STA 237 - Probability, Statistics, and Data Analysis I Syllabus

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Course Description: An introduction to probability using simulation and mathematical frameworks, with emphasis on the probability needed for more advanced study in statistical practice. Topics covered include probability spaces, random variables, discrete and continuous probability distributions, probability mass, density, and distribution functions, expectation and variance, independence, conditional probability, the law of large numbers, the central limit theorem, sampling distributions. Computer simulation will be taught and used extensively for calculations and to guide the theoretical development.

Prerequisites: Refer to the academic calendar for prerequisite and co-requisite information here. Prerequisites are strictly enforced by the department and cannot be waived. Any questions regarding pre- or co-requisites can be sent to ug.statistics@utoronto.ca.

Course Email Policy: The course email is reserved for sensitive or personal matters not addressed in the syllabus. For course content questions, use Quercus Discussions or attend office hours. For administrative issues such as grading policies, accommodations, or regrade requests, refer to the links in this syllabus or on Quercus. Only contact instructors by email if your question is not answered in the syllabus or on Quercus. Emails should be sent to sta237@course.utoronto.ca from your **mail.utoronto.ca** email address with **your section number indicated in the subject line**. We will aim to respond to emails within two business days.

Class Meeting Times:

Instructor	Section	Lecture Time & Location	Tutorial
Karen H. Wong (Course Coordinator)	L0201	M 1-3 pm, W 2-3 pm	W 1-2 pm
Bethany White	L0301	T 11 am -1 pm, R 10-11 am	R 9-10 am
	L0401	T 1-3 pm, R 1-2 pm	R 2-3 pm
Ismaila Ba	L5101	M 5-7pm , W 5-6 pm	W 6-7 pm
Lijia Wang	L0101	M 9-11 am, W 10-11 am	W 11 am - 12 pm
	L5201	T 5-7 pm, R 6-7 pm	R 5-6 pm

Course Meetings:

- Your enrolled LEC and TUT room is available on ACORN. No unofficial switching of LEC or TUT sections is permitted. Schedules differ across LEC and TUT sections, so you must attend your official LEC/TUT. If you wish to attend another section, you **must** do so on ACORN by September 15, 2025 (last date to enrol in F courses).

- Students **MUST** enroll in one of the tutorial sections corresponding to their lecture section. E.g., Students in **L0101** must enroll in tutorial sections starting with **TUT01****, while students in **L5201** must enroll in tutorial sections starting with **TUT52****. Graded work is

specific to tutorial and lecture sections. You will not be able to earn credit for any graded work submitted in a tutorial that is different from your ACORN and LEC enrolment.

- STA237H1F is an **in-person** course. All class meetings are scheduled to take place on campus as per the schedule above. Lectures will **not** be recorded. During the term, we may need to move the occasional lecture and/or tutorial online on Zoom (e.g., due to illness). If so, this will be communicated on Quercus Announcements with as much advance notice as possible.

Textbooks: Suggested weekly practice problems will be assigned from the following textbooks, primarily from Wagaman and Dobrow (2021) and Devore and Berk (2021). Relevant chapters will also be listed for supplemental reading/reference as needed. It is **expected** that students work on these suggested problems on a regular (weekly) basis to support and reinforce their learning.

1. *Probability with Applications and R*, 2nd ed. by *Wagaman and Dobrow* available through the library here. There is also a student companion site here.
2. *Modern Mathematical Statistics with Applications*, 3rd ed. by *Devore and Berk* available through the library here.
3. *A Modern Introduction to Probability and Statistics: Understanding Why and How*, by *Dekking et. al.* available through the library here.

Course Structure:

- Weekly lectures will comprise of introductions to new content/ideas, guided problem solving, occasional R demos and code-alongs, and live Q&A. Slides will generally be available the day before lecture on our course Quercus site.
- Weekly tutorials will consist of a combination of collaborative pair activities and independent quizzes. The weekly tutorial schedule will be posted on Quercus.
- The completion of four (4) LearnR online modules throughout the term. Each module will be open for 2-3 weeks, each module is intended to take about 2 hours to complete fully.

  These modules are designed to introduce you to programming in R, its syntax, and develop your skills to independently code and investigate course content via simulation. With the rise of data science and data analysis, learning and gaining exposure to these skills earlier on in your academic career will better prepare you for future courses as well as teach basic skills useful for any future career working with data.

  Throughout the course, you will be expected to interpret R code/output, modify, and write code in R.
- Outside of class meetings, in addition to the LearnR modules, students are also strongly encouraged to attempt the suggested practice problems on a weekly basis to help process and reinforce your learning.

Suggested Weekly Routine: Everyone learns at a different pace. In addition to our lecture and tutorial meetings, students on average should expect to spend about 2 hours per hour of lecture on self-study. Self-study includes but is not limited to: preparing course notes for yourself (e.g. writing in your own words about concepts you're learning), doing the suggested practice problems, completing assigned LearnR modules and exercises, reviewing notes, posting on the discussion

boards, etc. This works out to about 1 hour of studying per weekday, which for a student taking 5 courses would average to a total of 45-50 hours/week dedicated to attending class and self-study.

Course Materials: The University considers an instructor's lectures and course materials to be the instructor's intellectual property covered by the Canadian Copyright Act.

STA237H1F lectures and tutorials will not be recorded, and no video recording of lectures or tutorials will be permitted under any circumstances. Students wishing to record audio or take photos in lectures or tutorials or other course material in any way must ask for the instructors' explicit permission in advance and may not do so unless permission is granted. In STA237H1F, this permission must be requested in writing and in advance by sending an email to sta237@course.utoronto.ca. If permission is granted, this applies only for your own study purposes and does **not** include permission to publish, share or distribute them in any way.

It is also forbidden to publish, share, or distribute any other STA237H1F materials and assessments that are shared on Quercus or Crowdmark. Sharing, posting, selling, or using this material outside of your personal use in this course is not permitted under any circumstances and is considered an infringement of intellectual property rights.

Grading Scheme: The course is designed to give you plenty of opportunities to demonstrate your learning, make mistakes, track your progress, and receive feedback for improvement. The grading scheme is listed below:

Syllabus Quiz	0.5%	Available from Sept. 8 to 21
Tutorial 0	0.5%	Sept. 10/Sept. 11 during Tutorial
Tutorial Activities (Best 5 out of 6)	2% each	**Weekly, see course schedule posted on Quercus and Table 2 of this syllabus.**
Quiz (3)	6% each	
LearnR Modules (4)	1.5% each	Due: Oct. 3, Oct. 24, Nov. 14, Dec. 2
Midterm (*See note below*)	25%	**Tues/Thurs LEC**: Oct. 24, 5:10 - 6:40 PM*
		Mon/Wed LEC: Nov. 7, 5:10 - 6:40 PM*
Final Exam	40%	Scheduled by FAS
BONUS: Pre- & Post- Survey	0.5% each	Due Sept. 21 & Dec. 5

Minimum Passing Requirement: Students must pass the final exam ($\geq 50\%$) to be eligible to pass this course. There are no make-up tutorials or quizzes. If there are extenuating circumstances that will affect your performance in the course in the long term (e.g., extended absences), please connect with your college registrar and instructor as early as possible so that accommodations can be discussed/arranged.

Note: No special rounding rules or individual grade adjustments (e.g., to meet GPA cut-offs, minimum grade requirements for program admission or course prerequisites, etc.) will be applied. No special reweighing of assessments that deviate from the marking scheme or the accommodations described in this syllabus will be applied and no extra work will be accepted. There are no exceptions to these policies.

Grades on Quercus: Please also note that any grades posted are for your information only, so you can view and track your progress through the course. No grades are considered official, including any posted in Quercus at any point in the term, until they have been formally approved and posted on ACORN at the end of the course.

Discussion Boards: There will be weekly topic threads on the Quercus Discussion Boards as a space for students to discuss textbook problems, course topics, and exchange peer support. The teaching team will be monitoring and contributing regularly on the discussion board. Students are encouraged to use discussion boards to ask any content related questions, get feedback on attempted practice problems, and contribute by helping your peers. It is essential that everyone practices respectful and polite dialogue with others to keep discussion boards a supportive learning environment for everyone. You may find that with regular participation, you will develop a deeper understanding of course content and improve your skills in written communication.

Tutorials: See course schedule on Quercus for tutorial schedule. You **must** attend the section you are enrolled in on ACORN to ensure equitable TA support. Work submitted in any other section will not be graded. Tutorials will comprise of pair activities and quizzes. Since these take place during scheduled class time, there are **no accommodations** for any conflicts with other courses.

- **Pair Activities:** These activities are designed to guide you through tackling more challenging problems, or explore a concept we have been discussing in class. One submission per pair at the end of your tutorial, with the best 5 of 6 tutorials counted towards your course grade.
- **Quizzes:** Independent, closed-book quizzes. Any aid sheet information will be provided in advance of the quiz.

Midterm & Final Exam: **NOTE: Due to space and scheduling, please budget for up to a 15 minute delay in start and end times**. Assessment information will be posted on Quercus approximately 1 week before the test/exam, including information about allowable aids. Both the midterm and exam are independent, closed-book assessments. Any legitimate scheduling conflicts with the midterm must be submitted online through the Accommodation Request Form as soon as you are aware, and **no later than 2 weeks before** your scheduled midterm. Accommodations cannot be provided for late notice of time conflicts.

Pre- and Post- Survey: These are opportunities to earn bonus grades by completing a pre- and post- course survey. These are optional. Course grades with bonus marks are capped at 100%.

Calculators: Only non-programmable calculators are permitted in our course during all in-person assessments. Scientific calculators that cannot be programmed are permitted. Refer to Table 1 below for examples of permitted and not permitted calculators.

Missed Work: If you missed any in-person work due to legitimate reasons (e.g., injury, illness, or other exceptional circumstances), please submit an Accommodation Request Form and upload the required documentation within 1 week following the missed assessment or by the following Thursday for the midterm. For documented missed work:

- Missed tutorials activities: Up to two (2) missed tutorial activities with sufficient documentation will be accommodated. The first missed tutorial activity will be counted towards the lowest tutorial grade to be dropped (best 5 out of 6 scheme). The second missed tutorial activity will be reweighed among the remaining 4 tutorial activities.

Table 1: Examples of Calculators

Brand	Permitted	Not Permitted
-	Basic solar calculators	ALL graphing calculators
Casio	fx-300ES, fx-991CW	fx-9750GIII, fx-CG500
Sharp	Scientific calculator line (e.g., EL5**)	–
Texas (TI)	Line of scientific & financial calculators	ALL graphing calculators

- Missed midterm: A make-up midterm will be scheduled separately for students who missed the midterm with documentation. If you miss both the midterm and the make-up midterm for legitimate reasons and submit sufficient documentation for accommodation for both tests through the Accommodation Request Form by the deadline, the weight of your midterm will be shifted to your final exam. Otherwise, your midterm grade will be recorded as a 0%
- Missed quiz: Up to one (1) missed quiz with sufficient documentation. The quiz weight will be redistributed among remaining two quizzes.

Reread Requests: Marking schemes/solutions will be provided for all assessments except the final exam. Students are required to review these before requesting a reread. If you still have concerns about your grading, complete the Reread Request Form **no later than 1 week** after the assessment and solution have been released back to you. Students are expected to provide rational justifications with specific reference to the grading scheme and maintain professional conduct in the request. Requests after this period, made without justification or reviewing the provided solutions, or made in any other form will not be considered.

Communication Guidelines: As our course is expected to support nearly 1200 students, we will need to streamline our methods of communication to best support as many students as possible. We ask that students respect and follow the guidelines below regarding common email queries:

Query	Mode of Communication
Course Content Related	Discussion boards, instructor and/or TA office hours.
Missed Tutorial/Quiz/Midterm	Complete and submit Accommodation Request Form within 1 week of the missed assessment.
About Grading	Fill out the Reread Request Form within 1 week when grades and solutions are posted.
Personal Course Progress	Visit instructor office hours or course email sta237@course.utoronto.ca.
External Resources	Course email sta237@course.utoronto.ca.

Accessibility Services: Students with diverse learning styles and needs are welcome in this course. If you have an acute or ongoing disability issue or accommodation need, you should register with Accessibility Services (AS) at the beginning of the academic year by visiting here. Without registration, you will not be able to verify your situation with your instructors, and instructors

will not be advised about your accommodation needs. AS will assess your situation, develop an accommodation plan with you, and support you in requesting accommodation for your course work. Remember that the process of accommodation is private: AS will not share details of your needs or condition with any instructor, and your instructors will not reveal that you are registered with AS.

If an absence extends beyond 10 consecutive days, or if you have a non-medical personal situation preventing you from completing your academic work, you must connect with your College Registrar. They can provide advice and assistance connecting with your instructors on your behalf. If you get a concussion, break your hand, or suffer some other acute injury, you should register with Accessibility Services as soon as possible.

Academic Integrity: All students, faculty and staff are expected to follow the University's guidelines and policies on academic integrity. For students, this means following the standards of academic honesty when collaborating with fellow students, and writing tests and exams. Ensure that the work you submit for grading represents your own honest efforts. Plagiarism is a serious offence that can result in sanctions. Speak to the instructor for advice on anything that you find unclear. To learn more about how to cite and use source material appropriately and for other writing support, see the U of T writing support website at http://www.writing.utoronto.ca. Consult the Code of Behaviour on Academic Matters for a complete outline of the University's policy and expectations. For more information, please see https://www.artsci.utoronto.ca/current/academic-advising-and-support/student-academic-integrity and http://academicintegrity.utoronto.ca.

Potential offences include, but are not limited to:

- Obtaining or providing unauthorized assistance on any test/quiz/tutorial including:
    - working in groups on individual and independent assessments, including giving hints to the answer
    - using generative AI (e.g., chatGPT, deepseek) to assist/aid in, or complete any graded work unless explicitly permitted
    - researching/searching for inspiration, hints, or answers to any graded work
    - posting any active assessment questions on discussion boards/private tutoring companies (such as EZ 4.0) for hints or solutions
    - sharing any active assessment questions with students in other sections
    - collaborating with members outside of your assigned groups (e.g. in tutorials)
    - plagiarizing by passing off someone's work or ideas as your own
    - distributing course materials to anyone or any organization, whether for monetary gain or not
- Lending your work to a classmate who submits it as their own with or without your permission

The University of Toronto treats cases of academic misconduct very seriously. All suspected cases of academic dishonesty will be investigated following the procedures outlined in the Code. The consequences for academic misconduct can be severe, including a failure in the course and a notation on your transcript. **If you have any questions about what is or is not permitted in this course, please do not hesitate to contact the course coordinator.** If you are experiencing personal challenges that are having an impact on your academic work, please reach out to the instructor or seek the advice of your college registrar.

Table 2: Tutorial Schedule by Section Groups

Week	**Mon/Wed LEC Sections**	**Tues/Thurs LEC Sections**
2: Sept. 10/11	Tutorial 0	Tutorial 0
3: Sept. 17/18	Tutorial 1	Tutorial 1
4: Sept. 24/25	Quiz 1	Quiz 1
5: Oct. 1/2	Tutorial 2	Tutorial 2
6: Oct. 8/9	Tutorial 3	Quiz 2
7: Oct. 15/16	Quiz 2	Tutorial 3
8: Oct. 22/23	Tutorial 4	Midterm Prep
9: Nov. 5/6	Midterm Prep	Tutorial 4
10: Nov. 12/13	Tutorial 5	Tutorial 5
11: Nov. 19/20	Tutorial 6	Quiz 3
12: Nov. 26/27	Quiz 3	Tutorial 6