



Western University is committed to a **thriving campus**. We encourage you to check out the [Your Student Experience](#) website to manage your academics and well-being. Additionally, the following link provides available resources to support students on and off campus: <https://www.uwo.ca/health/>. Students who are in emotional/mental distress should refer to Mental Health@Western (<http://uwo.ca/health/>) for a complete list of options about how to obtain help.

Course Information

Biology 2244B and Statistics 2244B, sections 200 & 201, FW25

An introductory course in the application of statistical methods, intended for students in departments other than Statistical and Actuarial Sciences, Applied Mathematics, Mathematics, or students in the Faculty of Engineering. Topics include sampling, confidence intervals, analysis of variance, regression and correlation.

List of Prerequisite(s)

1.0 mathematics course, or equivalent numbered 1000 or above. Data Science 1000A/B or the former Statistical Sciences 1024A/B or Integrated Science 1001X can be used to meet 0.5 of the 1.0 mathematics course requirement.

List of Antirequisite(s)

All other courses in Introductory Statistics (except Statistical Sciences 1023A/B, Data Science 1000A/B, or the former Statistical Sciences 1024A/B): Economics 2122A/B, Economics 2222A/B, Geography 2210A/B, Health Sciences 3801A/B, MOS 2242A/B, Psychology 2811A/B or the former Psychology 2810, Psychology 2801F/G or the former Psychology 2820E, Psychology 2830A/B, Psychology 2850A/B, Psychology 2851A/B, Social Work 2207A/B, Sociology 2205A/B, Statistical Sciences 2035, Statistical Sciences 2141A/B, Statistical Sciences 2143A/B, Statistical Sciences 2858A/B.

Unless you have either the requisites for this course or written special permission from the Department of Biology or Department of Statistical & Actuarial Sciences to enroll in it, you may be removed and withdrawn from this course in accordance with university policy. This may be done after the add/drop deadline of the academic term, and the course will be marked as withdrawn (WDN) on your academic record. This decision may not be appealed.

Land Acknowledgement

Some of my core teaching practices/values stem from opportunities I have had to learn from, and work alongside, diverse Indigenous peoples. My “call” to education was originally centred around sharing my knowledge of plant communities and natural environments, fostered by time spent in Algonquin Provincial Park, Kananaskis, and Thousands Islands National Park. Currently, I am reflecting on the nature of knowledge, and how students of statistics would benefit from *Etuaptmumk*¹. The land has been, and continues to be, core to my development as a person. As such, I want to acknowledge that Western University is located on the traditional lands of the Anishinaabek, Haudenosaunee, Lünaapéewak, and Chonnonton Nations, on lands connected with the London Township and Sombra Treaties of 1796 and the Dish with One Spoon Covenant Wampum. This land continues to be home to diverse Indigenous peoples (First Nations, Métis and Inuit) whom I recognize as contemporary stewards of the land and vital contributors to our society.

¹ Etuaptmumk is a Mi'kmaw word meaning “Two-eyed Seeing”, a concept developed by Mi'kmaq Elder Albert Marshall; <https://www.2eyedseeing.ca/about-5>

Instructor Information

Course Instructor/Coordinator

Jennifer ("JP") Peter (she/her/hers)

Contact Information

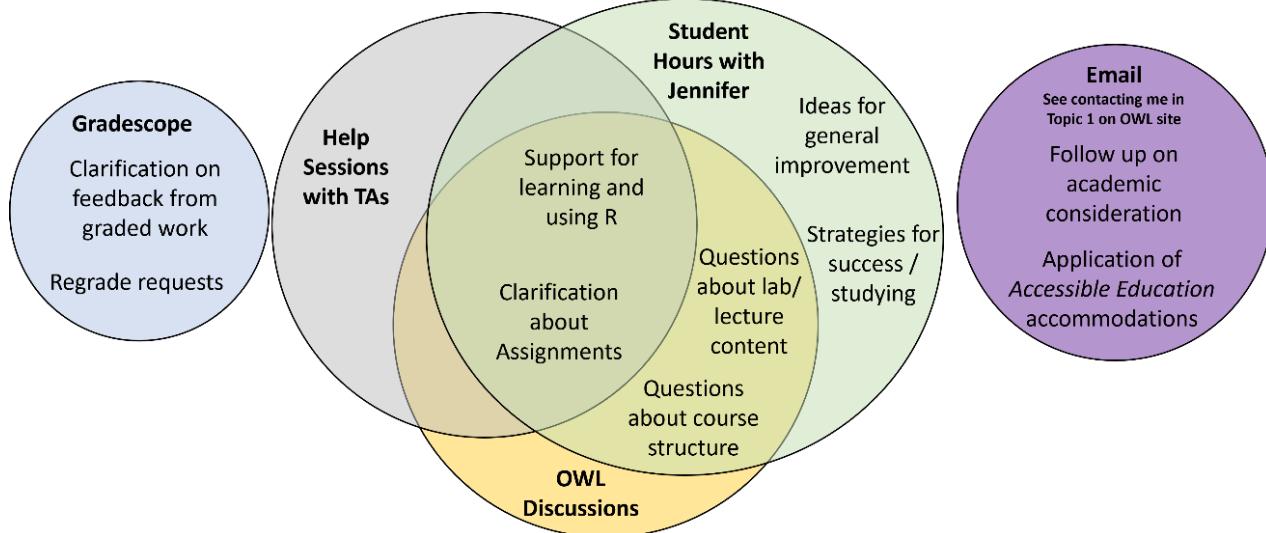
Email is used in a **VERY limited manner** in 2244. Email should only be used for academic consideration and accommodations. Please use other methods of communication as depicted in the diagram below. **Emails MUST have "2244 Winter26" at the start of the subject line** or they will not receive a response.

Response time: I triage communication when busy. That is, I prioritize answering questions that relate to assignments with upcoming deadlines, while delaying (if necessary) responses to requests that I deem as less time-sensitive (based on my experience). I also use class wide / group announcements for efficiency when deemed appropriate. Please be patient and watch for either a direct or larger (albeit, confidential) group response.

Methods of communication

- A **weekly OWL Announcement** will provide (i) reminders about pertinent policies and upcoming deadlines, (ii) clarification on assessment expectations, and (iii) responses to current frequently asked questions. You are expected to read the weekly Announcement and adhere to the content within.
- **Questions about course content** should be made on the **OWL Discussions** (asynchronous) and/or during **Student Hours with JP** (drop-in times to get support) and/or during **Lectures**.
- **Regrade requests** must be sent **through Gradescope within one week** after grading is returned; such requests sent through any other method will not be addressed; this is for efficiency and organization.

Have questions/concerns? Use the appropriate method of contact!



Course Schedule and Delivery Mode

Universal Design for Learning

This course applies principles of **Universal Design for Learning** (UDL), which “focuses on eliminating barriers through initial designs that consider the needs of diverse people”². In addition to basic practices (e.g. closed captioning during lecture, alternative text/verbal description of imagery, text-to-speech friendly documents, high contrast colour/patterns in imagery, etc.), you will encounter a combination of in-person, audio, video, and/or text-based resources; diagnostic assessments (“What do you know?”) and “self-assessments” to help you efficiently allocate your time for learning; optional self-reflection prompts alongside the self-assessments to help connect the course material to your personal experiences; scaffolding to support success on assignments; deadlines with automatic no-late penalty periods; and alternative grade weighting schemes that acknowledge that mastery may occur at individualized rates.

Delivery of course material

This course is timetabled as a **blended course**; this means that the course content is a mixture (blend!) of online and in-person delivery. Specific to Biol/Stat 2244, **lecture content** is predominantly delivered in-person but there will be some (small) **required** online components (e.g. short readings, videos), while **lab content** is delivered entirely online. Having access to a reliable internet connection, and, ideally, dedicated access to a laptop or desktop computer is necessary to be successful.

Timetable

Lectures

Please refer to your course timetable for details on days/times and location of lecture sections.

I try to keep the two lecture sections progressing at the same pace; however, some divergence (typically 5-10 minutes) does typically occur occasionally. You should plan to regularly attend one lecture section consistently.

Labs

The lab component is online and asynchronous. Timing of Lab modules correspond to coverage of associated Lecture content (where applicable). Students should complete the relevant lab modules during the planned week, on their own time. Drop-in Help Sessions with TAs will be scheduled most weeks, to support student independent study / learning of the lab content. The scheduling of the Lab modules is also planned to ensure relevant preparation for graded assessments that require application of Lab content. Plan to have 2 to 3 hours of lab tasks to work through most weeks, plus allocate time for suggested practice.

Important Dates

- **Classes start:** January 5, 2026
- **Add Deadline:** January 13, 2026
- **Spring Reading Week:** February 14–22, 2026
- **Drop Deadline:** March 30, 2026
- **Classes end:** April 9, 2026
- **Study days:** April 10–11, 2026
- **Exam period:** April 12–30, 2026

Course Schedule

The planned schedule for lecture topics, lab modules, and assessment deadlines/dates is provided in the table on the next page. **Some adjustments to the schedule may be made** if content takes a little longer than anticipated to cover; any changes to deadlines/dates will be announced in the weekly OWL Announcements. For information on the listed Assessments (e.g. what is a “Meta Activity”?), see the section on Methods of Evaluation (pages 6-10).

² Novak, K. and T. Thibodeau. 2016. UDL in the Cloud: How to design and deliver online education using Universal Design for Learning. CAST, Inc., Wakefield, Massachusetts.

| Week | Lecture/Lab Topics | Assessments due Friday at 11:55 pm | Exams |
|----------------|--|------------------------------------|-----------------------------------|
| Jan 5 – 11 | Introducing 2244 and the PPDAC framework Building a research question (<i>Problem</i>) | | |
| Jan 12 – 18 | Sampling considerations and bias (<i>Plan</i>) Sampling designs (<i>Plan</i>) | | |
| Jan 19 – 25 | Sampling designs, cont'd. Lab: Setting up R & R Studio | Meta Activity A | |
| Jan 26 – Feb 1 | Study considerations and confounding (<i>Plan</i>) Lab: Working with Data in R | Stat Activity 1 | |
| Feb 2 – 8 | Study designs (<i>Plan</i>) Lab: Reproducible files using R markdown | Stat Activity 2 | |
| Feb 9 – 15 | Summarizing & Exploring Data (<i>Data</i>) | Stage 1 | |
| Feb 16 – 22 | Reading Week (no classes) | | |
| Feb 23 – Mar 1 | Summarizing & Exploring Data, cont'd. Lab 4: Summarizing and Exploring Data in R | | Midterm³ |
| Mar 2 – 8 | Basics of statistical models (<i>Analysis</i>) | Stat Activity 3 | MAKEUP Midterm³ |
| Mar 9 – 15 | Estimators, & Sampling distributions (<i>Analysis</i>) Focusing on strengths (<i>Reflective practice</i>) | Meta Activity B | |
| Mar 16 – 22 | Estimation with Confidence intervals (<i>Analysis</i>) P-values and null hypothesis testing (<i>Analysis</i>) | Stage 2 | |
| Mar 23 – 29 | P-values and null hypothesis testing, cont'd. Inference on means (<i>Analysis</i>) Lab: inference on means in R | Stat Activity 4 | |
| Mar 30 – Apr 5 | Inference on means, cont'd. One-factor ANOVA (<i>Analysis</i>) Lab: One-factor ANOVA in R | Meta Activity C | |
| Apr 6 – 9 | Simple linear regression (<i>Analysis</i>) Lab: Simple Linear regression in R Apr 10 – 11: Study days | Stage 3 | |
| Apr 12 – 30 | Final Exam Period <i>Do not schedule travel until the Final Exam schedule has been posted.</i> | | |

³ See OWL course site for day/time and location of midterm and make up midterm

Learning Outcomes

Statistics is a scientific discipline that informs all stages of research, from problem definition to conclusion. This course follows the PPDAC framework⁴, focusing on knowledge/skills relevant to address questions that guide each stage of research. In addition, activities to help develop metacognition⁵ are embedded alongside the statistical curriculum. A successful student will demonstrate proficiency with most of the following:

| | |
|--|--|
| Design sampling and study procedures to collect relevant data addressing a research question | <ul style="list-style-type: none">Recognize and design common sampling and study design methodsIdentify issues with sampling and study designs (e.g. bias, undercoverage, confounding, control, randomization, replication) |
| Create and interpret appropriate summaries of data | <ul style="list-style-type: none">Select appropriate summaries based on research question and variablesInterpret common graphical and numerical summaries of univariate, bivariate, and/or multivariate data |
| Analyse data using inference procedures to address a research question | <ul style="list-style-type: none">Identify data structure characteristics (e.g. number of comparison groups, type of variables, paired vs. independent samples, etc.)Interpret and describe confidence intervals and P-valuesEvaluate model diagnostics for common parametric inference procedures |
| Use statistical software to summarize, analyse, interpret, and communicate data in a reproducible manner | <ul style="list-style-type: none">Create graphical and numerical summaries of data in RConduct inference procedures, including model diagnostics, in RInterpret R (or other statistical software) outputCreate reproducible analyses/reports using R markdown and LaTeX |
| Communicate statistical concepts, analyses, and arguments in an accurate and scholarly manner | <ul style="list-style-type: none">Describe statistical concepts with appropriate vocabulary/symbolsUse conventional formats for reporting results and communicating about statistical analyses (e.g. figure captions, conclusion statements)Justify choices (e.g. study designs) with prioritization of data quality |
| Describe models and/or conceptual background for common inference procedures | <ul style="list-style-type: none">Create and interpret simple linear models, e.g. $Y = \beta_1 x + \beta_0 + \varepsilon$, $\varepsilon \sim N(0, \sigma^2)$Explain the role of sampling distributions and estimators in inferenceDescribe and apply characteristics of common probability density functions (e.g. Normal) |
| Engage in practices that support the development of metacognition | <ul style="list-style-type: none">Identify obstacles that may present challenges when learning, including imposter syndromeReflect on learning to evaluate how the learner has changedUse previous experiences as a framework to evaluate current or future actions |

⁴ Mackay, R.J., and R.W. Oldford. 2000. Scientific method, statistical method, and the speed of light. *Statistical Science* 15(3): 254-278.

⁵ Metacognition is referred to as “thinking about your thinking”. This involves understanding yourself as a learner, and being able to plan, monitor, and evaluate your learning. Well-developed metacognitive thinking is associated with better learning.

Course Materials

Required materials

These materials are required in that each student needs access to them to be successful in the course. In addition to these main resources, we will occasionally use freely available articles, videos, and applets to supplement your learning.



Students are responsible for checking the OWL site, **STATS 2244B 200: Statistics for Science** regularly. It provides the following content (*relevant OWL tools identified in parentheses*):

- Lecture and lab materials (*Content*)
- Assessment instructions/materials (*Assessments* → *Assignments*)
- Practice questions (*Content*)
- Communication tools (*Discussions*, *Announcements*)
- Due dates and help sessions (*Calendar*)



The **Labs** require using the statistical software program **R**, and the integrated development environment, **R Studio**, to work with data and communicate. **Both software packages are free** to download to your personal computer (*best experience*) or for limited use through a Cloud-based browser option (*if necessary*). Instructions for downloading / accessing R and R Studio is part of Lab 1.

If you need assistance with OWL, please seek support on the OWL Brightspace help page: brightspacehelp.uwo.ca. Alternatively, contact the [Western Technology Services Helpdesk](#) (by phone at 519-661-3800 or ext. 83800).

No textbook is required for this course. There is a textbook in the Campus Bookstore (Baldi & Moore, *Practice of Statistics in the Life Sciences 4th edition*, \$153) for students who want an outside resource. However, **no reference will be made to this book in the course**.

Methods of Evaluation

*This course uses **Specifications Grading** for some components; briefly, this means that there will be a list of requirements ('specifications') that all must be met to earn credit for a particular assessment and/or bundle in the grading scheme. The specifications for individual assessments will **ALWAYS** be communicated in advance. If—at ANY time—you are uncertain about expectations for an assessment or about the grading, ask for clarification. If you're interested in learning about "Specs Grading" in general, there's a nice blog post [here](#).*

Overview of Grading Distribution

A flexible evaluation scheme is set up to recognize mastery of most material/skills *by the end* of the course, and to provide some opportunities to learn from mistakes. There are four types of assessment: Assignment, Activities, the Midterm, and the Final Exam. The baseline weight of each component is described below. Three alternatives are provided. Each student's **final course grade will reflect the scheme that results in the highest possible grade**.

| Component | Baseline | Alternative 1 | Alternative 2 | Alternative 3 |
|------------|----------|---------------|---------------|---------------|
| Assignment | 30% | 30% | 30% | 30% |
| Activities | 15% | 15% | 5% | 5% |
| Midterm | 20% | 5% | 20% | 5% |
| Final Exam | 35% | 50% | 45% | 60% |

Essential Requirements to pass Biol/Stat 2244

Even when Academic Consideration are granted for missed coursework, the following are deemed essential to earn a passing grade (i.e. 50% or more):

- earning at least 15% for the Assignment component (described on page 8), **AND**,
- earning at least 40% on the Final Exam.

Failing to meet either and/or both of these two Essential Requirements will result in a **final course grade of 40%** (or your actual computed grade, whichever is lower), regardless of your achievements on other components of the course.

Assessment Descriptions

Each of the graded components of the course assessment are briefly described here; detailed instructions will be provided on the OWL site, under **Assessments → Assignments**. **Take time to review the section on General Information about Missed Coursework (page 11)**.

Activities.

WHY? Activities are created to:

- i. encourage regular engagement and review of lecture and lab content;
- ii. provide low-stakes assessment of your application of course content before the Test, Exam, and Assignment Stages;
- iii. give opportunities to engage in reflection and to develop metacognitive skills.

WHAT? There are two types of Activities: **Stat Activities** and **Meta Activities**. All involve answering a handful of questions (typically multiple choice, short answer, and possibly file/image uploads).

- Four (4) **Stat Activities** focus on concepts/skills recently covered in the lecture and/or lab materials (i.e. related to the Statistical curriculum).
- Three (3) **Meta Activities** will ask you to reflect on your learning and/or submit evidence of your ongoing engagement with the course (i.e. related to the Metacognitive curriculum).

HOW? All Activities will have instructions provided through the OWL **Assessments → Assignments**, with corresponding access to the Gradescope.ca submission (where relevant). You will typically have 3 days to work on and submit the Activity.

EVALUATION? **Stat Activities** are graded on a 3-level rubric using **F** = Full credit (highest level), **P** = Partial credit, and **N** = No credit or Not submitted (lowest level); **Meta Activities** are graded on a 2-level rubric, as either **C** = Completed or **NC** = Not Completed. Specifications required for each level will be described in the Activity instructions. The Activities grade out of 15% is based on the combined levels achieved across all Stat and Meta Activities, as described in the following table. There are no intermediate grades levels (e.g. no 14%).

| To earn: | Achieve ALL of the following specifications: |
|----------|---|
| 15 | <ul style="list-style-type: none">• submit 4 Stat Activities, earning four level F• submit 3 Meta Activities, earning three level C |
| 12 | <ul style="list-style-type: none">• submit 4 Stat Activities, earning at least 3 level F and one level P• submit 3 Meta Activities, earning three level C |
| 9 | <ul style="list-style-type: none">• Submit at least 3 Stat Activities, earning at least 2 level F and one level P• Submit at least 2 Meta Activities, earning at least two level C |
| 6 | <ul style="list-style-type: none">• Submit at least 2 Stat Activities, earning at least 2 level P |
| 3 | <ul style="list-style-type: none">• Submit at least 2 Stat Activities, earning at least 1 level P |
| 0 | Assigned if the 3% specifications are not met. |

For Alternative weighting schemes (see page 6) in which Activities contribute only 5%, the value out of 15% from the above table will be rescaled out of 5%. Example, earning the 12% bundle would be rescaled to $12/15 \times 5\% = 4\%$.

ACADEMIC CONSIDERATION?

48-h No-Late-Penalty Period: You are expected to submit each **Stat Activity** and **Meta Activity** by the Friday 11:55 pm deadline. Should extenuating circumstances arise, you do not need to request Academic Consideration and are permitted to submit your Activity up to 48 h past the deadline without a late penalty. No submissions more than 48 h after the deadline will be accepted. Academic Consideration requests may be granted only for extenuating circumstances that started before the deadline and lasted longer than the 48-h No-Late-Penalty Period. With such Academic Consideration, students may submit until the first Wednesday (by 11:55 pm) after the original Friday deadline; otherwise, an alternative version of the Activity will be completed at a later date.

3-Stage Assignment.

WHY? The *Assignment* assesses your level of achievement on a core subset of course-learning outcomes (see [page 5](#)) in an authentic manner, with particular emphasis on use of R, R markdown file format, and LaTeX.

WHAT? The *Assignment* is split into three (3) *Stages*, where each *Stage* is composed of a few short-answer questions requiring written responses (possibly including graphs/tables and/or R code and output). The *Stages* move progressively through the stages of the PPDAC framework⁶. These involve answering questions related to an overall research objective and summarizing/analysing real data.

HOW? All 3 *Stages* are take-home assignments, to be completed individually; you will typically have 7 days to work on and submit each *Stage*. All *Stages* must be uploaded to the OWL Assessments→Assignments, AND to the corresponding Gradescope.ca submission.

EVALUATION? Each *Stage* assesses your achievement on a group of three (3) course-level learning outcomes (see [page 5](#)); your achievement of each outcome is graded against a 4-level rubric using **M** = Mastery (highest level), **P** = Proficiency, **A** = Approaching proficiency, **N** = Not met (lowest level); the rubric detailing these levels will be provided with the *Stage* instructions. The total *Assignment* component out of 30% will be based on the levels achieved across the three *Stages*, as described in the following table. There are no intermediate grades (e.g. no possibility for 26%).

| To earn: | Achieve ALL of the following specifications: |
|--|---|
| 30 | earn 9 level M |
| 28 | earn 8 level M , and, no level A or N |
| 25 | earn at least 6 level M , and no level A or N |
| 20 | earn at least 6 level P , and no level N |
| 17 | earn at least 5 level P , no more than 2 level A and no more than 1 level N |
| 15 | earn at least 5 level P , no more than 3 level A and no more than 2 level N |
| Failing to meet the specifications for the lowest level Assignment grade (15) will result in a final course grade of 40% , regardless of your achievements on other components of the course. | |

ACADEMIC CONSIDERATION?

48-h No-Late-Penalty Period: You are expected to submit each *Stage* of the *Assignment* by the Friday 11:55 pm deadline. Should extenuating circumstances arise, you do not need to request Academic Consideration and are permitted to submit your *Stage* up to 48 h past the deadline without a late penalty. Should students submit their *Stage* beyond the 48-h No Late Penalty period, a *late penalty* of one rubric level for each 24 h or part thereof (e.g. level M→level P, level P→level A, etc.) will be applied; this is a steep late penalty and should be avoided unless significant improvements in the *Stage* submission can be gained by submitting late. No submissions will be accepted late beyond 96 h after the original deadline. Academic Consideration requests may be granted only for extenuating circumstances that started before the deadline and lasted longer than

⁶ Mackay, R.J., and R.W. Oldford. 2000. Scientific method, statistical method, and the speed of light. *Statistical Science* 15(3): 254-278.

the 48-h No-Late-Penalty Period. With such Academic Consideration, students may submit up to 7 days after the original deadline, or, until a solutions file is posted (whichever comes sooner). Otherwise, you will be required to complete an alternative version of the Stage at a later date. All three (3) Stages of the Assignment are part of the Essential Requirements for the course; consequently, **missed Stages must have Academic Consideration**, otherwise your **final course grade will be submitted as 40%** (or your actual computed grade, whichever is lower), regardless of your achievement on other graded course components.

Midterm.

WHY? The *Midterm* assesses your understanding, application, and integration of the course material from the first half (roughly) of the course.

WHAT? The *Midterm* will be composed of several short answer questions and multiple-choice questions; questions may involve calculations, drawings, matching, etc. The *Midterm* is closed-book, but you may bring a “One-Pager” (i.e. a single-sided 8.5” x 11” page with notes, reminders, etc.) and a non-programmable calculator.

HOW? The *Midterm* will be in-person on Western campus; each student will be assigned to a location to write.

EVALUATION? The *Midterm* is graded on a traditional points-based scale. Consequently, your grade will be calculated according to the following formula:

$$\frac{\text{achieved points on exam}}{\text{total possible points for exam}} \times \% \text{ exam weighting}$$

For example, if a student earns 22 out of a possible 30 points on the *Midterm*, then their *Midterm* component (15%, based on the Baseline distribution from page 6) will be $(22/30) \times 15\% = 11\%$.

ACADEMIC CONSIDERATION?

Absences for the *Midterm* always require supporting documentation when requesting Academic Consideration. Students who miss the *Midterm* *without* Academic Consideration, or, who request Academic Consideration *without* supporting documentation will have their *Midterm* grade recorded as zero (0). Students who are granted Academic Consideration with supporting documentation will be eligible to write the Make up *Midterm*. Students who are scheduled to write the make-up *Midterm*, but cannot due to conflict or other circumstances that are accommodated by further Academic Consideration with supporting documentation will have their *Final Exam* reweighted accordingly.

Final Exam.

WHY? The *Final Exam* assesses your understanding, application, and integration of the course material at the end of the course, including some application of the knowledge/concepts associated with the Lab content.

WHAT? A **cumulative** exam with a combination of multiple choice and short answer questions, which may involve calculations, drawings, matching, interpretation of data, etc.. The *Final Exam* is closed-book, but you may bring a “One-Pager” (i.e. a single-sided 8.5” x 11” page with notes, reminders, etc.) and a non-programmable calculator.

HOW? The *Final Exam* will be in-person on Western campus at a time/location scheduled by the University Registrar.

EVALUATION? The *Final Exam* is graded using a traditional points-based scale, as described above for the *Midterm*.

ACADEMIC CONSIDERATION?

Absences for the *Final Exam* always require supporting documentation when requesting Academic Consideration. Students who miss the *Final Exam* *without* Academic Consideration will have their **final course grade submitted as 40%** (or your actual computed grade, whichever is lower), regardless of your

achievement on other course components; this is because earning at least 40% on the Final Exam is an Essential Requirement. When a student misses the Final Exam and their Academic Consideration has been granted, they will be allowed to write the Special Examination (the name given by the University to a makeup Final Exam). See the Academic Calendar for details (under [Special Examinations](#)), especially for those who miss multiple final exams within one examination period.

Use of Generative Artificial Intelligence (AI) tools

Artificial Intelligence (AI) tools (i.e. large language models, natural language processing applications, chatbots; e.g. ChatGPT, DALL-E 2, Sudowrit, Grammarly, etc., etc.) are accessible to the general public. Discussions have been prolific about how and why such AI tools should/shouldn't be used in academia; there is little agreement and a lot to learn. For THIS course (i.e. where transparency and reproducibility of data are key values), I have a policy on AI tool use that we will follow as a learning community. **You should take a few minutes to review the complete policy—which includes a discussion of the philosophy behind the policy, and the concerns about the accuracy, bias, and transparency of AI tools—, that is available on the OWL course site.** If any part of that policy is confusing or uncertain, reach out to the instructor for a conversation before submitting your work. Note that violations of this policy are considered violations of Western's academic integrity and scholastic offense policies. Generative AI tools are **prohibited on the Midterm and Final Exam**. An 'executive summary' of how generative AI tools are **permitted with limitations for Activities and the Assignment Stages**) is provided here:

1. Generative AI is permitted to help you understand the Activity and/or Assignment Stages' instructions and expectations, for brainstorming ideas but not for writing/creating content to be submitted, to proof read your work and/or check it against the provided rubric, and to help diagnose errors in R code that you have written. Otherwise, all written work, ideas / concepts that contribute to submitted work, and R code should be created / developed independently by you.
2. Any Activity or Assignment Stage in which you used generative AI should clearly indicate (by descriptive narrative) the manner in which the AI tool(s) were used.
3. You must cite the tool(s) used. For example, if using ChatGPT-4, you would cite using a format such as: "ChatGPT-4. (YYYY, Month DD of query). *Text of your query.* Generated using OpenAI. <https://chat.openai.com/>".
4. Keep transcripts of your "conversations" (prompts plus responses) as documentation/support of your use. A simple approach to take is to use screenshots.

Rounding of Marks Statement

Across the Sciences Undergraduate Education programs, we strive to maintain high standards that reflect the effort that both students and faculty put into the teaching and learning experience during this course. All students will be treated equally and evaluated based only on their actual achievement. **Final grades** in this course, irrespective of the number of decimal places used in marking individual assignments and tests, will be calculated to one decimal place and rounded to the nearest integer, e.g., 74.4 becomes 74, and 74.5 becomes 75. Marks WILL NOT be bumped to the next grade or GPA, e.g. a 79 will NOT be bumped up to an 80, an 84 WILL NOT be bumped up to an 85, etc. Requests for mark "bumping" will be (politely) denied. Similarly, requests for alternative assessments, submission of revisions of assessments to increase marks, or requests for 'exceptions' to a grading scheme will be (politely) denied on the basis that making such exceptions lacks transparency and reduces equity among students in the course.

Accommodation and Accessibility

Academic Accommodation Policies

Students with disabilities are encouraged to contact Accessible Education, which provides recommendations for accommodation based on medical documentation or psychological and cognitive testing. The policy on Academic Accommodation for Students with Disabilities policy can be found at: https://www.uwo.ca/univsec/pdf/academic_policies/appeals/Academic_Accommodation_disabilities.pdf

Please contact the course instructor if you require lecture or printed material in an alternate format or if any other arrangements can make this course more accessible to you. If you have any questions regarding accommodations, you may also wish to contact Accessible Education at http://academicsupport.uwo.ca/accessible_education/index.html.

Religious Accommodation

When a recognized religious holiday or observance conflicts with an examination, test, or other scheduled academic obligation, students must request accommodation via the University's Student Absence Portal (SAP). This request should identify the conflict and specify which course component(s) (e.g. test, midterm, exam) are affected.

Students are encouraged to submit the SAP request as early as possible, but no later than two weeks before any examination, or one week before any mid-term test or quiz, to allow sufficient time for adjustment.

The SAP request serves as official notification to both the course instructor and the Academic Advising Office, in accordance with University policy:

https://www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_religious.pdf

The Faculty of Science considers religious accommodations as scheduling conflicts. Instructors should provide either a make-up exam or an earlier sitting of the same exam to accommodate the student.

For more information on recognized religious holidays, please visit the Diversity Calendar posted on the Equity, Diversity & Inclusion website - <https://www.edi.uwo.ca>

Academic Policies

General information about missed coursework

Students must familiarize themselves with the *University Policy on Academic Consideration – Undergraduate Students in First Entry Programs* posted on the Academic Calendar:

https://www.uwo.ca/univsec/pdf/academic_policies/appeals/academic_consideration_Sep24.pdf

This policy does not apply to requests for Academic Consideration submitted for **attempted or completed work**, whether online or in person.

The policy also does not apply to students experiencing longer-term impacts on their academic responsibilities. These students should consult [Accessible Education](#).

For procedures on how to submit Academic Consideration requests, please see the information posted on the Office of the Registrar's webpage: https://registrar.uwo.ca/academics/academic_considerations/

All requests for Academic Consideration must be made within 48 hours after the assessment date or submission deadline.

All Academic Consideration requests must include supporting documentation; however, recognizing that formal documentation may not be available in some extenuating circumstances, the policy allows students to make one Academic Consideration request **without supporting documentation** in this course. However, the following assessments are excluded from this, and therefore, always require formal supporting documentation:

- Examinations scheduled during official examination periods (Defined by policy); this refers to the **Final Exam**.
- The **Midterm Test** (Designated by the instructor as the one assessment that always requires documentation when requesting Academic consideration)

When a student mistakenly submits their one allowed Academic Consideration request **without supporting documentation** for the assessments listed above or those identified as Coursework with Assessment

Flexibility (this refers to **Activities** and **Assignment Stages** that have the 48-h No-Late-Period), the request cannot be recalled and reapplied. This privilege is forfeited.

General Academic Policies

The website for Registrarial Services is <http://www.registrar.uwo.ca>.

Use of @uwo.ca email: In accordance with policy, https://www.uwo.ca/univsec/pdf/policies_procedures/section1/mapp113.pdf, the **centrally administered e-mail account** provided to students will be considered the individual's official university e-mail address. It is the responsibility of the account holder to ensure that e-mails received from the University at their official university address are attended to in a timely manner.

Requests for Relief (formally known as "appeals")

Policy on Request for Relief from Academic Decision:

https://uwo.ca/univsec//pdf/academic_policies/appeals/requests_for_relief_from_academic_decisions.pdf

Procedures on Request for Relief from Academic Decision (Undergraduate):

https://uwo.ca/univsec//pdf/academic_policies/appeals/undergrad_requests_for_relief_procedure.pdf

Scholastic offences

Policy on Scholastic Offences:

https://uwo.ca/univsec//pdf/academic_policies/appeals/scholastic_offences.pdf

Procedures on Scholastic Offences (Undergraduate):

https://uwo.ca/univsec//pdf/academic_policies/appeals/undergrad_scholastic_offence_procedure.pdf

Use of electronic devices during assessments

In courses offered by the Faculty of Science, the possession of unauthorized electronic devices during any in-person assessment (such as tests, midterms, and final examinations) is strictly prohibited. This includes, but is not limited to: mobile phones, smart watches, smart glasses, and wireless earbuds or headphones.

Unless explicitly stated otherwise in advance by the instructor, the presence of any such device at your desk, on your person, or within reach during an assessment will be treated as a scholastic offence, even if the device is not in use.

Only devices expressly permitted by the instructor (e.g., non-programmable calculators) may be brought into the assessment room. It is your responsibility to review and comply with these expectations.

Use of Generative AI Tools

Unless otherwise stated, the use of generative AI tools (e.g., ChatGPT, Microsoft Copilot, Google Gemini, or similar platforms) is **not permitted** in the completion of any course assessments, including but not limited to: assignments, lab reports, presentations, tests, and final examinations.

Using such tools for content generation, code writing, problem solving, translation, or summarization—when not explicitly allowed—will be treated as a scholastic offence.

If the use of generative AI is permitted for a particular assessment, the conditions of use will be specified by the instructor in advance. If no such permission is granted, students must assume that use is prohibited. It is your responsibility to seek clarification before using any AI tools in academic work.

Use of Turnitin

All required papers may be subject to **submission for textual similarity review** to the commercial plagiarism detection software under license to the University for the detection of plagiarism. All papers submitted for such checking will be included as source documents in the reference database for the purpose of detecting plagiarism of papers subsequently submitted to the system. Use of the service is subject to the licensing agreement, currently between The University of Western Ontario and Turnitin.com (<http://www.turnitin.com>).

Computer-marked multiple-choice tests and exams may be subject to submission for **similarity review** by software that will check for unusual coincidences in answer patterns that may indicate cheating.

Personal response devices (“clickers”) or similar technology may be used in this course for the purpose of engagement during in-person learning and/or to provide informal feedback to your instructor about student understanding. Such technology use will not contribute to course grades. Any personal data collected (e.g. student usernames/identification and responses to questions) will be treated like other confidential course-related data.

In the event of a university-declared emergency that requires some or all of the course to be delivered online, tests and examinations in this course may be conducted using a remote proctoring service. By taking this course, you are consenting to the use of this software and acknowledge that you will be required to provide **personal information** (including some biometric data) and the session will be **recorded**. Completion of this course will require you to have a reliable internet connection and a device that meets the technical requirements for this service. More information about this remote proctoring service, including technical requirements, is available on Western's Remote Proctoring website at: <https://remote-proctoring.uwo.ca>.

Professionalism & Privacy

Western students are expected to follow the Student Code of Conduct, available for review at <https://www.uwo.ca/univsec/pdf/board/code.pdf>. Additionally, the following expectations and professional conduct apply to this course:

- Students are expected to contribute to an inclusive and safe learning environment (online and in-person) that recognizes individual diversity and experience
- All course materials created by the instructor(s) are copyrighted and cannot be sold/shared
- Recordings are not permitted (audio or video) without explicit written permission of the instructor
- Permitted recordings are not to be distributed
- Students will be expected to take an academic integrity pledge before some assessments
- All recorded sessions will remain within the course site or unlisted if streamed

Remote learning sessions for this course may be recorded.

Occasionally, I use remote learning technology (e.g. Zoom) for Student Hours or other purposes; these learning sessions may be recorded by the instructor. The data captured during these recordings may include your image, voice recordings, chat logs, and personal identifiers (name displayed on the screen). The recordings will be used for educational purposes related to this course, including evaluations. The recordings may be disclosed to other individuals participating in the course for their private or group study purposes. Please contact the instructor if you have any concerns related to session recordings.

Participants in this course are not permitted to record sessions, except where recording is an approved accommodation, or the participant has the prior written permission of the instructor.

Copyright Statement

Please be aware that all course materials created by the instructor(s) are copyrighted and cannot be **sold/shared**. Those include materials used in lectures, labs, tests/quizzes, assignments, midterms, activities, and finals. Any posting/sharing of such materials in part or whole without owner's consent is considered as violation of the Copyright Act and will be considered as a scholastic offence.

In addition, online services such as Chegg are actively monitored. Any questions that are coming out during midterms and finals and are posted to an online service will be searched. Such an activity will be considered as a scholastic offence and will result in academic penalty.

Support Services

Please visit the Science & Basic Medical Sciences Academic Advising webpage for information on adding/dropping courses, academic considerations for absences, requests for relief, exam conflicts, and many other academic related matters: <https://www.uwo.ca/sci/counselling/>

Students who are in emotional/mental distress should refer to Mental Health@Western (<https://uwo.ca/health/>) for a complete list of options about how to obtain help.

Western is committed to reducing incidents of gender-based and sexual violence (GBSV), and providing compassionate support to anyone who has gone through these traumatic events. If you have experienced GBSV (either recently or in the past), you will find information about support services for survivors, including emergency contacts at:

https://www.uwo.ca/health/student_support/survivor_support/get-help.html.

To connect with a case manager or set up an appointment, please contact support@uwo.ca.

Learning-skills counsellors at the Learning Development and Success (<http://www.learning.uwo.ca>) are ready to help you improve your learning skills. They offer presentations on strategies for improving time management, multiple-choice exam preparation/writing, textbook reading, and more. Individual support is offered throughout the Fall/Winter terms in the drop-in Learning Help Centre, and year-round through individual counselling.

Additional student-run support services are offered by the USC, <http://westernusc.ca/services>.