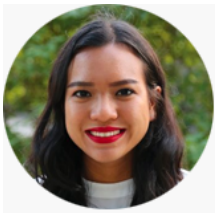
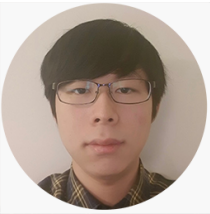
Welcome to STA313: Data Visualization

What? This course is all about data visualization, the art and science of turning data into readable graphics and charts. You will learn the science behind effective visual communication of data.

Who? Meet the teaching team! You are the reason we are here. We look forward to learn together through curiosity, joy, dedication, and support, and can't wait to see you grow through this journey in the data visualization world!



Prof. Fanny Chevalier Instructor	**Book Sadprasid** MSc student in Computer Science	**Caitlin Harrigan** PhD student in Computer Science	**Emma Kroell** PhD student in Statistics	**Karran Panday** PhD student in Computer Science	**Michael Moon** PhD student in Statistics	**Warren Park** PhD student in Computer Science

How? This course is taught using a “flipped classroom” approach. What does this mean? Well, instead of the more typical class where the lecture is presented in class by the instructor and then you do practice for homework, this class will have you watch the lecture for homework and then we will use class time for practice and inquiry. There are several advantages to this model, that I further discuss in this page (https://q.utoronto.ca/courses/281275/pages/why-flipped-classroom) .

Click on the "START HERE" button below for a module to orient yourself around this course. You must also read the course syllabus and policies, as well as the community agreement: quiz questions will test your knowledge of these.

START HERE: Welcome! (https://web.microsoftstream.com/video/4efb379c-edb8-424e-a97e-e811a26fdaae)

Community Agreement (https://q.utoronto.ca/courses/281275/pages/community-agreement)

LESSONS & ASSIGNMENTS

Schedule & Materials (https://q.utoronto.ca/courses/281275/pages/schedule-and-materials)

Quizzes (https://q.utoronto.ca/courses/281275/quizzes)

Assignments (https://q.utoronto.ca/courses/281275/assignments)

GETTING HELP

Piazza (http://piazza.com/utoronto.ca/fall2022/sta313)

Contact us (https://q.utoronto.ca/courses/281275/pages/contact)

Accommodation request (https://forms.office.com/r/k3r2k1XeNa)

Course Syllabus

Jump to Today

About this Course

This course is designed to be as interactive as possible. My role as instructor is to introduce you to theories, principles and tools for data visualization, which will be covered in the readings and the video lectures. Now, it is up to you to study these materials and actively engage in the activities throughout each class and practical. Many concepts may seem relatively easy to comprehend when passively listening to a seminar course, but in actuality, most of these concepts are non trivial to apply. In-class activities and practicals are designed for you to experiment, inquire, and make mistakes in a safe environment. Through this process, you will learn by doing. And you will do so before you are evaluated in the formal assignments.

Accessibility, Diversity, Inclusiveness

It is my intent that students from all diverse backgrounds and perspectives be well-served by this course, that students' learning needs be addressed both in and out of class, and that the diversity that the students bring to this class be viewed as a resource, strength and benefit.

If you have an acute or ongoing disability issue or accommodation need, we will implement appropriate accommodations to support your learning. For this, you should register with Accessibility Services (AS) at the beginning of the academic year by visiting **https://studentlife.utoronto.ca/department/accessibility-services/ (https://studentlife.utoronto.ca/department/accessibility-services/)** . This will allow Accessibility Services to assess your situation, develop an accommodation plan with you, and support you and the teaching team in applying adequate accommodations by issuing a **Letter of Accommodation (https://studentlife.utoronto.ca/service/letter-of-accommodation/)** . Remember that the process of accommodation is private: Accessibility Services will *not* share details of your needs or condition with the teaching team, and similarly, the teaching team will not reveal that you are registered with Accessibility Services. This formal process is necessary, as the teaching team is *not* equipped to evaluate your personal situation: we are not health professionals, and so require professional assessment and advice coming from Accessibility Services to best serve your needs. Without registration, you will not be able to verify your situation with us, and we will not receive the professional advice from Accessibility Services about your accommodation needs. Note that it is your responsibility to forward your letter to the instructor, and request for accommodations timely as per indicated in the letter issued by AS.

♡ **Register with Accessibility Services (https://studentlife.utoronto.ca/service/accessibility-services-registration-and-documentation-requirements/)**

It is my intent to present materials and activities that are respectful of diversity: gender identity, sexuality, disability, age, socioeconomic status, ethnicity, race, nationality, religion, and culture. Your suggestions are encouraged and appreciated.

Please let me know ways to improve the effectiveness of the course for you personally, or for other students or student groups.

please talk to me about. I (like many people) am still in the process of learning about diverse perspectives and identities and appreciate your input in this regard.

Contact us

Course Description & Learning Objectives

Content: This course is all about data visualization, the art and science of turning data into readable graphics and charts. You will learn the science behind effective visual communication of data. You will learn to evaluate the effectiveness of visualization designs, and think critically about each design decision, such as choice of colour and choice of visual encoding. You will also explore how to design and create data visualizations based on data available and tasks to be achieved. This process includes the understanding and application of methods and principles of data and task abstraction, mapping data attributes to graphical attributes, and strategic visual encoding based on known properties of visual perception as well as the task(s) at hand. You will critique existing visualizations (many have excellent elements to them, but many also make poor design choices). And you will demonstrate all your skills through creating your own visualizations in R and R Markdown in individual/pair assignments and in a final group project. This course has no mid-term nor final exam. Active participation to in-class activities is essential to learning and is an integral part of the requirements to succeed in this course.

This course is designed to provide you with the foundations necessary for evaluating and creating visual representations of data. The **learning objectives** are:

1. to understand the principles of designing and creating effective data visualizations
2. to evaluate, critique, and improve upon one's own and others' data visualizations based on how good a job the visualization applies principles for effective communication
3. to correctly apply key techniques and theory used in data visualization science, including data models, graphical perception and techniques for visual encoding and interaction
4. to correctly identify ethical issues related to data analysis and visual communication of data
5. to use R and a variety of modern data visualization packages and tools to create data visualizations.
6. to work effectively individually and collaboratively.

Delivery format: The format for this course is “flipped.” A flipped classroom is one in which you are introduced to content at home then you come prepared to class for interactive hands-on activities, practice and scenario-based experiences that reinforce this content. Flipped learning is a blended learning approach where you are integral, active part in the face-to-face instruction, by bringing ideas, point of discussions and questions to the classroom. Through hands-on activities, the instructors can give you feedback on the applications of concepts that you will have been exposed to at home when studying topics covered in the video lectures, readings, supplementary materials prior to our face-to-face meeting each week.

- read mandatory readings
- identify points you don't understand and questions you have from the readings and lecture
- think critically about the lesson's content, through application exercises

Then **during class**, you will consolidate learning together with the instructor and classmates:

- practice through ungraded individual and group activities
- inquire by engaging in discussions, bringing ideas, and asking questions in class

We will also run **tutorials/practicals**, where you will deep dive into use cases to further learning:

- practice fundamental and technical skills on various use cases (bring your laptop computer)
- consult with other students and instructors on your own work (guided activities)

Class Times and Locations

Everyone of you is required to attend classes / tutorials in your respective section. Similarly, team/group work will have to be completed with team-mates from your own section.

Section LEC0101

- ***Lecture*:** Monday, 10am-12pm, **BA 1190** (https://map.utoronto.ca/?id=1809#!m/494470)
- ***Tutorial / Practical*:** Friday, 10am-11am, **BA 1190** (https://map.utoronto.ca/?id=1809#!m/494470)

Section LEC0201

- ***Lecture***: Monday, 2pm-4pm, **WI 1016** (https://map.utoronto.ca/?id=1809#!m/494503)
- ***Tutorial / Practical***: Friday, 2pm-3pm, **MS 2172** (https://map.utoronto.ca/?id=1809#!m/494491)

Prerequisites

CSC108H1/ CSC110Y1/ CSC120H1/ CSC148H1; STA238H1/ STA248H1/ STA261H1/ ECO227Y1.
The following is an asset, though no background is required: Graphic design / image manipulation; Technical writing; Development; Psychology or human cognition.

(https://governingcouncil.utoronto.ca/secretariat/policies/grading-practices-policy-university-assessment-and-january-26-2012) .
The table below shows the weight of each assessment.

Break down of assignments

Assessment	Weight	Due date
Quizzes	**10%**	~ every 3 weeks
Homework	**40%**	
• Assignment 1 (10%)		Oct. 14
• Assignment 2 (15%)		Nov. 18
• Assignment 3 (15%)		Dec. 9
Project	**45%**	
• Project: pitch (5%)		Nov. 14
• Project: mock-ups (10%)		Nov. 25
• Project: product (15%)		Dec. 16
• Project: demo video (15%)		Dec. 16
Participation	**5%**	all term long

Quizzes: Due every three weeks (roughly), completed individually. Quizzes are worth 10% of the grade. Lowest quiz score is dropped.

Homework: Three assignments, to be completed individually (A1, A3), or in a small team of 2 (A2). Homework assignments are designed to assess your knowledge and understanding of the theoretical and technical content covered in the lessons, through application exercises.

Project: In groups of 5-6 students, you will complete a final term project. The project is designed to be open-ended, giving you an opportunity to define the topic, and realize a visualization product of your choice (within constraints). The project deliverables act as important milestones guiding your process: from the project pitch, early in the process, to capturing and refining ideas as mock-ups, to the implementation and realization of the final product. You will also be required to prepare a demo video featuring your final product, and documenting the creation process.

Participation: Assessed throughout the semester, using a variety of methods and tools. Class attendance in lecture and tutorial/practical is a firm expectation; frequent absences or tardiness will be considered a legitimate cause for participation grade reduction. Participation to activities is a firm expectation; missing out on activities or lack of engagement in activities will also be considered a legitimate cause for participation grade reduction. Contributions to class (e.g. through the formal submission of visualizations to discuss and critique) and answers to students questions on Piazza will be accounted for in the calculation of the participation grade.

Course Policies

If you are experiencing difficulties that affect your learning due to a disability or if you believe that you may have a disability, we encourage you to register with the University of Toronto's **Accessibility Services (https://studentlife.utoronto.ca/department/accessibility-services/)** .

After registration, **Accessibility Services (https://studentlife.utoronto.ca/department/accessibility-services/)** will reach out to you to arrange an intake appointment with an Accessibility Advisor who is familiar with the area of disability identified in your registration packet. The Accessibility Advisor will work with you to recommend appropriate and reasonable academic accommodations and supports for both temporary and permanent disabilities.

Recommendations may include:

- Academic accommodations for classes, coursework and practicum (if applicable)
- Adaptive technology assessment
- Financial resources for eligible students
- Learning disability / ADHD assessment
- Learning strategy support
- Test / Quiz accommodations

For appropriate recommendation to be implemented, it is your obligation to identify your needs in a timely fashion. You can use the form to this effect to do so.

♡ **Step 1: Register with Accessibility Services (https://studentlife.utoronto.ca/service/accessibility-services-registration-and-documentation-requirements/)**

Step 2: File a request for accommodations (https://forms.office.com/r/k3r2k1XeNa)

Non-Disability-Related Accommodations

Life happens, and I acknowledge that a number of exceptional circumstances can be an obstacle to participation to class and academic work. Besides the Letter of Accommodation issued by Accessibility Services, we accept the following documentation to support requests for accommodations:

- **Declaration of Absence:** The *Verification of Illness* (also known as a "doctor's note") is not required at the moment. If you are to be absent or were absent from academic participation for any reason (e.g., COVID, cold, flu and other illness or injury, family situation) and require consideration for accommodation, you should report your absence through the online absence declaration. The declaration is available through **ACORN (https://acorn.utoronto.ca/)** under the Profile and Settings menu. Note that we will not be automatically alerted when you declare an absence, and therefore it is your responsibility to upload your Absence of Declaration as part of a formal request for accommodation so that we can discuss any needed consideration, where appropriate.
- L**etter from your College Registrar**: In the case of personal extenuating circumstances that are not related to an absence (see Declaration of Absence) or disability (see Disability-Related Accommodations) and which incur challenges in participating to course work (e.g. financial struggle, housing crisis, etc...), we encourage you to contact your College Registrar to seek counselling and advice. Where appropriate, your College Registrar will issue a letter with recommendations of accommodations for instructors to implement, which you can attach to your formal request for accommodation.

time with consideration given to the possibility that you may become ill or other extraordinary circumstances may arise. Deliverable extensions are provided only when students are unable to meet the original deadline because of serious extenuating circumstances. If an extension is granted, it will generally be proportionate to the delay caused by the problem that prevented you from completing the assignment on time (e.g. a one-week illness or severe injury having significant impact on academic performance may result in a granted extension of up to a week, whereas a one-day absence due to illness will not be considered as a valid motive for deliverable extension).

Examples of reasons for which extensions *may* be granted include:

- Illness or injury having a significant impact on academic performance (with supporting documentation in the form of declaration of absence or letter from your College Registrar)
- The serious illness of a person in the immediate family which requires you to take on significant caregiving responsibilities (with supporting documentation in the form of a letter from your College Registrar) .
- Bereavement. If you suffer the loss of a person to whom you are extremely close (e.g., a member of your immediate family), you may find that more extensive accommodations are necessary. In some cases, you may be asked to submit appropriate documentation to your College Registrar.
- Accident, victim of crime, sudden loss of housing, or similar traumatic experience that interferes with exam preparation. A police report, or similar documentation, is to be submitted to your College Registrar who will issue a letter for you to upload with your request.
- Delivery of a child (all parents). Documentation should be submitted to your College Registrar, who will issue a letter for you to upload with your request.
- Unanticipated work emergency of sufficient duration and scale in circumstances in which your ability to meet the deliverable deadline is unreasonably compromised. In some cases, you may be asked to submit appropriate documentation to your College Registrar and/or the instructor directly.
- Such other extraordinary circumstances as deemed appropriate by the instructor.

Examples of reasons for which exam accommodation or paper or assignment extensions will *not* normally be granted:

- Employment reasons (including job interviews).
- Travel / vacation / social plans, including weddings.
- Case competitions and conference attendance.
- Airline flights and schedules.
- Other assignments due on or around the same due date.
- Common printer or computer problems, including computer crashes, network failures, etc. (Among other things, you are expected to continuously back up your work and secure a submission well before the deadline.)
- Common commuting issues including parking, traffic and transit problems.
- Religious holiday falling before or on the day of the deadline, without directly conflicting with a scheduled test.

Procedure for Requesting Non-Disability-Related Accommodations

In the case of an absence (e.g. due to illness, injury or other personal reasons), you must declare your absence on ACORN and upload your declaration of absence in your formal request for accommodation as soon as is reasonably practicable. In most cases, this will be within one day following your absence. Note that for accommodations for predictable events such as religious holidays, you must submit the form and documentation at least two weeks before the missed class / deliverable deadline. If request and documentation are not submitted as soon as is reasonably practicable (and barring exceptional circumstances), the request will be rejected.

📌 Late Penalty

All assignments are to be submitted on the due date. On-time submissions are graded as normal.

- Late quizzes are not accepted and there are no make ups for missed quizzes.
- For other assignments, late submissions will incur a penalty:
  - Submissions < 24 hours late incur a penalty of 10% of available points.
  - Submissions < 48 hours late incur a penalty of 30% of available points.
  - Submissions more than 48 hours late will receive no credit, and we will not provide written feedback.

📌 Marking Concerns

Any requests to have your work remarked must contain a written justification for consideration to the course instructors using the remark request form below. Remarking requests should be made within one week of receiving your graded work. Re-evaluation appeals are at the discretion of the instructors. Note that adjustments in marks will be rare and could equally result in a lowering or raising of the mark. If a re-revaluation is completed by the instructors, the student must accept the resulting mark as the new mark, whether it goes up or down or remains the same. When appealing a re-evaluation decision, the student accepts this condition.

Report a marking concern **(https://forms.office.com/r/EP5HMXX3dF)**

📌 Getting Help

This term you will have the option to use Piazza for class discussion. If you decide not to use Piazza it will not disadvantage you in any way, and will not affect official University outcomes (e.g., grades and learning opportunities). If you choose not to opt-into Piazza then you can ask questions or discuss course material with the instructor or TAs during office hours.

Be sure to read **Piazza's Privacy Policy** **(https://piazza.com/legal/privacy)** and **Terms of Use** **(https://piazza.com/legal/terms)** carefully. Take time to understand and be comfortable with what they say. They provide for substantial sharing and disclosure of your personal information held by Piazza, which affects your privacy. If you decide to participate in Piazza, only provide content that you are comfortable sharing under the terms of the Privacy Policy and Terms of Use.

Note that instructors will leave room for each of you to actively contribute to the Piazza forum. **We will wait for at least 24 business hours before responding to a student's question on Piazza**, therefore creating an opportunity for one or more classmates to contribute an answer.

To sign up for and/or post your question to the discussion forum, click on the following button.

Post my question on Piazza **(https://piazza.com/class/l6qwt7vgo6y2iv)**

📌 Contact Policy

Questions about course material or organization, such as,

- Is it appropriate to use this analysis or visualization method?
- What library would you recommend for visualizing maps?
- What is the due date?

can be posted on the Piazza discussion forums. 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 and about a request for accommodation, then you need to use the form to this effect (see **Excused Absence & Missed Academic Work Policy**). If your communication is private and about a concern or question with your grade, then you need to use the form to this effect (see **Marking Concern Policy**)

In any other cases, and if your communication is private, then you are welcome to contact your instructor by private email.

- Always use the course email **~~sta313@utoronto.edu~~** [*Note: there is a temporary issue with this email -- please use private post to the instructor on Piazza while the University figures out the technical problem*] to ensure that your message reaches out the instructor and/or TA's.
- Always use your UofT email address (i.e. @utoronto.ca).
- Always include your full name, and UTORId in your communication by email.
- Allow up to 72 business hours for a reply.

⚠ **Emails sent to addresses other than the course email will *not* be answered. Emails sent from addresses other than a UofT official email address will not be answered.**

✉ **Contact us** **(http://www.studentlife.utoronto.ca/as/new-registration)**

📌 Academic Integrity

You are responsible for knowing the content of the **University of Toronto's Code of Behaviour on Academic Matters (http://www.governingcouncil.utoronto.ca/policies/behaveac.htm)** .

As a general rule, we encourage you to discuss course material with each other and ask others for advice. However, it is not permitted to share complete solutions or to directly share code for anything that is to be handed in. When an assignment is required to be completed as a team, you may share solutions and code with other members of your team, but not with another team in the class. For example, "For question 2.1 what R function did you use?" is a fair question; "Please show me your R code for question 2.1" is not.

If you have any questions about what is or is not permitted in this course, please do not hesitate to post your question on

📌 *Photographs, Audio & Video Recordings, and Copyright*

Reproduction and/or sharing of course materials is prohibited. Course materials include lecture slides, video recordings, course notes, assignments, data and documents provided by the instructors. All such reproduction or dissemination is an infringement of copyright and is prohibited. Tape-recording, photographing, screen capturing, video-recording or otherwise reproducing lecture presentations, course notes or other similar materials provided by instructors is also prohibited. See the University of Toronto **Academic Integrity** (https://www.academicintegrity.utoronto.ca/smart-strategies/recording-lectures/) .

Your Responsibilities

📌 *Engage in the Course Material*

The course is designed to actively engage you in the course material. We hope you'll find the science of visualization interesting, challenging, and fun. In order for classroom sessions and tutorials to be effective, prepare by learning about the week's lesson through completing the mandatory lecture videos and readings, and engage in the activities during synchronous class.

📌 *Announcements and Resources*

Lectures videos and slides, readings, and assignments will be posted on Quercus. It is your responsibility to check the Quercus course website regularly for updates. Announcements will be posted on Quercus & sent as emails through Quercus (provided that you configured your Quercus to receive an email notification when announcements are posted). It is your responsibility to check Quercus & your email regularly for incidental communication and updates about the course.

Course Summary:

Date	Details	Due
Fri Sep 9, 2022	**Tutorial/Practical: Welcome & Meet RStudio (STA313H1-F-LEC0101-20229) (STA313H1-F-LEC0101-20229)** (https://q.utoronto.ca/calendar?event_id=556492&include_contexts=course_281275)	10am to 11am
	Tutorial/Practical: Welcome & Meet RStudio (STA313H1-F-LEC0101-20229) (STA313H1-F-LEC0201-20229) (https://q.utoronto.ca/calendar?event_id=557084&include_contexts=course_281275)	2pm to 3pm
Mon Sep 12, 2022	**Class: What is Visualization? (STA313H1-F-LEC0101-20229)** (https://q.utoronto.ca/calendar?	10am to 12pm

Date	Details	Due
	Class: What is Visualization? (STA313H1-F-LEC0201-20229) (https://q.utoronto.ca/calendar?event_id=557086&include_contexts=course_281275)	2pm to 4pm
Fri Sep 16, 2022	Tutorial/Practical: A quick tour of ggplot (STA313H1-F-LEC0101-20229) (https://q.utoronto.ca/calendar?event_id=557087&include_contexts=course_281275)	10am to 11am
	Tutorial/Practical: A quick tour of ggplot (STA313H1-F-LEC0201-20229) (https://q.utoronto.ca/calendar?event_id=557088&include_contexts=course_281275)	2pm to 3pm
	Tell Us About Yourself (https://q.utoronto.ca/courses/281275/assignments/901176)	due by 11:59pm
Mon Sep 19, 2022	Class: Data Abstraction, Task Abstraction (STA313H1-F-LEC0101-20229) (https://q.utoronto.ca/calendar?event_id=557089&include_contexts=course_281275)	10am to 12pm
	Class: Data Abstraction, Task Abstraction (STA313H1-F-LEC0201-20229) (https://q.utoronto.ca/calendar?event_id=557090&include_contexts=course_281275)	2pm to 4pm
Fri Sep 23, 2022	Tutorial/Practical: Visualization brief / One dataset, many visualizations (STA313H1-F-LEC0101-20229) (https://q.utoronto.ca/calendar?event_id=557142&include_contexts=course_281275)	10am to 11am
	Tutorial/Practical: Visualization brief / One dataset, many visualizations (STA313H1-F-LEC0201-20229) (https://q.utoronto.ca/calendar?event_id=557143&include_contexts=course_281275)	2pm to 3pm
Mon Sep 26, 2022	Class: Marks & Channels (STA313H1-F-LEC0101-20229) (https://q.utoronto.ca/calendar?event_id=557091&include_contexts=course_281275)	10am to 12pm
	Class: Marks & Channels (STA313H1-F-LEC0201-20229) (https://q.utoronto.ca/calendar?event_id=557092&include_contexts=course_281275)	2pm to 4pm

Date	Details	Due
	Tutorial/Practical: You grade! (STA313H1-F-LEC0201-20229) (https://q.utoronto.ca/calendar?event_id=557141&include_contexts=course_281275)	2pm to 3pm
	Quiz #1. Lessons 1-2-3 (https://q.utoronto.ca/courses/281275/assignments/895539)	due by 11:59pm
Mon Oct 3, 2022	Class: More on Perception: Pre-attentiveness, Gestalt Psychology, Colour (STA313H1-F-LEC0101-20229) (https://q.utoronto.ca/calendar?event_id=557093&include_contexts=course_281275)	10am to 12pm
	Class: More on Perception: Pre-attentiveness, Gestalt Psychology, Colour (STA313H1-F-LEC0201-20229) (https://q.utoronto.ca/calendar?event_id=557094&include_contexts=course_281275)	2pm to 4pm
Fri Oct 7, 2022	Tutorial/Practical: Office Hours (STA313H1-F-LEC0101-20229) (https://q.utoronto.ca/calendar?event_id=557138&include_contexts=course_281275)	10am to 11am
	Tutorial/Practical: Office Hours (STA313H1-F-LEC0201-20229) (https://q.utoronto.ca/calendar?event_id=557139&include_contexts=course_281275)	2pm to 3pm
Fri Oct 14, 2022	Tutorial/Practical: Fine tune with ggplot (STA313H1-F-LEC0101-20229) (https://q.utoronto.ca/calendar?event_id=557136&include_contexts=course_281275)	10am to 11am
	Tutorial/Practical: Fine tune with ggplot (STA313H1-F-LEC0201-20229) (https://q.utoronto.ca/calendar?event_id=557137&include_contexts=course_281275)	2pm to 3pm
	Assignment 1: Visualization Design (https://q.utoronto.ca/courses/281275/assignments/895540)	due by 11:59pm
Mon Oct 17, 2022	Class: Interaction (STA313H1-F-LEC0101-20229) (https://q.utoronto.ca/calendar?event_id=557095&include_contexts=course_281275)	10am to 12pm
	Class: Interaction (STA313H1-F-LEC0201-20229)	2pm to 4pm

Date	Details	Due
Fri Oct 21, 2022	Tutorial/practical: Meet Shiny (STA313H1-F-LEC0101-20229) (https://q.utoronto.ca/calendar?event_id=557134&include_contexts=course_281275)	10am to 11am
	Tutorial/practical: Meet Shiny (STA313H1-F-LEC0201-20229) (https://q.utoronto.ca/calendar?event_id=557135&include_contexts=course_281275)	2pm to 3pm
	Quiz #2 - Lessons 4-5 (https://q.utoronto.ca/courses/281275/assignments/895547)	due by 11:59pm
Mon Oct 24, 2022	Class: Storytelling & Communication (STA313H1-F-LEC0101-20229) (https://q.utoronto.ca/calendar?event_id=557097&include_contexts=course_281275)	10am to 12pm
	Class: Storytelling & Communication (STA313H1-F-LEC0201-20229) (https://q.utoronto.ca/calendar?event_id=557098&include_contexts=course_281275)	2pm to 4pm
Fri Oct 28, 2022	Tutorial/Practical: TBD (STA313H1-F-LEC0101-20229) (https://q.utoronto.ca/calendar?event_id=557132&include_contexts=course_281275)	10am to 11am
	Tutorial/Practical: TBD (STA313H1-F-LEC0201-20229) (https://q.utoronto.ca/calendar?event_id=557133&include_contexts=course_281275)	2pm to 3pm
Mon Oct 31, 2022	Class: Spatial Structures: Maps (STA313H1-F-LEC0101-20229) (https://q.utoronto.ca/calendar?event_id=557099&include_contexts=course_281275)	10am to 12pm
	Class: Spatial Structures: Maps (STA313H1-F-LEC0201-20229) (https://q.utoronto.ca/calendar?event_id=557100&include_contexts=course_281275)	2pm to 4pm
Fri Nov 4, 2022	Tutorial/Practical: TBD (STA313H1-F-LEC0101-20229) (https://q.utoronto.ca/calendar?event_id=557130&include_contexts=course_281275)	10am to 11am
	Tutorial/Practical: TBD (STA313H1-F-LEC0201-20229)	2pm to 3pm

Date	Details	Due
	Quiz #3 - Lessons 6-7 (https://q.utoronto.ca/courses/281275/assignments/895555)	due by 11:59pm
Mon Nov 14, 2022	Project Pitch (https://q.utoronto.ca/courses/281275/assignments/895557)	due by 8am
	Class: Project pitch presentations (STA313H1-F-LEC0101-20229) (https://q.utoronto.ca/calendar?event_id=557101&include_contexts=course_281275)	10am to 12pm
	Class: Project pitch presentations (STA313H1-F-LEC0201-20229) (https://q.utoronto.ca/calendar?event_id=557102&include_contexts=course_281275)	2pm to 4pm
Fri Nov 18, 2022	Tutorial/Practical: TBD (STA313H1-F-LEC0101-20229) (https://q.utoronto.ca/calendar?event_id=557128&include_contexts=course_281275)	9am to 10am
	Tutorial/Practical: TBD (STA313H1-F-LEC0201-20229) (https://q.utoronto.ca/calendar?event_id=557129&include_contexts=course_281275)	1pm to 2pm
	Assignment 2: Data Analysis and Presentation with R Markdown (https://q.utoronto.ca/courses/281275/assignments/895544)	due by 11:59pm
Mon Nov 21, 2022	Class: Multidimensional Data & Matrices (STA313H1-F-LEC0101-20229) (https://q.utoronto.ca/calendar?event_id=557103&include_contexts=course_281275)	10am to 12pm
	Class: Multidimensional Data & Matrices (STA313H1-F-LEC0201-20229) (https://q.utoronto.ca/calendar?event_id=557104&include_contexts=course_281275)	2pm to 4pm
Fri Nov 25, 2022	Tutorial/Practical: Project sprint/critique (STA313H1-F-LEC0101-20229) (https://q.utoronto.ca/calendar?event_id=557125&include_contexts=course_281275)	10am to 11am
	Tutorial/Practical: Project sprint/critique (STA313H1-F-LEC0201-20229) (https://q.utoronto.ca/calendar?event_id=557126&include_contexts=course_281275)	2pm to 3pm

Date	Details	Due
Mon Nov 28, 2022	Class: Hierarchical & Relational Structures: Trees, Graphs and Networks (STA313H1-F-LEC0101-20229) (https://q.utoronto.ca/calendar?event_id=557105&include_contexts=course_281275)	10am to 12pm
	Class: Hierarchical & Relational Structures: Trees, Graphs and Networks (STA313H1-F-LEC0201-20229) (https://q.utoronto.ca/calendar?event_id=557106&include_contexts=course_281275)	2pm to 4pm
Fri Dec 2, 2022	Tutorial/Practical: Project sprint/critique (STA313H1-F-LEC0101-20229) (https://q.utoronto.ca/calendar?event_id=557123&include_contexts=course_281275)	10am to 11am
	Tutorial/Practical: Project sprint/critique (STA313H1-F-LEC0201-20229) (https://q.utoronto.ca/calendar?event_id=557124&include_contexts=course_281275)	2pm to 3pm
	Quiz #4 - Lessons 8-9 (https://q.utoronto.ca/courses/281275/assignments/895556)	due by 11:59pm
Mon Dec 5, 2022	Class: Recap+Wrap-up (STA313H1-F-LEC0101-20229) (https://q.utoronto.ca/calendar?event_id=557121&include_contexts=course_281275)	12am
	Class: Recap+Wrap-up (STA313H1-F-LEC0201-20229) (https://q.utoronto.ca/calendar?event_id=557122&include_contexts=course_281275)	2pm to 4pm
Fri Dec 9, 2022	Assignment 3: Design Critique (https://q.utoronto.ca/courses/281275/assignments/895546)	due by 11:59pm
Fri Dec 16, 2022	Project Product (https://q.utoronto.ca/courses/281275/assignments/895559)	due by 11:59pm
	Project Video Demo/Presentation (https://q.utoronto.ca/courses/281275/assignments/895560)	due by 11:59pm
	Participation (https://q.utoronto.ca/courses/281275/assignments/895561)	