Faculty of Arts, and Faculty of Science are committed to ensuring that all students, faculty and staff are able to work and study in an environment that is safe and free from discrimination, harassment, and violence of any kind. It does not tolerate behaviour that undermines that environment. This includes virtual environments and platforms.

The Department of Psychology believes that organizational diversity and excellence go hand-in-hand. We are committed to identifying our limitations as a department in terms of equity, diversity, and inclusion and making actionable changes to overcome these limitations. We want all of our constituents to feel welcome, safe, and valued in the core activities of teaching, research, and administration. Please visit our Commitment to EDI and Indigenization in Psychology website for more information.

If you are experiencing harassment, discrimination, fraud, theft or any other issue and would like to get confidential advice, please contact any of these campus services:

- Office of Safe Disclosure & Human Rights: A safe, neutral and confidential space to disclose concerns about how the University of Alberta policies, procedures or ethical standards are being applied. They provide strategic advice and referral on matters such as discrimination, harassment, duty to accommodate and wrong-doings. Disclosures can be made in person or online using the Online Reporting Tool.
- University of Alberta Protective Services: Peace officers dedicated to ensuring the safety and security of U of A campuses and community. Staff or students can contact UAPS to make a report if they feel unsafe, threatened, or targeted on campus or by another member of the university community.
- Office of the Student Ombuds: A confidential and free service that strives to ensure that university processes related to students operate as fairly as possible. They offer information, advice, and support to students, faculty, and staff as they deal with academic, discipline, interpersonal, and financial issues related to student programs.
- Office of the Dean of Students: They can assist students in navigating services to ensure they receive appropriate and timely resources. For students who are unsure of the support they may need, are concerned about how to access services on campus, or feel like they may need interim support while you wait to access a service, the Dean of Students office is here to help.

### 19.1 Course Outlines

Policy about course outlines can be found in the Academic Regulations, Evaluation Procedures and Grading section of the University Calendar.

## 20 Document Information

This syllabus was Compiled with LuaLaTeX (LuaTeX 1.18.0) on 2025-09-01 at 04:45:44

### 20.1 Typos and Errors

Any typographical errors in this syllabus are subject to change and will be announced in class and/or posted on the course website. The date of final examinations is set by the Registrar and takes precedence over the final examination date reported in the syllabus.

### 20.2 Copyright