

**STA2600H1 LEC0101 - TEACHING STATISTICS**
TEACHING AND LEARNING OF STATISTICS IN HIGHER EDUCATION**WINTER 2026****ACADEMIC CALENDAR DESCRIPTION**

This course provides an introduction to a scholarly approach to teaching statistics in higher education. Emphasis is placed on the use of statistics education research, effective communication of fundamental statistical concepts typically encountered in introductory statistics, alignment of learning outcomes, course activities and assessments, recognition of common misconceptions and how to address them, and effective integration of educational and statistical technologies. No prior teaching experience is necessary.

Prerequisite: Any introductory statistics class, taught by any department.

LEARNING OUTCOMES

Students who successfully complete this course will be able to:

- locate and assess relevant scholarly work and resources in statistics education to inform their teaching practice and communication of technical information and ideas,
- recognize and address misconceptions in foundational statistics and probability through purposeful learning activities and assessments,
- design and curate course materials that ensures alignment between learning outcomes, learning activities and assessments,
- lead lessons on key foundational statistical concepts to facilitate learning among learners in academic, professional, and public settings,
- evaluate the work of others as they teach statistical concepts and constructively promote growth by describing examples of strengths and suggestions for improvement, and
- engage in reflective teaching by self-assessing lesson effectiveness and implementing adjustments to enhance learning and learner experience.

INSTRUCTOR INFORMATION

Name: Dr. Bethany White
Associate Professor, Teaching Stream
Department of Statistical Sciences

Office: DoSS 9144

Email: bethany.white@utoronto.ca

Office Hours: Email me to set up a meeting

CLASS FORMAT

This course includes both in-person and online activities. You will be required to attend some activities in-person at a specific time and location (Friday, 1-3pm, see ACORN for location) and some activities asynchronously online (see Quercus site: <https://q.utoronto.ca/courses/427305>). During the term, it may be necessary to move the occasional in-person class meeting online. If this is the case, this will be communicated on Quercus with as much advance notice as possible.

CLASS READINGS

This is a useful reference: Ben-Zvi, D., Makar, K., & Garfield, J. (Eds.). (2017). *International handbook of research in statistics education*. Springer. A digital version of this text is available through University of Toronto Libraries - <https://link-springer-com.myaccess.library.utoronto.ca/book/10.1007/978-3-319-66195-7>

Readings from this book, and other papers and resources that are either available through U of T Libraries or open-access online will be referenced on Quercus.

GRADING SCHEME

Participation in online and in-class activities	20%
- <i>online activities (2% each for highest 4)</i>	
- <i>in-class activities (2% each for highest 6 of 8 non-mini-lesson weeks)</i>	
3 x Mini-lessons	
Mini-lesson sessions (6% each)	18%
Peer Evaluations (2% each)	6%
Mini-lesson reflections (2% each)	6%
Project :	
Proposal (1-page)	10%
Presentation	15%
Report	25%

Participation:

- **Online** – 5 or 6 online activities (e.g., Online Discussion, Perusall activity) will be posted on Quercus throughout the term. Each will run for 1-2 weeks (deadlines communicated on Quercus). Participation will involve the sharing of original ideas connected to readings, our class meetings and/or your experiences, as well as substantive responses to others' contributions.
- **In-class** - This will involve attendance, coming to our class meetings prepared (i.e., having participated in the online activity and/or read and thought about the reading(s) posted to Quercus for that week), and actively engaging in/completing class discussions and activities.

Mini-lessons

The purpose of this activity is to give you an opportunity to experiment with and gain experience leading a class in a low pressure, supportive environment. There are 3 parts to the mini-lesson activity:

1. Mini-lesson session: This is a short ~10-minute (depending on course enrollment) mini-lecture conducted during class. You are required to prepare three mini-lessons during this course. In a mini-lesson you could give a short lecture, lead a discussion, facilitate an activity, or apply a combination of these. Aim your mini-lessons at an **introductory statistics** audience (i.e., a year 1 or 2 STA course) for either statistics majors, or students in programs other than statistics. Although not an exhaustive list, some possible topics are listed below. Consider selecting different topics for each of your mini-lessons. If you choose to use the same or a closely related one, the format of your mini-lesson must change across mini-lessons. For example, if you choose sampling for all three you should plan to vary formats (e.g., a lecture on sampling, a sampling activity, and discussion about sampling). Changing the student audience is another way to vary your mini-lessons.

Sampling	Experiments
Descriptive statistics	Data visualization
Probability rules	Correlation & causation
Binomial Distribution	Confidence Intervals
Central Limit Theorem	p-values
Simple linear regression	Role of randomization in studies
Hypothesis tests	Sampling distributions
Normal/t distribution	Simulation-based inference

2. Peer evaluation: Fill out evaluation forms giving *useful, constructive feedback* for your peers based on their mini-lessons. Your peers will receive a copy of your feedback.

3. Short online reflection: After reading the feedback on your mini-lesson and reflecting on your experience, complete a short reflection and submit it through Quercus before the next class.

Project

You may choose to do a project that is:

- *Practice-based:* Design a new course in statistics, data science, quantitative research methods or actuarial science and develop a detailed course outline and a major assessment for this course (informed by relevant scholarly work), or
- *Research-based:* Articulate a research question related to teaching and learning in statistics motivated by scholarly and design (but do not conduct) a study to investigate it.

There are 3 parts of the project:

- 1. Proposal:** 1-page, double-spaced outline of your project plan and chosen topic/course. *Due through Quercus at 11:59pm, Friday, Feb 13, 2026.*
- 2. Presentation:** ~10 minute in-class presentation on project (Apr 1-2 time/location TBA)
- 3. Written report:** Specific requirements will vary based on type of project and will be posted on Quercus. *Due through Quercus Friday, Apr 17, 2026.*

Further information about the course project will be provided in class and on Quercus.

USE OF GENERATIVE AI TOOLS IN STA2600

Artificial intelligence tools ***may be used for editing a learning activity/assessment for purposes of revision only***, but the ideas and first drafts must be original work produced by you (or if a collaborative activity/assessment, by you and your collaborator(s)) alone. *Any new ideas or content introduced by the AI during the revision process must be appropriately cited as generated by the AI tool.*

Unless instructed otherwise on a specific learning activity/assessment, any other use of Generative AI in STA2600 is considered unauthorized use. If you have any questions about what uses are and are not permitted in the course, please contact Bethany.

MISSED ASSESSMENTS

There are no accommodations nor make-ups for missed online activities or in-person class participation/contributions beyond the flexibility built into the marking scheme.

If you miss a mini-lesson class meeting, please contact Bethany via email as soon as possible to make arrangements to do your mini-lesson at another class meeting. There is no accommodation for the peer evaluation component of this missed class, however, due to the nature of the peer-review activity (i.e., you need to be present for your classmates' lesson to complete the peer review).

If a short extension to your project proposal or report is needed, please send a request to Bethany via email ahead of the deadline.

SCHEDULE

Week	Activities (Topics on Quercus)	Important Reminders
Jan 5-11	Jan 9 - In-person Meeting 1	<i>Term starts Jan 5</i>
Jan 12-18	Jan 16 - In-person Meeting 2	
Jan 19-25	Jan 23 - In-person Meeting 3	<i>Jan 19 Final date to add Grad Winter session courses</i>
Jan 26-Feb 1	Jan 30 - In-person Meeting 4	Mini-lesson #1
Feb 2-8	Feb 6 - In-person Meeting 5	
Feb 9-15	Feb 13 - In-person Meeting 6	Project proposal due 11:59pm Friday, Feb 13
<i>Feb 16-22 (Reading Week)</i>	<i>No in-person class meeting or online activity this week</i>	<i>Mon, Feb 16 - University closed (Family Day)</i>
Feb 23-Mar 1	Feb 27 - In-person Meeting 7	Mini-lesson #2
Mar 2-8	Mar 6 - In-person Meeting 8	
Mar 9-15	Mar 13 - In-person Meeting 9	
Mar 16-22	Mar 20 - In-person Meeting 10	Mini-lesson #3
Mar 23-29	Mar 27 - In-person Meeting 11	
Mar 30-Apr 5		<i>Last date of classes Apr 2</i> Project presentations – scheduled outside class on Apr 1-2
Apr 9-30		Project report due 11:59pm Friday, Apr 17, 2026