

STA 261, Winter 2018: Probability and Statistics II

Section L0101

Instructor:

Alex Stringer, Office: **TBA**

Email: alex [dot] stringer [at] mail [dot] utoronto [dot] ca

Lectures: Mondays 3-5 pm, Wednesdays 3-4 pm, MC102

Tutorials: Wednesdays 4-5 pm, Location **TBA**

Office Hours: Mondays 1-3 pm, **TBA**

Teaching Assistants: **TBA**

Course webpage: portal.utoronto.ca

Materials posted on the course website are strictly confidential, and for the use of students enrolled in the course only. Providing these materials to anyone not currently enrolled in the course is a serious academic offence. This will be strictly enforced this semester.

Marking Scheme:

- Quizzes: 10%
- Midterm: 40%
- Final: 50%

Quizzes

The quizzes will be held either in lecture or tutorial. The number and timing of quizzes will be determined at the sole discretion of the instructor. Reasonable notice will be given prior to each quiz. Your final grade for the quizzes will be determined by dropping your lowest marked quiz. As such, any missed quizzes will be assigned a grade of 0%, without exception for any reason.

Midterm

The midterm will be held as follows:

- Date: Monday, February 12th, 2018
- Time: 3:00 - 5:00 PM, during class hours
- Location: **TBA**

Assignments

Assignments will be provided approximately weekly. These are not to be handed in for grades, but are meant to provide ample opportunity for practice and learning of the course material. Doing the assignments in full is a great way to prepare for the quizzes, midterm, and final. Not doing the assignments in full is a great way to do poorly on the quizzes, midterm, and final.

Please feel free to discuss assignment questions with your friends in any amount of detail. You may ask TAs during tutorial to take up questions that you are having trouble with. If you are having trouble with a question, please ask in tutorial or online if possible, so that the class may benefit from the experience. Office hours are also a great time to ask questions of your TAs and instructor. If asking questions on assignments during office hours, come prepared to

show the work you have done so far. Saying “I don’t get it” or “show me how to do it” and providing no evidence of any effort on your part whatsoever will result in the instructor or TA politely requesting that you go away and attempt the problem on your own, and inviting the next student in line to ask their question.

Remember that assignments are course materials and sharing with anyone not in the course is a serious academic offence and is strictly prohibited.

Lectures

Lectures are mandatory, and are where the majority of the course material will be delivered. The lecture slides provided by the instructor are to be treated as the single final source of required knowledge for the course, though these slides will frequently reference the required textbook. Students must attend the lecture time assigned to their section, and may not attend the other section’s lecture time. Students found in the room during lecture who are not assigned to that section’s lecture time will be asked to leave.

Tutorials

Depending on enrolment, formal tutorials may be cancelled and replaced by informal weekly TA office hours in the stats aid centre. More information will be provided when available. In the event that tutorials are not provided, quizzes will be held during the first 10 minutes of lecture time.

You must attend your assigned tutorial section. Seating is *very limited* in these tutorial rooms, and if you go to the wrong section, you are taking someone's seat. It doesn't matter if your friends are in a different section, you are not permitted to attend any section other than your own. **Attending a tutorial section other than your own when there is a quiz will result in a mark of 0 for that quiz**, since TAs are only assigned to mark the quizzes of students in their own section.

Tutorials will be held approximately biweekly starting on **January 17th, 2018**. When there is a quiz, students will receive advance notice of this, and the quiz will be held in the first 10 minutes of the tutorial starting. Any tutorial time when students are not writing a quiz is to be used to ask questions of the TA regarding the course material. Students must go to the tutorial for their assigned section. On days with quizzes, tutorials are mandatory.

Detailed information on the location of tutorials and the TAs in charge of them will be posted by the second week of classes.

Course Outline:

A rigorous introduction to the theory of statistical inference and to statistical practice. Statistical models, parameters, and samples. Estimators for parameters, sampling distributions for estimators, and the properties of consistency, bias, and, variance. The likelihood function and the maximum likelihood estimator. Hypothesis tests and confidence regions. Examples illustrating statistical theory and its limitations. Introduction to the use of a computer environment for statistical analysis. (Note: STA261H1 does not count as a distribution requirement course).

Prerequisite: STA257H1

Corequisite: MAT235Y1/MAT237Y1/MAT257Y1, MAT223H1/MAT240H1

Exclusion: ECO227Y1/STA248H1/STA255H1

Breadth Requirement: The Physical and Mathematical Universes (5)

Prerequisites will be *strictly* enforced for undergraduate students. Do not approach your instructor to ask to sign a form waiving prerequisites. Undergraduate students without the appropriate prerequisites will be removed from the course.

Textbook:

- Mathematical Statistics and Data Analysis, 3rd Edition, John A. Rice
- ISBN: 9780534399429, 0534399428

This textbook is required. The topics covered in the course will not follow the textbook directly, but will make reference to appropriate sections when relevant. Assignment questions may be assigned from the textbook as well. The textbook is available from the U of T bookstore.

Marking concerns

Any requests to have marked work re-evaluated must be made in writing within *one week* of the date the work was returned. If you think that a mark has been assigned *in error*, please notify your TA directly, via email. Include in the subject line "STA261 L0101: Request for Marking Correction". The TA will review only the potential error, and adjust your mark upward if warranted. *You must submit this request within one week of the assignment being returned, or it will be ignored.* Requests that do not include the appropriate subject line in the email will be ignored.

If you think your work was marked *unfairly*, please email your instructor (me) with the subject line "STA261 L0101: Request for Marking Reconsideration". Include a detailed description of why you think you deserve a higher mark, **making explicit reference to the provided solutions**. I will decide if your request is reasonable and if so, I will remark your *entire* paper, and adjust your mark up, down, or not at all. You must submit such requests within 1 week of having the work returned for the final time, i.e. if you are submitting to the TA for a correction and then to me for a re-mark, you must submit to me within one week of the TA returning the assignment to you the second time. The mark I assign after reviewing is final, and non-negotiable.

By submitting this request to me, you acknowledge this policy, you accept the mark I give you as your final mark for the item in question, and you waive your right to request any further consideration of your mark for the item in question. Further, by waiting for longer than one week after the item is returned without submitting such a request, you accept the mark assigned as your final grade for the item in question, and waive your right to request further consideration of your mark for the item in question. Requests that do not include the appropriate subject line in the email will be ignored.

Missed Tests

If a test is missed for a valid reason, you must submit documentation to the course instructor.

If a test is missed for a valid medical reason, you must submit an original copy of the University of Toronto Verification of Student Illness or Injury form to your instructor within two weeks of the test.

The form will only be accepted as valid if the form is filled out according to the instructions on the form.

Important: 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 weight of the test will be added to the final exam.

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.

Computing

You will not be required to use a computing environment for this course. You will not be evaluated, on the quiz or tests, on your use of a computing environment. The lectures will include R and/or Python code when necessary to enhance examples, e.g. through simulations and plots. The not-for-credit assignments may ask you to compute probabilities or draw plots using R, but these questions are to be taken as being for your personal development only, and will not be directly referenced on quizzes or tests.

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.

Online Discussion Board

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The Piazza system is highly catered to getting you help quickly 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. To sign up for the discussion forum, click on the link: piazza.com/utoronto.ca/winter2018/sta261

Additional help

The following resources are available for help with course content:

- Discussion boards
- Tutorials
- TA office hours
- Instructor office hours

Do not email your instructor or TAs with questions regarding the course material. The tutorials are mandatory and part of your schedule, so you should be able to attend their times. If you are unable to attend *any* of the above scheduled help sessions in *any* week due to permanent scheduling conflicts, send your instructor an email with the subject line "STA261L0101: Unable to Attend Office Hours", and we will do our best to accomodate you.

How to communicate with your instructor

Do not email your instructor or TAs with questions regarding the course material. Such emails will be ignored. Office hours and tutorials are the appropriate place to ask such questions. If you are unable to make your section's office hours, go to the other section's. If you are unable to make either time, send your instructor a private communication (see instructions above) and we can arrange an appointment. The TAs will also have office hours.

For other private communication, such as "I missed the test because I was ill," e-mail your instructor. Include your full name and student number. The subject line of the email should read "STA261 L0101: Private Communication", and the body of the email should include your full name and student number as the first two lines. *Emails without the appropriate subject line and information in the body will be ignored.*

Academic integrity

You are responsible for knowing the content of the University of Toronto's Code of Behaviour on Academic Matters at 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 classroom, or course materials, please contact Accessibility Services as soon as possible: accessibility.services@utoronto.ca or <http://accessibility.utoronto.ca>.

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Section L5101

Instructor:

Alex Stringer, Office: **TBA**

Email: alex [dot] stringer [at] mail [dot] utoronto [dot] ca

Lectures: Wednesdays 7-10 pm, MS3153

Tutorials: Wednesdays 6-7 pm, Location **TBA**

Office Hours: Wednesdays 1-3 pm, **TBA**

Teaching Assistants: **TBA**

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Midterm

The midterm will be held as follows:

- Date: Wednesday, February 14th, 2018
- Time: 7:00 - 9:00 PM, during class hours
- Location: **TBA**

Assignments

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