UNIVERSITY OF TORONTO
DEPARTMENT OF STATISTICAL SCIENCES

STA220H1 F (The Practice of Statistics I), Summer 2022

1 Course Description

Syllabus: An introductory course in statistical concepts and methods, emphasizing exploratory data analysis for univariate and bivariate data, sampling and experimental designs, basic probability models, estimation and tests of hypothesis in one-sample and comparative two-sample studies. A statistical computing package is used but no prior computing experience is assumed. Note: STA220H1 does not count as a distribution requirement course.

Important announcements, class problem sets, modules, and other course information will be posted on the course web page of Quercus. It is an online platform to learn this course effectively.

Prerequisite: Grade 12 Mathematics and one University course in the physical, social, or life sciences
Exclusion: ECO220Y1/ ECO227Y1/ GGR270H1/ PSY201H1/ SOC300Y1/ STA261H1/ STA238H1/ STA248H1/ STA288H1/ EEB225H1/ STAB22H3/ STAB57H3/ STA215H5/ STA220H5/ ECO220Y5/ ECO227Y5/ STA258H5/ STA260H5

Breadth Requirements: The Physical and Mathematical Universes (5)

2 Course Schedule

We will use the scheduled lecture times Tuesdays 10am - 1pm and Thursdays 10am - 1pm. Lectures will be delivered in-person in Room: **BA 1160** (`https://map.utoronto.ca/?id=1809#!m/494470`)

3 Instructor

Selvakkadunko Selvaratnam (Selva)
Email for this course: sta220@utoronto.ca
PhD in Statistics, Memorial University of Newfoundland
Assistant Professor(teaching stream), Department of Statistical Sciences, University of Toronto.

4 Office Hours:

Will be posted on Quercus, held via Microsoft Teams or Zoom and the link will be available on Quercus.

5 Textbooks & Supplementary Learning Resources

There is no required course textbook. We will follow the Modules found here:
`https://sta220.utstat.utoronto.ca/`

All course materials can be found at the above link, and in the lectures, tutorials, and notes on Quercus. The pre-lecture videos at the above link were created a few years ago by past instructors for this course. It is beneficial to your learning to process the material in different contexts and multiple times, so we also recommend the following two textbooks:

(1) OpenIntro Statistics 4th Ed. Diez, D. Barr, C. D., and Cetinkaya- Rundel Mine.

   (a) Free and available to download here: `https://leanpub.com/os` (4th edition)

   (b) This is an excellent textbook that is less conversational but contains clearly explained concepts. A nice feature of the text and website is that many of the examples and vignettes used to illustrate the concepts are based on real applications of statistics.

(2) Stats: Data and Models 4th Canadian edition, by Richard D. De Veaux, Paul F. Velleman, David E. Bock, Augustin M. Vukov, and Augustine C.M. Wong. 4th ed.

   (a) This textbook is available at the University of Toronto bookstore. It is written in a conversational style. Most concepts are clearly explained and there are lots of fun and interesting vignettes that illustrate statistical concepts.

6 Course Structure

Quercus Page: All lecture slides, video recordings, quizzes/tests/assignments, and other course materials will be posted on Quercus under Modules. Course materials provided on Quercus are for the use of students currently enrolled in this course only. Distributing course materials to anyone outside of the course is considered unauthorized use.

Assignments: Assignments will be submitted through Crowdmark.

- Assignments must be submitted on Crowdmark. Assignments submitted in other ways (e.g. over email) will not be accepted. There are no make-up assignments.
- A penalty of 5% for every hour will be provided for a late assignment. For example, if an assignment submitted 10 minutes after the due date and time, there would be a penalty of 5% on the assignment grade (i.e. 90% $\rightarrow$ 85%).
- Students should upload each question of the assignment on the appropriate section of Crowdmark by 1700 (5:00pm) on their respective due dates.

Class activities: Marks will be assigned for class activities. You should submit your works for class activities on Crowdmark before 9pm on that day of class. The instructions will be given on Crowdmark for each week.

Final Examination: The final exam is cumulative, 3 hours in duration and will be scheduled by the Faculty of Arts and Science during the final assessment period (i.e., Jun 22-27).

7 EVALUATION

The course mark will be computed based on the following method,

Types	Weight of total marks	Date
Assignment 1	7%	Tuesday, May 24 at 5.00pm
Assignment 2	7%	Friday, June 10 at 5.00pm
Assignment 3	7%	Monday, June 20 at 5.00pm
Class Activities (Top 7 of 9 class activities)	($7 \times 2\% =$) 14%	During lectures
Midterm Exam	25%	Thursday, May 26, 10am - noon in class
Final Exam	40%	TBD, will be held during the Final Examination Period

8 ASSIGNED LEARNING THROUGH RECORDED VIDEOS

The assigned works that are watching and learning modules on `https://sta220.utstat.utoronto.ca/` and their dues are listed below.

Date		Topics	
1	May 9	Module 1	Summarizing Data
2	May 11	Module 2	Probability: Events
3	May 16	Module 3	Probability: Random Variables
4	May 18	Module 4	Sampling Distributions
5	May 23	Module 5	Data Collection
7	May 30	Module 6	Confidence Intervals Part 1
8	June 1	Module 7	Confidence Intervals Part 2
9	June 6	Module 8	The Process of Statistical Tests
10	June 8	Module 9	The Effective Use of Statistical Tests
11	June 13	Module 10	Comparing Two Groups
12	June 15	Module 11	Simple Linear Regression

9 TENTATIVE LECTURE GUIDE

Date		Topics	
1	May 10	Module 1	Summarizing Data
2	May 12	Module 2	Probability: Events
3	May 17	Module 3	Probability: Random Variables
4	May 19	Module 4	Sampling Distributions
5	May 24	Module 5	Data Collection
6	May 26	Midterm exam	
7	May 31	Module 6	Confidence Intervals Part 1
8	June 2	Module 7	Confidence Intervals Part 2
9	June 7	Module 8	The Process of Statistical Tests
10	June 9	Module 9	The Effective Use of Statistical Tests
11	June 14	Module 10	Comparing Two Groups
12	June 16	Module 11	Simple Linear Regression

10 Missed components

Midterm Exam: There will be no make-up midterm exam. If you miss the midterm exam, then complete the absence declaration on ACORN instead of emailing me. If you complete the absence declaration, the weight of your missed midterm will be shifted to your final exam (i.e., your final will be worth 65% instead of 40%).

Assignments: Assignments must be submitted through Crowdmark by the deadlines and that there are no extensions or make-ups for assignments. Students must complete the absence declaration on ACORN instead of emailing me within one week of the assignment deadline to request accommodation for a missed assignment, in which case, its weight will be distributed across 3% your midterm and 4% your final exam.

At most one missed assessment (either an assignment or a midterm) can be added to the percentage of the final exam.

Class activities: Top 7 of 9 class activities will be recorded.

Final exam: If students miss the final exam, they will need to submit a petition for a deferred final exam through the Faculty of Arts and Science (see `https://www.artsci.utoronto.ca/current/faculty-registrar/petitions/deferred-exams`).

11 Regrade Policy

Midterm or assignments or class activities: Firstly, you should review Marking schemes/solutions before requesting a reread. If you still have concerns about your grading, complete "Term Assessment Regrade form" on Quercus and send it to me through email no later than 1 week after an assessment has been released back to you. Late requests will not be accepted. Note that your grade may increase, stay the same, or it may go down based on the regrade.

Final examination view and regrade: Details can be found in `https://www.artsci.utoronto.ca/current/faculty-registrar/exams-assessments/exam-viewing`
and
`https://www.artsci.utoronto.ca/current/faculty-registrar/exams-assessments/exam-recheck-or-reread`

12 Important Dates

First Day of Classes	May 9, 2022
Last day to drop F courses	June 6, 2022
Last Day of Classes	June 20, 2022
Study day	June 21, 2022
Final Exam Periods	June 22 - 27, 2022

13 Course Conduct

- **Email:** Any administrative questions regarding the course can be addressed by me via email (sta220@utoronto.ca). Questions regarding course material and concepts should be addressed in office hours/Piazza.

  All students are given a UToronto email address. This email address is available to the course instructor who may distribute relevant course information or announcements via email. The University regularly communicates with students via email. Check your UToronto email regularly or forward it to an email address that you check regularly. If you use email to communicate with your instructor, you must use your UToronto account. This is to protect your privacy: if a non-UToronto account is used, there is no way for the instructor to verify the identity of the sender.

- **Programming Languages:** RStudio (free download from `https://www.rstudio.com/`) Statistical Software will be regularly used. Also, you can use a cloud-based version of RStudio at U of T by using the link: `https://jupyter.utoronto.ca/`. Instructions using RStudio will be provided during lecture sessions, and initial codes will be provided where appropriate. By the end of the course, you are expected to apply RStudio to solve problems.

- **Recording and/or Distribution of Course Materials:** Audio or video recording, digital or otherwise, of lectures, 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 author(s).

14 Accessibility Services

The University of Toronto provides accommodations through accessibility services to students with diverse learning styles and needs. If you have a disability or health consideration that may require accommodations, please feel free to reach out to Accessibility Services at 416-978-8060 or through accessibility.utoronto.ca.

15 Student responsibilities

Academic Integrity: 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 Matter. Potential offences including, but not limited to:

- Obtaining or providing unauthorized assistance on any exam/assignment including:
  - (i) working in groups on individual assessments, including giving hints to the answer!
  - (ii) having someone rewrite, edit, or add material to your independent work
  - (iii) researching for inspiration, hints, or answers to any graded problem
  - (iv) posting active assessment questions on discussion boards/private tutoring companies for hints/solutions
- 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 instructor. If you are experiencing personal challenges that are having an impact on your academic work, please speak to the instructor or seek the advice of your college registrar.