STA490: Statistical Consultation, Communication, and Collaboration

Course instructors

Section L0101
Instructor: Liza Bolton
Please call me: Liza
How do you pronounce that?

- Liza: a video..
- Bolton: Like the English words "bowl" and "ton"

Preferred pronouns: she/her
Email: liza.bolton@utoronto.ca
Seminar meetings: Thursdays 10 a.m.–noon ET
Project meetings: Tuesdays 10 a.m.–noon ET
Office hours: TBA

Section L0201
Instructor: Nathalie Moon
Please call me: Nathalie
How do you pronounce that?

- Nathalie: the "h" is silent
- Moon: like the English word!

Preferred pronouns: she/her
Email: nathalie.moon@utoronto.ca
Seminar meetings: Thursdays 10 a.m.–noon ET
Project meetings: Mondays 5 p.m.–7 p.m. ET
Office hours: TBA

> **Both sections**
> **Course webpages**: All materials will be posted on Quercus (https://q.utoronto.ca)
> **Delivery:** Fully online

Graduate student mentors

Steven Campbell, Anthony Coache, Michael Chong, Michael Moon, Marija Pejcinovska, Justin Slater, George Stefan, David Veitch

Writing support teaching assistant

Becca Christensen

Course Information

The purpose of the course is to develop skills in the collaborative practice of statistics. This will be done through class discussion, readings, case studies, and a collaborative project. Course activities develop skills in statistical problem solving and oral and written communication, and engage you in issues related to appropriate and ethical statistical practice.

Learning objectives

By the end of the course, you should be able to:

1. **Connect** general scientific questions from researchers from **other disciplines** to statistics through distilling **essential features** of the problem, **asking good questions** and restating the collaborator's answer to check understanding.
2. Evaluate and **critique data analyses** and solutions to statistical problems—both your own and those of others. E.g. recognize limitations, biases.
3. **Conduct and communicate about all stages of a statistical analysis**: understand the **background**, formulate **research questions** in quantifiable terms, explore and wrangle data, choose appropriate **methods** and evaluate their relative merits and communicate results.
4. **Communicate** statistical ideas and findings to a range of audiences using **oral, written and visual** methods.
5. Understand and apply **ethical** considerations to your professional practice.
6. Produce **reproducible** and **well-commented** R Markdown documentation of analyses.
7. **Reflect effectively** on your own learning and professional development.
8. **Collaborate effectively** in a team to evaluate your methodology and provide insights into researcher questions.

How will your success be measured?

Dates are tentative, but unlikely to change.

	Weight	Date(s)
Attendance, participation, and preparation (as demonstrated through synchronous class discussions, reading check-in quizzes, and project meetings)	**20%**	N/A
EDA Case Study (submission, peer feedback, and reflection)	**5%**	Sep 23, 28 and Oct 2
Collaborative Project	**60%**	
Project presentation	(10 points)	Nov 5, Dec 3, or Feb 5 (in class)
Project logs	(10 points)	Various
EDA	(15 points)	Oct 30
Statistical analysis	(20 points)	Feb 5
Draft Report #1 (completion & feedback on peers' draft reports)	(5 points)	Feb 26
Draft Report #2	(10 points)	Mar 12
Final Report	(30 points)	Mar 31
Mid-year Objectives Reflection	**5%**	Dec 9
Career Reflection	**5%**	Mar 17 (TBC)
Presentation: Explain like I'm a…	**5%**	Jan 28, Feb 11, or Mar 25 (in class)

Missed/late submission policies

No late work will be accepted without prior approval from the instructor. If you have concerns about meeting a deadline (e.g. if you are ill), please contact your instructor as early as possible to discuss alternative arrangements. When possible, alert your instructor to potential issues as early as you can. This will allow us to work together with you to find a suitable solution.

Marking concerns

Any request to have an assessment remarked must be emailed *to your course instructor (not to your TA)* within <u>one</u> week of the grades being posted; your request will be reviewed by the course instructor (in consultation with your graduate student mentor, as appropriate). Your request must include:

- your name and student number,
- a **detailed written justification** for your request; it is **not enough** to simply say that you believe your work deserves higher credit.

Please note that we reserve the right to review the grading of your entire submission when you re-submit an assessment for reconsideration (i.e., your grade could go down).

Class seminar meetings

Class seminar meetings are typically on Thursdays from 10:10 a.m.–noon ET. You should attend the seminar for your assigned section only; all of these meetings will be held online. Attendance at all class seminars is mandatory, as there is no substitution for participating in the discussions that will take place.

Seminars are different from lectures. Sometimes, part of the meeting time will be dedicated to a formal lecture with slides highlighting key concepts. Most weeks, there will be assigned reading or work which must be done in preparation for the seminar meeting, and you are responsible for coming to class ready to identify aspects of the readings which need to be discussed further and for raising questions about points which are unclear. During discussions, you should be listening for three things to help you shape the group discussion that follows:

1. Relevant questions / concepts / issues which require further discussion
2. One question / concept / issue which you don't yet fully understand
3. One question / concept / issue which you are interested in and would like talk about more

Project breakout meetings

Project breakout meetings will be held during the 'non-Thursday' scheduled class time (Tuesdays 10:10 a.m.–noon ET for section L0101 and Mondays 5:10 p.m.–7:00 p.m. ET for section L0201) on the dates indicated on the course schedule. Your graduate student mentor will be present at these meetings to guide you and provide advice, but you are responsible for coming to these meetings ready to speak about the work you've done on your project over the past week and raise questions or challenges you've encountered and to come up with strategies to solving these as a group. The activities in these breakout sessions will vary, but may include the following:

- Introduction to your collaborative project

- One-on-one chats with your graduate student mentor to discuss your progress on your project
- Group discussion to brainstorm/discuss strategies for analysis, compose questions for the research collaborator, etc.
- Check-in meetings with research collaborator

Note: you are expected to work on your project every week, whether you have a scheduled project breakout meeting or not.

Collaborative project

Much of the course will be structured around a major collaborative project. Students will be divided into groups of 3-4 students and assigned a graduate student mentor (a PhD student in statistics) to guide and support their work on this project. While most project work will be submitted and assessed individually (see course evaluation breakdown section), active participation in project breakout meetings is expected and encouraged.

Readings and references

Required readings will be posted on the course page on Quercus.

Anytime you need a reference on a statistics topic (software or methodology), start by seeing what you can find on your own, then ask your graduate student mentor or your instructor.

Computing

We will use R, the RStudio IDE, and R notebooks. You will need to install R first, and then RStudio. R can be downloaded for free from http://cran.r-project.org. RStudio can be downloaded for free from http://www.rstudio.com/products/rstudio/download/.

Communication

Please email your instructor if you are unable to attend a class meeting because of illness or if it is necessary to make an appointment outside of office hours.

The instructor(s) may contact the entire class by email, at the email address linked to your student account; please make sure that you regularly read the email that goes to that account.

You project mentor will provide you with information on how to best ask questions about the project between meetings and how to contact them. If you are unable to attend a project meeting because of illness please let your project mentor know in advance.

Minimal technical requirements

All students should consult the minimum technical requirements for participation in online learning. If you are facing financial barriers to obtaining the required technology, please contact your College Registrar's Office to obtain information regarding your potential eligibility for a need-based bursary. If you anticipate having difficulty connecting to University websites (e.g., Quercus), please submit your question here: https://www.utoronto.ca/covid19-contact.

Accessibility

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: email accessibility.services@utoronto.ca or visit the website at http://accessibility.utoronto.ca

If you have an accommodation letter from your accessibility advisor that is relevant to this course, please do the following:

- *Email your letter to the instructor for your section with "Accommodation letter" as part of the email subject, CC your advisor and let us know anything else you wish us to know/any questions you have. Please do this as soon as possible after you enrol in the course/receive this syllabus.*
- *Confirm any accommodations for **each** specific assessment at least **1 week** before the assessment / due date.*

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.

Plagiarism

In this course, probably more than your previous statistics courses, you may be at risk of plagiarising if you do not understand the rules and your responsibilities. You must not present the work of others as your own. This includes, but is certainly not limited to, copying text and including it in your writing without a citation and quotation marks.

There are many resources to help you learn more:

- https://guides.library.utoronto.ca/plagiarism
- https://www.academicintegrity.utoronto.ca/smart-strategies/

Intellectual property statement

Course material that has been created by your instructor (i.e. lecture slides, term test questions/solutions and any other course material and resources made available to you on Quercus) is the intellectual property of your instructors and is made available to you for your personal use in this course. Sharing, posting, selling or using this material outside of your personal use in this course is not permitted under any circumstances and is considered an infringement of intellectual property rights.

While recordings of class meetings will be made available to you on the course website, these are intended only for students registered in the course. You are not authorized to copy these materials or distribute them to individuals who are not registered in the course. If you would like to record any course activities in this course, you MUST ask permission from your instructor in advance. According to intellectual property laws, not asking permission constitutes stealing.

How to succeed in the course

- Work on your project *every week*
  - Set yourself mini deadlines, especially during analysis and writing
- Update your project log 'real-time' (don't leave it till the last minute)
- Do the readings and the reading check-ins (when applicable)
- Be prepared and on time for all classes and project meetings (see the questions for seminar meetings)
- Ask good questions
- Do all the assigned work on time
- Demonstrate that you are trying

Course mantra

It's OK not to know.

Expressing ignorance is encouraged.

It's not OK to not have a willingness to learn.