

UNIVERSITY OF TORONTO
DEPARTMENT OF STATISTICAL SCIENCES

STA220H1 S LEC0101/LEC5101 (STA220H1: The Practice of Statistics I),
Winter 2022

All listed times in this document are in local Toronto time. If you are in a different time zone, you are responsible for any time conversions.

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, tutorial 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 Mondays 10am - noon for LEC0101 and Wednesdays 6 - 8 pm for LEC5101. Lectures will be delivered online and tutorials will be offered in-person - Wednesdays 10 - 11am for LEC0101 and Wednesdays 8 - 9pm for LEC5101. However, we will switch these sessions to online for a temporary period based on advice of University of Toronto. These announcements will be regularly posted on the course web page of Quercus.

All assessments will be completed through online. Virtual lectures will be held via Microsoft Teams and this link will be posted on Quercus page.

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 material 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.

- All assignments must be submitted on Crowdmark to pass this course. If a student fails to submit his/her assignment, the student will get 0 points on the assignment. There are no deferred assignment.
- 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.

Quizzes: will be held during lecture sessions. The duration of each quiz will be 45 minutes. Each quiz will be started at the end of lecture session.

Tutorials: We will use the scheduled tutorial times Wednesdays 10 - 11am for LEC0101 and Wednesdays 8 - 9pm for LEC5101. Tutorials will be started on 26 January 2022. Marks will be assigned for tutorial activities. You should submit your works for tutorial activities on Crowdmark before deadline. The instructions will be given on Crowdmark for each week.

7 EVALUATION

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

Types	Weight of total marks	Date
Assignment 1	6.5%	Friday, February 11 at 5.00pm
Assignment 2	7%	Friday, March 18 at 5.00pm
Assignment 3	7%	Friday, April 8 at 5.00pm
Quiz 1	4%	January 24, 11:10am - 11:55am for LEC0101 January 26, 7:10pm - 7:55pm for LEC5101
Quiz 2	4%	March 7, 11:10am - 11:55am for LEC0101 March 9, 7:10pm - 7:55pm for LEC5101
Quiz 3	4%	March 21, 11:10am - 11:55am for LEC0101 March 23, 7:10pm - 7:55pm for LEC5101
Quiz 4	4%	April 4, 11:10am - 11:55am for LEC0101 April 6, 7:10pm - 7:55pm for LEC5101
Tutorial Activities (9)	$(9 \times 1.5\% =) 13.5\%$	During tutorial sessions
Midterm Exam	20%	Monday, February 14, 10am - noon for LEC0101 Wednesday, February 16, 6 - 8pm for LEC5101
Final Exam	30%	TBD, will be held during the Final Examination Period

8 TENTATIVE LECTURE GUIDE

Week of		Topics	
1	Jan. 10	Module 1	Summarizing Data
2	Jan. 17	Module 2	Probability: Events
3	Jan. 24	Module 3	Probability: Random Variables
4	Jan. 31	Module 4	Sampling Distributions
5	Feb. 7	Module 5	Data Collection
6	Feb. 14	Midterm exam	
7	Feb. 21	Reading week	
8	Feb. 28	Module 6	Confidence Intervals Part 1
9	Mar. 7	Module 7	Confidence Intervals Part 2
10	Mar. 14	Module 8	The Process of Statistical Tests
11	Mar. 21	Module 9	The Effective Use of Statistical Tests
12	Mar. 28	Module 10	Comparing Two Groups
13	Apr. 4	Module 11	Simple Linear Regression

9 MISSED COMPONENTS

Term Exams and Assignments: There are no deferred term exams or term assignments. Final exam will cover the entire course. There will be no make-up midterm exam or assignments or quizzes or tutorials. Students who miss any term exams or tutorial activities for a valid reason, will have the percentage of this assessment added to the percentage of the final exam. **At most one missed assessment can be added to the percentage of the final exam.** But, you should email to me within one week from the date of the assessment. **All assignments must be submitted on Crowdmark to pass this course.** If a student fails to submit his/her assignment, the student will get 0 points to the assignment.

10 REGRADE POLICY

All assessments except the final assessment: 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.

Final examination: You can view your final exam when you book an appointment with the Statistics Undergraduate Office. Available dates will be informed at the end of the final exam. To request a regrade for your final exam, please carefully read and complete the “DoSS Regrade Request Form” on Quercus and submit it to the Undergraduate Statistics Office at ug.statistics@utoronto.ca. The deadline to submit your request will be announced at the end of the final exam on Quercus.

11 IMPORTANT DATES

First Day of Classes	January 10
Last day to enrol in S courses	January 23
Fall Reading Week	February 22 - 25
Last Day of Classes	April 8
Final Exam Periods	April 11 - 29

12 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, tutorials, 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 author(s).

13 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.

14 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 include, but are not limited to:

- Obtaining or providing unauthorized assistance on any exam/quiz/assignment/tutorial 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.