



Faculty of Arts and Science Course Syllabus
Department of Statistical Sciences
Probability and Statistics 1
STA257H1-Fall 2021

Instructor:	Tharshanna Nadarajah
Email:	tharshanna.nadarajah@utoronto.ca
Synchronous Classes:	LEC0101: Mon. 3-5pm and Wed. 3-4pm EST LEC5101: Wed. 5-8pm EST
Drop-in hours:	LEC0101: Wed. 3-4pm EST (from Sept. 13th) LEC5101: Wed. 7-8pm EST (from Sept. 13th)
Teaching Assistants:	Names and office times will be posted later in our website

1 Course Content

This course will be offered entirely online, with a combination of synchronous lectures and asynchronous video lectures. The majority of the course content will be uploaded to Quercus as pre-recorded videos to be watched prior to the synchronous meetings. Further, any important announcements will also be posted in Quercus. Please make sure to check it regularly so you don't miss anything.

- <https://q.utoronto.ca/courses/236049>
- The synchronous classes will occur through Zoom and will focus on additional materials, worked examples and demonstration of concepts using the R statistical software.
- This is a fully online course. Live class sessions, tests, and quizzes will be held via Quercus. Students are responsible for ensuring that they have reliable internet.

Course materials provided on Quercus are for the use of students currently enrolled in this course only. Sharing (e.g., posting, providing, selling) course materials with anyone outside of the course is considered unauthorized use.

Lectures:

- We will use a mix of synchronous learning and asynchronous learning.
- Lecture slides, along with asynchronous video lectures, will be uploaded weekly.
- We will use the scheduled lecture times for problem-solving and live question-answer(QA) sessions followed by a 30-45 minutes quiz.
- Tutorials are held on Wednesdays 4-5 pm EST and 8-9 pm. Each week during the tutorial, you will be given problem-solving or R-related problems to work on with the help of the TA or apply the concepts learned in the lectures. Make sure to follow any instructions that your instructor has written and leave enough extra time before the due date to submit your work successfully.

2 Course Description

A mathematically rigorous introduction to probability, with applications chosen to introduce concepts of statistical inference. This course serves as the necessary foundation for many of the core statistics courses that follow. Broadly, this course will cover the following: probability models, random variables, discrete and continuous distributions, multivariate models, large-sample limiting results, some statistical applications.

Course Prerequisites

You must be taking, or have taken and passed, both a second year calculus course and a second year linear algebra course (see Academic Calendar for more details).

Course Objectives/Learning Outcomes

Become acquainted with mathematical statistics, with an emphasis on probability theory.

3 Course Materials

Textbook:

Probability with Applications in Engineering, Science and Technology, 2nd Edition
by Matthew A. Carlton and Jay L. Devore.
ISBN 978-3-319-52400-9
ISBN 978-3-319-52401-6 (eBook)

It is freely available as an e-book through your University of Toronto Library account. We will be covering the first four chapters.

Statistical Software:

We will be using RStudio for performing statistical analyses. R is a free software that can either be downloaded onto your personal computer or used in the cloud. If you choose to work with R on your personal computer, then installation will be a two step process:

- The base R framework is available for download at <http://cran.r-project.org> for Windows, Mac and Linux operating systems.
- Next, RStudio is a good integrated development environment to R (makes it simpler to work in R) and can also be downloaded for free at <https://www.rstudio.com/products/rstudio/download>.

For some tutorial, it would be required that you submit a reproducible RMarkdown file with your codes and a knitted RMarkdown document as your data analysis report. To learn more about RMarkdown, refer to <https://rmarkdown.rstudio.com/index.html>.

4 Course Assessment

STA257H1-F (LEC0101)		
Component	Weight	Date
Participation	5%	Approximately weekly
Quizzes	20%	8 quizzes, approximately weekly
Tutorials	15%	10 Tutorials, approximately weekly
Test 1	15%	LEC0101: Oct. 18th / LEC5101: Oct. 20th
Test 2	15%	LEC0101: Nov. 22nd / LEC5101: Nov. 24th
Final Exam	30%	Schedule by FAS

Students must complete the final exam, at least one test, six (6) tutorials and six (6) quizzes in order to pass this course.

Participation Marks:

We will have two participation components: the Piazza and in-class participation polls. All students must participate in the Piazza for class discussion worth 3% of the final grade. And also participates in the in-class polls, then you will receive an additional 2% in participation marks, worth a total of 5% participation in your final grade.

- **Piazza for class discussion:** In each class discussion, you are expected to post a question from the associated lesson or reply to questions/responses of one of your classmates. In general, marks will only be awarded for posts on course content. Your final participation mark will be calculated as follows:

Points	No of posts
0%	no posts
1%	8 posts
2%	12 posts
3%	20 posts

- **In-class participation:** Poll questions will be posed using the Poll Everywhere software. See Quercus for instructions on how to join. You will receive participation credit for each question answered (correctness does not matter). If you answer > 60% of all questions, you will receive the full 2% for the in-class participation. Otherwise, you'll receive 1% for answering 30-60% of polls, and 0% for answering <0-30% of polls.

Weekly Quizzes:

There will be 8 “weekly” quizzes throughout the term, which will occur in the last 30-45 minutes of the synchronous lecture time (except for the first two weeks and weeks with a term test) in Quercus:

- LEC0101: Each Monday in class
- LEC5101: Each Wednesday in class

We will take the best seven quiz marks and drop the worst quiz in the calculation of your overall quiz mark. We will not be making any accommodations for missed quizzes, and these will receive a mark of 0, but we will drop one quiz as part of the worst quiz marks. Therefore, you may miss one quiz without penalty. There are no make-up quizzes, so they will be given zero beyond the one that will be dropped.

Weekly Tutorials:

- Each Wednesday at 4-5pm EST
- Each Wednesday at 8-9pm EST

There will also be 10 Tutorial Assignments that will collectively contribute 15% to your mark. We will take the best 8 tutorial marks and drop the worst two tutorials to calculate your overall tutorial mark. Because only the best 8 tutorial marks will be counted, we will not be making any accommodations for the missed tutorial. These will receive a mark of 0, but we will drop two tutorials as part of the worst tutorial marks. Therefore, you may miss two tutorials without penalty. Late tutorial assignments will be accepted but subject to a 20% penalty per day late. Late submissions will not be allowed beyond 48 hours of the due date.

Tutorial assignments and quizzes can be found under Quercus Assignments in the navigation bar or through the link provided in that weekly module and will only be available during the designated time. Tutorial assignments and quizzes must be done individually.

Term Tests:

Term Tests: There will be 2 term tests during the term, up to 90 minutes long each, worth a total of 30% (i.e. 15% each). These will be online and available through Quercus. The dates of the 2 term tests are:

- Test 1-LEC0101: Oct. 18th at 3-4.30pm EST
- Test 1-LEC5101: Oct. 20th at 5-6.30pm EST
- Test 2-LEC0101: Nov. 22nd at 3-4.30pm EST
- Test 2-LEC5101: Nov. 24th at 5-6.30pm EST

Final Assessment:

Scheduled by FAS during the final assessment period (Dec. 10-21), the final assessment (worth 30%) will be an online assessment that will cover all material throughout the term. Exact details of the format of this assessment will be communicated at a later date.

5 Course Policies

1. This term we will be using Piazza for class discussion. The system is highly catered to getting you help fast and efficiently from classmates, the TA, and myself. Rather than emailing questions to the teaching staff, I encourage you to post your questions on Piazza. All questions about course material should be posted here or asked during Instructor/TA office hours. The instructor and TAs will monitor the board and will help answer questions, but students are encouraged to answer posts and help their fellow classmates. If you have any problems or feedback for the developers, email team@piazza.com. Find our class signup link at: <https://piazza.com/utoronto.ca/fall2021/sta257h1flec0101>.
2. Instructor and TAs will hold office hours through Zoom. The office hour schedule and Zoom link will be posted on Quercus. It is recommended that you visit during office hours whenever you have a question about the material. It is more important than ever in an online class to have material clarified as quickly as possible. Please post your questions at least three hours before the due date. Don't wait until the last minute to ask your questions!
3. E-mail is appropriate for emergencies or private matters. Use your ***utoronto.ca** account. You will not get a response if you email from other email addresses. Write a proper email, including the course number STA257H1-L0101 or STA257H1-L5101 in the subject line. The email should contain the addressee, your official name and UTORid for identification purposes. Please do not Email your instructor asking questions like "how to do problem 2 in tutorial assignment 1?", "when is Test 1?", "how to submit the quiz?". E-mails with questions like these will be ignored and should be posted on the Quercus discussion board. Otherwise, students should expect a reply within two business days.

4. You must not copy mathematical derivations, computer output and input, or written descriptions from anyone or anywhere else, without reporting the source within your work. This includes copying from solutions provided to previous semesters of this course. Please read the UofT Policy on Cheating and Plagiarism, and don't plagiarize. If I confirmed any accused of cheating, the students involved would receive a 0% mark.
5. You should join the Zoom meeting to write your quizzes and tests for this course at the scheduled class time. You must have a working webcam. The Zoom link will be available under weekly Quercus modules.
6. Please be cautious if you are trying to upload your answers for your tutorial/quiz/test at the last minute, you might miss the deadline. There will be a penalty for those who submit up to 30 minutes late and tutorial/quiz/test submitted more than 30 minutes late will not be accepted.

Penalty	# of minutes late
5%	1-5
10%	6-10
20%	11-15
30%	16-20
40%	21-25
50%	> 26-30
100%	> 30

7. This course follows the University of Toronto's Policies on missed assessments and requires students to complete the Absence Declaration on ACORN if an assessment is missed due to illness. In addition to completing this absence declaration form, you must report your absence to the instructor by email within 48 hours of the assessment due date to request accommodation. Emails after this deadline will not be accepted. Other reasons for missing an assessment will require prior approval by your instructor. If approval is not granted in advance for non-medical reasons then 0% will be recorded for the missed tutorial/quiz/test. Note: If you submit an assessment, it will be assumed that you deemed yourself fit enough to do so and your grade will stand as calculated. No accommodation will be made based on reports of medical, physical, or emotional distress after the fact.
8. Any requests to have marked tutorial/quiz/test re-evaluated must be made in writing by email to regradesta257@gmail.com within 48 hours after the grades are released. The request must contain a justification for consideration. Be sure to include your official name and student number for identification purposes. The teaching team should process regrading requests within two weeks of the requested date. **Please note that the teaching team reserves the right to review a part of the whole of your assignment. Hence, your marks may go down, up or remain the same.**

6 Academic Integrity

Academic integrity Academic integrity is fundamental to learning and scholarship at the University of Toronto. Participating honestly, respectfully, responsibly, and fairly in this academic community ensures that the University of Toronto degree that you earn will be valued as a true indication of your individual academic achievement, and will continue to receive the respect and recognition it deserves. Familiarize yourself with the University of Toronto's Code of Behaviour on Academic Matters. **Students are not allowed to share quiz or test questions with anyone (not even with other students taking this course). Sharing questions and submitting works completed by someone else is a huge academic offence. Please stay away from this type of behaviors.**

7 Accessibility Needs

The University of Toronto offers academic accommodations for students with disabilities. If you require accommodations, or have any accessibility concerns about the course, the classroom, or course materials, please contact Accessibility Services as soon as possible: accessibility.services@utoronto.ca or <http://accessibility.utoronto.ca>.

8 CIA UAP Accreditation Program Policy:

Canadian Institute of Actuaries (CIA)'s University Accreditation Program (UAP) STAT257 is an accredited course under the UAP program. The minimum grade needed to apply for an exemption is 77. For detailed information on UAP, please visit the following webpages:

- University Accreditation Program Description
- List of accredited courses offered by University of Toronto
- How to apply for CIA exemption credits

Note: The CIA will grant credits to students for SOA/CAS examinations based on the achievement of the minimum Grade towards Associateship (ACIA) and Fellowship (FCIA) in the CIA. At the time of this agreement, CIA credits are recognized by the following actuarial organizations towards their respective designations:

Casualty Actuarial Society (CAS): ACAS, FCAS

UK Institute and Faculty of Actuaries (IFoA): FIA, AIA

Institute of Actuaries of Australia (IAA): AIAA, FIAA

Actuarial Society of South Africa (ASSA): AMASSA, FASSA

American Academy of Actuaries (AAA): MAAA

The CIA does not guarantee that credits granted to students under the CIA UAP will be recognized by any other actuarial organizations towards their actuarial designations.

9 Schedule:

The weekly content covers Chapters 1-4 in the textbook. The instructor reserves the right to modify this schedule as needed due to time constraints.

Week	Content	Due Dates
Sept. 13-17	No Quiz No Tutorial	
Sept. 20-24	No Quiz No Tutorial	
Sept. 27-Oct. 1	Class Quiz 1 Tutorial 1	LEC0101:Sept. 27th/LEC5101:Sept. 29th Sept. 29th
Oct. 4-8	Class Quiz 2 Tutorial 2	LEC0101:Oct. 4th/LEC5101:Oct. 6th Oct. 6th
Oct. 11-15	Class Quiz 3 Tutorial 3	LEC0101:Oct. 13th/LEC5101:Oct. 13th Oct. 13th
Oct. 18-22	Test 1 Tutorial 4	LEC0101:Oct. 18th/LEC5101:Oct. 20th Oct. 20th
Oct. 25-29	Class Quiz 4 Tutorial 5	LEC0101:Oct. 25th/LEC5101:Oct. 27th Oct. 27th
Nov. 1-5	Class Quiz 5 Tutorial 6	LEC0101:Nov. 1st/LEC5101:Nov. 3rd Nov. 3rd
Nov. 8-12	Fall Reading Week	No Classes
Nov. 15-19	Class Quiz 6 Tutorial 7	LEC0101:Nov. 15th/LEC5101:Nov. 17th Nov. 17th
Nov. 22-26	Test 2 Tutorial 8	LEC0101:Nov. 22nd/LEC5101:Nov. 24th Nov. 24th
Nov. 29-Dec. 3rd	Class Quiz 7 Tutorial 9	LEC0101:Nov. 29th/LEC5101:Dec. 1st Dec. 1st
Dec. 6-8	Class Quiz 8 Tutorial 10	LEC0101:Dec. 6th/LEC5101:Dec. 8th Dec. 8th

All information in the course outline are approximate and subject to change. All the announcements about the changes will be made via Quercus which students are expected to check regularly.