THE PRACTICE OF STATISTICS I
STA 220H1F – Fall 2014

Section	Class Time (Location)	Instructor	
L5101	T7-10 (BA1160)	**Olga Chilina**	
		E-mail	olgac@utstat.toronto.edu
		Office	SS6002
		Phone	416-978-4327
L0101	T3, R3-5 (ES1050)	**Nathan Taback (Course Coordinator)**	
L0201 (Environmental Sciences)	M10-12 (SS2118) W10 (RW117)	E-mail	nathan.taback@utoronto.ca
		Office	SS6007
		Phone	416-946-7591
L0301 (Health and Life Sciences)	T11, R11-1 (TBD)	**Alison Gibbs**	
		E-mail	alison.gibbs@utoronto.ca
		Office	SS5016A
		Phone	416-946-7589

How will the course operate?
See the document titled "Course flow".

Course content
This course will provide an intuitive introduction to fundamental statistical concepts and reasoning. The course will cover: methods of data collection; constructing effective graphical and numerical displays; estimating and describing the natural variability in data; and the key ideas in how statistical tests can be used to separate significant differences from those that are only a reflection of the natural variability in data.

The learning objectives of the course are:

- Understand the ideas, principles, and considerations that are common to all statistical methods,
- Develop a statistical toolbox of some methods for the collection, analysis, and display of data,
- Identify appropriate uses of the statistical methods, including their strengths and limitations, and
- Develop statistical literacy, including the ability to recognize the importance of data in decision-making and understand the social and scholarly applications of statistics.

Topics to be covered

Topic	Description
A first look at data	Summary statistics and graphical displays for a single categorical or quantitative variable and for relationships between two variables.
Collecting Data	Sampling. Observational studies and experiments. The effect of confounding and concluding causation.
Probability	Probability models, the normal distribution, the Law of Large Numbers, the Central Limit Theorem, sampling distributions.
Confidence Intervals	Confidence intervals for proportions and means.
Statistical Tests	Tests of significance for proportions and means.
Two Samples	Tests of significance and confidence intervals for proportions and means in the two-sample case.
Linear Regression	Method of least squares, evaluating model fit, the effects of outliers and influential observations.

Textbook
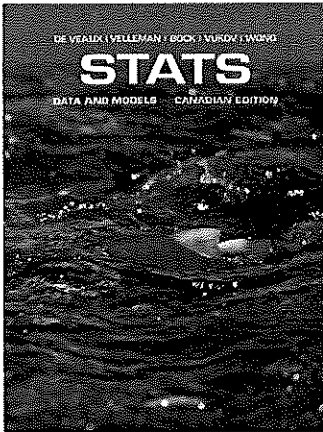
The required textbook is: Stats: Data and Models, first Canadian edition, by Richard D. De Veaux, Paul F. Velleman, David E. Bock, Augustin M. Vukov, and Augustine C.M. Wong.

This textbook is available at the University of Toronto bookstore. It is extremely easy to read and is written in a conversational style.

Calculators

You will need a calculator. Any calculator that has logarithmic functions will be sufficient. Calculators on phones or other devices equipped to communicate with the outside world (for example, through the internet or cellular or satellite phone networks) will not be permitted during the term test and the final exam.

Computing

We will use R for all examples. R is freely available for download at http://cran.r-project.org for Windows, Mac, and Linux operating systems. For the test and exam, you will need to know how to interpret output from R. You will not need to know R commands. Those of you who would like to learn how to do the analysis yourself using R can watch the optional R videos (which show how to replicate the work done in the video lectures).

Piazza

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 the lecturers. Rather than emailing questions to the teaching staff, we encourage you to post your questions on Piazza.

Find our class page at: https://piazza.com/utoronto.ca/fall2014/sta220h1/home

Additional help

Need extra help with the coursework? Here are some options:

- For continued discussion and questions outside of class, try posting on the Piazza discussion forums (see above). The instructors will be monitoring them regularly.
- You can visit your instructor or the teaching assistants during their office hours.
- There is a drop-in Statistics Aid Centre in New College: Wetmore Hall 68A.

- E-mail should only be used for emergencies or personal matters..

Evaluation

	Weight	Date	Date/Time	Location
Weekly quizzes	15%	Sundays (except the week of the term test)	Submit by 23:59	Online (Portal)
Term test	35% /15%*	L0101 L0201 L0301 L5101	Oct. 23 3-5PM Oct. 20 10-12PM Oct. 23 11-1PM Oct. 21 7-9PM	EX100 HA401/HA403 EX200 SF2202/SF3202
Exam	50% / 70%*	Scheduled by Faculty of Arts and Science		

* If your exam mark is greater than your test mark, the exam weight will be 70% and the test weight will be 15%.

Weekly online quizzes
- By each Sunday at 23:59, you must complete an online quiz on The Portal.
- The weekly quiz will cover material in the videos to be watched that week.
- The quiz will consist of multiple choice and true/false questions, randomly chosen from a pool of questions.
- The number of questions will vary from week to week but the quizzes will be equally weighted.
- You will find out your score immediately and you can take the quiz as many times as you'd like up to the Sunday 23:59 deadline.
- Your final quiz score will be the highest score from all of your attempts. Note that you will get a different randomly generated quiz each time.

Term test and exam
The test will be written during class time but in a room other than the usual classroom.

Although the test and exam will place a very minor emphasis on formula, you are allowed a one-sided 8-1/2"x 11" (standard letter size) hand-written aid sheet on the term test and a two-sided hand-written aid sheet on the final exam.

You must bring your student identification to the term test and the final exam.

Missed Tests

- If a test is missed for a valid medical reason, you must submit the University of Toronto Verification of Student Illness or Injury form (http://www.illnessverification.utoronto.ca) to your instructor within one week of the test.
- The form will only be accepted as valid if the form is filled out according to the instructions on the form.
- The form must indicate that the degree of incapacitation on academic functioning is moderate, serious, or severe in order to be considered a valid medical reason for missing the term test. If the form indicates that the degree of incapacitation on academic functioning is negligible or mild then this will NOT be considered a valid medical reason.
- If a test is missed for a valid reason then the test weight will be shifted to the final exam. This means that your final exam will be worth 85% of your final grade. Otherwise, a student missing a term test will receive a grade of zero.
- Other reasons for missing a test will require prior approval by your instructor. If prior approval is not received for non-medical reasons then you will receive a term test grade of zero.

Marking concerns

Any requests to have marked work re-evaluated must be made in writing within two weeks of the date the work was returned to the class. The request must contain a justification for consideration.

How to communicate with your instructor

Questions about course material, such as,

- How do I do question 3.7 in the textbook?
- What is standard deviation?
- When is the midterm?

Should be posted on the discussion forums on Piazza. Questions can be posted anonymously (so that the author is anonymous to other students but not to the instructors), if desired.

If your communication is private, such as, I missed the test because I was ill, then e-mail your instructor. Use your utoronto.ca e-mail account to ensure that your message doesn't automatically go to a Junk folder and include your full name and student number.

Academic integrity

You are responsible for knowing the content of the University of Toronto's Code of Behaviour on Academic Matters at http://www.governingcouncil.utoronto.ca/policies/behaveac.htm. If you have any questions about what is or is not permitted in this course, please do not hesitate to contact your instructor.

Accessibility needs

The University of Toronto is committed to accessibility. If you require accommodations for a disability, or have any accessibility concerns about the course, the class room, or course materials, please contact Accessibility Services as soon as possible: accessibility.services@utoronto.ca or http://accessibility.utoronto.ca.

Your responsibilities

The classroom sessions for these sections of the course are designed to actively engage you in the course material. We hope you'll find them interesting, challenging, and fun, and an excellent opportunity to truly learn the material. In order for these sessions to be effective, coming prepared, by learning about the week's concepts through the videos or textbooks, is essential.